


A Review and Conceptual Framework for Understanding Personalized Matching Effects in Persuasion

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One of the most reliable and impactful methods for enhancing a persuasive appeal is to match an aspect of the proposal (i.e., its content, source, or the setting in which it is delivered) to an aspect of the consumer receiving it. This *personalized matching* in persuasion (also called tailoring, targeting, customizing, or personalizing) comprises a robust and growing literature. In the present review, we describe different types of persuasive matches, the primary characteristics of people who are targeted, and the key psychological mechanisms underlying the impact of matching. Importantly, although most research on personalized matching has concluded that matching is good for persuasion, we also describe and explain instances where it has produced negative (i.e., “backfire”) effects. That is, more than just the conclusion “matching is good” that many researchers have drawn, we analyze *when* and *why* it is good and when and why it can be ineffective—insight that can benefit marketers and consumers alike in understanding how personally matched appeals can impact attitudes and ultimately behavior.

Keywords Attitudes and persuasion; affect and emotion; goals and motivation; personality; communication

Introduction

Today, modern technology allows one of the most effective methods of persuasion to be implemented relatively easily—personalizing messages to the audience. This technique was first recorded by Aristotle (*Rhetoric*, 1.11), and centuries later, a prodigious number of studies have shown that whether the personalization comes through the content of the persuasive appeal, the source of the appeal, or the setting in which the appeal is delivered, “matching” some aspect of the communication to some aspect of the recipient is one of the most reliable and impactful methods of enhancing persuasion (Carpenter, 2012; Noar et al., 2007; Petty et al., 2000; Rothman et al., 2020). As companies gain increased access to consumers’ public as well as

private information, creating matched appeals has become more actionable than ever.

Although matching has a long history in the marketing, health, political, communications, and social psychological literatures, social media and the online revolution have made it an increasingly important topic of contemporary research and discussion (Dijkstra, 2008). With an abundance of data on every active internet user, the potential to create messages matched to consumers’ personal characteristics has produced some remarkable effects. For example, several analysts report that the use of U.S. voters’ personal data to match online appeals to their personality traits helped influence the result of the 2016 U.S. presidential election (Rathi, 2019). Indeed, with algorithms becoming increasingly accurate in assessing consumers’ characteristics, and the ease with which artificial “bots” can then use this information to send out matched messages, consumers’ personal data are now regarded by some as “the world’s most valuable resource”

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(Parkins, 2017). Thus, the present time seems ideal for a review aimed at illuminating when and especially *why* matched appeals can be so effective.

To begin, it is first useful to identify the four classic factors of a persuasion context: the *recipient* of the communication, the *message* itself, the *source* of the message, and the *setting* in which the message is delivered (Lasswell, 1948; McGuire, 1969). Matching is a procedure whereby one of these factors aligns with another. Perhaps the most common form of matching—and the focus of this review—is an alignment between some aspect of the message *recipient* and one of the other factors, which we refer to as *personalized matching*. This type of “matching to people” has also been called *segmenting*, *customizing*, *targeting*, and *tailoring* (e.g., Hawkins et al., 2008; Webb et al., 2013).

It is important to emphasize that personalized matching is only one form that can occur. For example, instead of matching the source to the recipient (e.g., a female source delivering a message to a female audience), the source might be matched in some way to the message itself (e.g., a female source delivering a message using female-relevant metaphors). In this latter form of matching, because no information about the recipient is involved, we label it *nonpersonalized matching*. In our review, we focus on personalized matching, not only because this is the most common form examined in the literature, but also because this type of matching serves as the prototypical one employed by marketers.

Figure 1 provides a summary and structure of the ensuing review. We first unpack the various ways in which personalized matches can be produced, describing various types of personalized matches that have shown effects. We then describe the positive and negative meanings these matches can assume. We subsequently organize the various mechanisms by which matching can influence attitudes within a classic framework for persuasion effects—the elaboration likelihood model (ELM; Petty & Cacioppo, 1986). Finally, we describe how marketers can come to expect whether a match will produce short-term or long-term persuasion consequences as a function of the process through which the match operates. Although these sections combine to provide a comprehensive examination of documented matching effects and their relevant processes, throughout this review we also present potential avenues for future research, highlighting not only when matching can be effective, but also when it can be counterproductive.

Although the present review is intended to be comprehensive, it is not exhaustive. We offer an

illustrative review of studies taken largely from the psychological, consumer, and marketing literatures. Because the relevant body of work on matching is vast, however, we cannot cover everything of potential interest in these disciplines, let alone beyond them. Nonetheless, the present work does not restrict itself to a specific consumer characteristic (e.g., matching the functional basis of an attitude; Carpenter, 2012) nor to a specific content domain (e.g., matching in health domains; Rothman et al., 2020; Lustria et al., 2013). Moreover, it is the first to propose a general framework for understanding the wide variety of consumer characteristics shown to elicit personalized matching effects and the core psychological processes underlying them.

Personalized Matching

In organizing our review, we categorize the relevant work by the persuasion factor that was matched to a characteristic of the recipient: (a) the message content, (b) the source of the message, and (c) the setting (context) in which the message was delivered. Because the literature on personalized matching generally shows that it enhances persuasion, the following sections outline the diverse variables that have produced these positive persuasion effects. Later, we outline when and why matching can backfire.

Message-to-Recipient Matches

The most common type of personalized matching examined in the literature occurs between the message content and the recipient where some aspect of the message is made to align with a temporary or chronic aspect of the recipient. Some research, however, has shown it is also possible to modify the recipient’s momentary state to match the message (e.g., via priming; Bayes et al., 2020; Li, 2016; Loersch et al., 2013; Wheeler et al., 2008). Creating message-to-person matches can be as simple as using the individual’s name in the address of the appeal (Howard & Kerin, 2011; Sahni et al., 2018). These minimal matches have been referred to as *placebo tailoring* because customization is implied without changing the substance of the appeal (Webb et al., 2005). Matching can also be more encompassing such as when the message includes multiple personal characteristics including the person’s name along with age, brand of product used, and so forth (Dijkstra, 2005), or describes multiple

Impact of Personalized Matches On Attitudes

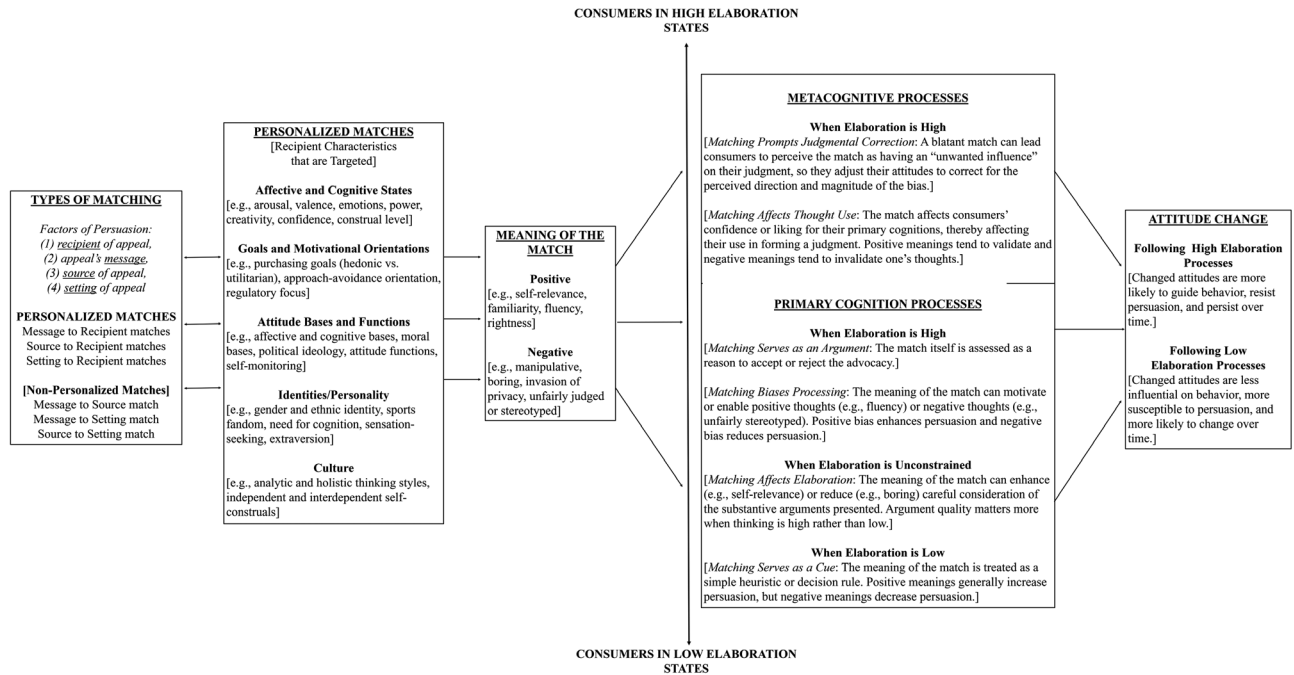


Figure 1. Depiction of persuasion processes for matching effects at different levels of message elaboration.

relevant behaviors in which the person has previously engaged (Kreuter & Wray, 2003).

Research has identified a wide array of recipient variables to which a message can be matched. Below, we organize these characteristics into the following categories: individuals' *affective and cognitive states*, their *goals and motivational orientations*, their *attitude bases and functions*, their *identities and personality*, and their *cultural orientation*. The categories are arranged from relatively low- to more high-level characteristics, which we further subdivide based on a structure largely devised for organizational convenience.

Matching to Affective and Cognitive States

People regularly experience both transient and longer-term affective states (i.e., feelings/emotions) and cognitive states (e.g., thinking styles/mindsets). Depending on the context, different affective and cognitive states will be more or less salient (cf., Grigorenko & Sternberg, 1995; Keltner & Lerner, 2010), making them more or less viable targets for matched appeals.

Psychological Arousal. One aspect across individuals' affective states is their degree of *psychological arousal* (i.e., the subjective sense of energy mobilization; Teeny et al., 2020). When consumers

experience higher levels of arousal, they respond more favorably to messages containing more arousing content (e.g., louder advertisements; Yan et al., 2016; or ads touting exciting rather than relaxing attributes; Rucker & Petty, 2004). Moreover, messages promoting products that are themselves matched to arousal levels (e.g., energy drinks for high-arousal consumers) produce similar outcomes (Di Muro & Murray, 2012). Two types of arousal have been identified (i.e., energetic vs. tense; Teeny et al., 2020), and persuasive attempts for products matched to the motivational drive associated with each can enhance attitude change (Fan et al., 2015).

Emotive Valence and Specific Emotions. Research depicts individuals' more complex affective states through a combination of their existing arousal and *emotive valence* (cf., Russell, 2009), and matching the message's frame to that valence (i.e., the broad positivity or negativity of the person's affective state) can enhance persuasion. For example, focusing a message on the positive aspects of making the purchase (vs. the negatives of not making the purchase) work better for people in a positive (vs. negative) affective state—and vice versa (Cho & Choi, 2010; Wegener et al., 1994). Because valence itself is a binary dimension, though, targeting the *specific emotion* elicited by the combination of the

person's valence and arousal can produce even more precisely targeted appeals. Whether the person is feeling romantic or fearful (Griskevicius et al., 2009), sad or angry (DeSteno et al., 2004), or cheerful or tranquil (Bosmans & Baumgartner, 2005), personalizing messages to specific emotional states can enhance persuasion. For example, if a person is feeling sad, pointing to the sad (rather than angering) consequences that a product could allay could improve the appeal's effectiveness.

Active Thinking Style or Mind-set. As with affect, matching the content of the message to consumers' salient cognitive states can enhance persuasion. For example, using more abnormal (vs. normal) appeals for those in a *creative* mind-set (Yang et al., 2011) and using arguments that emphasize competence (vs. warmth) for those in a high (vs. low) *power mind-set* (Dubois et al., 2016) have been shown to increase effectiveness. Additionally, using *metaphors* that match consumers' cognitive representation of the advocated topic (e.g., advertising antidepressants with metaphors that describe depression as "feeling down" for those who cognitively represent depression as "down" vs. "up") can enhance persuasion (Keefer et al., 2014; Landau et al., 2018).

Psychological Construal. Construal level refers to the extent to which a consumer is in an *abstract* mind-set (i.e., focused on objects' superordinate and central features) versus a *concrete* mind-set (i.e., focused on objects' subordinate and specific features; see Trope and Liberman (2010) for a review). Accordingly, receiving a message focused on the abstract desirability (vs. the concrete feasibility) of a product can produce more positive outcomes for those in an abstract (vs. concrete) mind-set (e.g., Fujita et al., 2008; Han et al., 2016). Similarly, when a person in an abstract mind-set receives a message framed in terms of distant benefits, or a person in a concrete mind-set receives one framed in terms of more proximal benefits, persuasion is enhanced (Jeong & Jang, 2015; see also Wan & Rucker, 2013). Related research extends the construal-matching phenomenon to the resource being requested: requests of time (a more abstract resource) for people in abstract mind-sets and requests of money (a more concrete resource) for people in concrete mind-sets (MacDonnell & White, 2015). Other research has extended it to the type of product being marketed, too (i.e., eco-friendly products are more appealing to consumers in abstract vs. concrete mind-sets, because protecting the environment is a relatively abstract, future-focused initiative; Reczek et al., 2018).

Matching to Goals and Motivational Orientations

Consumers vary in their salient goals (i.e., desired endpoints; Fishbach & Ferguson, 2013) as well as their broader motivational orientations (i.e., the strategy to pursue goals; Bargh et al., 2010). Different situational and dispositional factors will make certain goals or motivational orientations more or less salient (cf., Bargh et al., 2010; Moskowitz & Gesundheit, 2009), which, once known, can be targeted for enhancing one's persuasive appeal.

Visceral Drives. The most basic goals consumers are driven to satisfy are their *visceral drives* (e.g., hunger and fatigue; Loewenstein, 1996). These psychobiological needs, though transitory, can be targeted. When an appeal is matched to a consumer's salient drive (e.g., the energizing benefits of a product are emphasized to tired consumers), it can enhance the appeal's effectiveness (Karremans et al., 2006; Risen & Critcher, 2011).

Hedonic and Utilitarian Purchasing Goals. In a marketing context, one particularly important variable is consumers' *purchasing goals*: whether they are shopping for hedonic (i.e., pleasure-based) versus utilitarian (i.e., functionality-based) products (cf., Abelson & Prentice, 1989). Those with hedonic goals respond more favorably to advertisements emphasizing hedonic benefits (e.g., a candle's aromatic and relaxing effects), whereas those with utilitarian goals respond more favorably to utilitarian benefits (e.g., a candle's cleansing or bug repellent effects; Chitturi et al., 2008; Klein & Melnyk, 2014). Other work has also shown how specific types of message content, such as assertive (vs. nonassertive) claims for hedonic (vs. utilitarian) shoppers, can utilize personalized matching (i.e., hedonic shopping involves impulsive purchasing which matches assertive statements, like "Just do it"; Kronrod et al., 2011).

Approach–Avoidance Motivation. In addition to currently activated goals, consumers' broader motivational orientation is also a characteristic which can be matched. For example, people can be more situationally or chronically *approach-oriented* (i.e., more responsive to incentives) or *avoidance-oriented* (i.e., more responsive to disincentives; Carver & White, 1994) and matching messages to these orientations can enhance persuasion (Gerend & Shepherd, 2007; Mann et al., 2004). For example, Jeong et al. (2011) found that donations to a university increased when approach-oriented people received a matched appeal in terms of rewards (e.g., your donation helps to expand the number of library books) and when avoidance-oriented people

received one in terms of punishments (e.g., without your donation, the library would have to reduce its books) versus receiving a mismatched appeal.

Regulatory Focus. Probably, the most extensively researched variable in this category is how messages can be matched to a person's *regulatory focus* (i.e., how people approach good and avoid bad outcomes, Higgins et al., 2003). According to this work, consumers can be more *promotion-focused* (attuned to approaching gains and avoiding non-gains) or *prevention-focused* (attuned to avoiding losses and approaching nonlosses). Like their approach/avoidance orientation, consumers' regulatory focus can manifest dispositionally (Cesario et al., 2013), or in response to situational factors. In either case, research clearly shows that matching the content of a message to regulatory focus tends to produce positive persuasion outcomes (i.e., referred to as *regulatory fit*; Cesario et al., 2013; Kim, 2006; Fransen et al., 2010; for reviews, see Motyka et al. (2013), Rothman et al. (2020)).

In one illustrative study, Lee and Aaker (2004) had participants read an advertisement for Welch's grape juice that either emphasized the benefits of consuming it or the costs of not consuming it. Participants induced to have a promotion focus had more positive brand attitudes following the ad that emphasized the benefits of purchasing, whereas participants induced to have a prevention focus were more positive when the ad emphasized the costs of not purchasing. In addition to increasing positive evaluations, matching a message to consumers' regulatory focus can also dampen negativity in response to unfavorable messages. For example, in denying an employee's request, when employers used language that matched (vs. mismatched) the employee's regulatory focus, the refusal was better received (Fransen & Hoven, 2013).

Other work has documented more indirect variables that can similarly match to regulatory focus. For example, promotion-focused consumers respond more favorably to advertisements emphasizing the supply aspect of scarcity, whereas prevention-focused consumers respond more favorably to those emphasizing the demand aspect of scarcity (Ku et al., 2012). In other research, promotion-focused consumers respond more favorably to higher risk, higher reward appeals (consistent with their focus on approaching gains and avoiding non-gains), whereas prevention-focused consumers respond more favorably to lower risk, lower reward appeals (Updegraff & Rothman, 2013). Furthermore, promotion-focused consumers are more persuaded by abstract messages, whereas prevention-focused

consumers are more persuaded by concrete messages (i.e., abstract messages inform promotion-focused consumers about multiple options for attaining their goal, whereas concrete messages inform prevention-focused consumers about the feasibility of attaining their goal; Lee et al., 2009; Semin et al., 2005; see also Malaviya & Brendl, 2014).

Matching to Attitude Bases and Functions

Naturally, the more a person's attitudinal position (i.e., their positive or negative evaluation of an object) matches the attitude expressed by a message, the more favorably they will respond to it (Petty & Cacioppo, 1990; see Clark et al., 2013). This does not mean that attitude change is always greater for pro (vs. counter)-attitudinal appeals, because if the message advocacy perfectly matches the recipient's existing attitude, for example, there is little room to change toward the message. Beyond the valence of a person's attitude, then, the attitude's underlying basis (Rosenberg & Hovland, 1960) as well as the attitude's function (Katz, 1960) can serve as critical variables in personalized matching, as we describe next.

Affective-Cognitive Bases. The most studied attitude basis involves the *affect* and *cognition* contributing to the person's attitude (Clarkson et al., 2011; Edwards & von Hippel, 1995; Keer et al., 2013; See et al., 2008; for reviews, see Maio et al., 2019; Petty et al., 2019). Affective bases refer to the feelings and emotions (e.g., anxiety) that underlie one's attitude, whereas cognitive bases refer to the reasons and attributes (e.g., usefulness) that underlie one's attitude (Crites et al., 1994). Attitudes vary in the degree to which they are based primarily on affect or cognition with attitudes in some domains tending to elicit one basis over the other (e.g., affect for experiential domains; Breckler & Wiggins, 1989).

Regardless of the specific topic, affective messages (e.g., appeals that feature emotion-evoking anecdotes) tend to be more persuasive for attitude objects that have an underlying affective basis, whereas cognitive messages (e.g., appeals that feature factual information) tend to be more persuasive for objects having a cognitive basis (e.g., Edwards, 1990; Fabrigar & Petty, 1999). This enhanced persuasive effect appears robust, documented across various domains, such as food consumption (Dubé & Cantin, 2000), movie reviews (Mayer & Tormala, 2010), medical self-checks (Millar & Millar, 1990), and binge drinking (Keer et al., 2013).

Although prior research has broadly supported the notion that affective–cognitive matching increases a message’s impact, a very small number of studies have claimed evidence for *mismatching* in this domain (e.g., Millar & Millar, 1990). In these instances, it appears the messages have been both counterattitudinal and, critically, constructed of generally noncompelling arguments. Here, the matched messages produced a greater degree of counterarguing against the weak arguments, which resulted in the matched message’s reduced effectiveness relative to the mismatched message. (Later, we provide detail on the role of strong versus weak arguments in matching effects in the section titled *Matching Increases Message Elaboration*.)

In addition to matching messages to specific attitudes varying in their basis, some research has focused on the fact that people can differ dispositionally in their attitude bases. Some people tend to have more affectively-based attitudes toward a wide variety of objects (those high in *need for affect*; Maio & Esses, 2001), whereas others tend to have more cognitively-based attitudes (i.e., those high in *lay rationalism*, Hsee et al., 2015; or *need for cognition*, Cacioppo & Petty, 1982). Matching messages to these individual differences has also been shown to enhance persuasion (Haddock & Maio, 2019). For example, when consumers were advertised a new drink, those who generally hold affectively based attitudes were more persuaded by a beverage taste test, whereas those who generally hold cognitive attitudes were more persuaded by facts about the drink (Haddock et al., 2008; Ruiz de Maya & Sicilia, 2004).

Moral Bases. Another influential factor in matching is the extent to which people perceive that their attitudes are based on morality (e.g., Luttrell, Teeny, & Petty, in press; Skitka & Bauman, 2008). For example, consumers might prefer organic produce because they believe it is the ethical choice (i.e., a moral basis), or because it is a healthier choice (i.e., a practical basis). When persuasive appeals match these bases, it results in greater persuasion (Luttrell & Petty, in press; Luttrell et al., 2019).

In addition to an appeal’s broad moral relevance, attitudes can also differ in the specific type of morality underlying them. According to *moral foundations theory* (Graham et al., 2009), an attitude’s moral basis can derive from one of five foundations (e.g., care/harm and sanctity/degradation). Consequently, even if people share a common moral attitude, they can be differentially persuaded by messages targeting different moral foundations. For example, some people might support protecting the

environment because they oppose harming nature, whereas others might support it because they want to maintain the purity of nature. Matching a message to the relevant moral foundation tends to increase relevant attitudinal and behavioral change (Feinberg & Willer, 2015; Wolsko et al., 2016).

Similar to affective/cognitive attitude bases, moral foundations can vary as a function of the specific attitude topic, or people can more generally vary in their endorsement of a subset of moral foundations (Graham et al., 2009). For example, politically liberal individuals tend to put a greater emphasis on the care and fairness dimensions, whereas politically conservative individuals tend to emphasize the loyalty, authority, and sanctity dimensions (Haidt, 2012). Thus, when these specific moral foundations are emphasized in messages to those who dispositionally endorse the matched moral basis, it can increase the message’s persuasiveness (Day et al., 2014; Kidwell et al., 2013; Voelkel & Feinberg, 2018).

Political Bases. The bases of individuals’ attitudes can also differ as a function of their political liberalism/conservatism, where each ideology tends to correspond to different underlying values (Jost, 2017; Janoff-Bulman, 2009). Thus, when people with conservative or liberal beliefs receive appeals that match the values and/or expectations on which their beliefs are based, it has largely increased those appeals’ effectiveness (Cavazza et al., 2010; Lausten, 2017; Lavine & Snyder, 2000). For example, research finds that people with conservative beliefs tend to place greater weight on past achievements and status maintenance, whereas liberals tend to value future achievements and status advancement. Thus, when those with conservative (vs. liberal) beliefs receive messages framed in terms of restoring a desirable past (vs. ensuring a desirable future; Lamers & Baldwin, 2018) or in terms of maintaining (vs. advancing) status via the purchase of luxury goods (Kim et al., 2018b), it tends to enhance persuasion. Moreover, these political matching effects can be augmented in contexts where the individual’s political beliefs are made salient (Kim et al., 2018a) or when the message matches a subtype of one’s political beliefs (e.g., economic vs. social conservatism) rather than their broader political orientation (Eschert et al., 2017).

Knowledge and Value-Expressive Functions. In addition to the variety of bases underlying attitudes, there are also variations in the *functions* that attitudes serve (Katz, 1960). For example, when an attitude serves a *knowledge function*, it helps inform people about how they should act toward or

evaluate an object, whereas when an attitude serves a *value-expressive function*, it helps communicate what is important to them. Considerable research shows that persuasive messages that target the relevant attitude function tend to be more effective (Hullett, 2002; LeBoeuf & Simmons, 2010; Shavitt, 1990; Spivey et al., 1983; Snyder & DeBono, 1989; Clary et al., 1994; see Carpenter, 2012). In an illustrative study, Julka and Marsh (2005) measured the extent to which individuals' positive attitudes toward organ donation served a knowledge or a value-expressive function. For participants whose attitudes served a knowledge function, attitude change was greater in response to a message that provided answers to common informational questions about organ donation rather than a message describing the moral support for it. The opposite was true for participants whose attitudes served a value-expressive function.

Social-Adjustive Function. In line with the research on attitude bases, attitude functions can be attitude-specific or reflected in a consumer's broader disposition. The most studied attitude function examined as an individual difference is the *social-adjustive* function which is assessed with the *self-monitoring* scale (Snyder, 1974). High self-monitors are concerned with their social image, adapting their attitudes and behavior to fit their current interpersonal circumstance. Low self-monitors pay little mind to their image and are instead concerned about expressing congruence between their internal beliefs and outward attitudes and behaviors. Thus, higher self-monitoring is associated with having attitudes more based on a social-adjustive function. As a consequence, high self-monitors experience a match when advertisements highlight the social image benefits of a purchase (e.g., "this is the drink everyone is talking about"), whereas low self-monitors experience a match when advertisements highlight the performance of the product (e.g., "this is the highest quality drink around"). Across advertisements for alcohol (Paek et al., 2012; Snyder & DeBono, 1985), electronics (DeBono & Packer, 1991), clothing (Lennon et al., 1988), cars (Zuckerman et al., 1988), and other objects (e.g., Graeff, 1996; Lavine & Snyder, 1996; Shavitt et al., 1992), when the message content or framing matched levels of self-monitoring, it typically enhanced persuasion (see DeBono, 2006, for a review).

Matching to Identities and Personality Traits

The social and personal ways in which individuals perceive themselves (i.e., their identities) as well

as the patterned ways in which they think, feel, and behave (i.e., their personality traits) serve as strong targets for matching. Notably, research has often categorized identities and personality under the same umbrella term (i.e., "individual differences"). Thus, we, too, include them in the same section but divide their discussion. We describe identities in terms of the multiple dimensions representing individuals' self-concepts—from those that are more social to those that are more personal (Oyserman, 2009). We describe personality traits in terms of their common depiction, namely the Big 5 personality traits (Goldberg, 1990).

Social Identities. Framing a message as particularly beneficial or relevant to a social group to which the message recipient belongs can enhance persuasion. For example, when appeals are framed as particularly advantageous for a specific *gender*, those who identify with that gender tend to be more impacted (Fleming & Petty, 2000; Meyers-Levy & Sternthal, 1991). Matching messages to consumers' *ethnic identities* have produced these effects, too. For example, participants whose Asian identity was made salient responded more favorably to advertisements targeted toward that identity (Forehand et al., 2002). Matching appeals to consumers' *sports fandom* (using sports metaphors for those higher on this identity) also increases the message's effectiveness (Ottati et al., 1999). Even matching messages to consumers' *financial class* (i.e., emphasizing the capacity for personal control for wealthy individuals and social relationships for low wealth individuals) has produced more positive persuasion outcomes (Whillans et al., 2017).

Personal Identities. In addition to social identities, messages can also match personal identities to the same effect. For example, consumers who perceived themselves as more *sophisticated* or more *outdoorsy* reported greater purchase intentions after receiving a message that emphasized the appeal's relevance for that identity (Summers et al., 2016). Another example is *need for cognition* (i.e., the extent to which people believe they enjoy thinking; Cacioppo & Petty, 1982), where advertising a product as relevant for those enjoy (vs. don't enjoy) intensive thinking enhances the appeal for those higher in this trait (Bakker, 1999; See et al., 2009). Other research has observed similar effects for *dominance orientation* (i.e., assertive messages for those high in dominance vs. diffident messages for those low; Moon, 2002), *sensation seeking* (i.e., unusual message structures for high sensation seekers vs. normal message structures for those low; Palmgreen et al., 2002; Self & Findley, 2010), *future*

orientation (i.e., distant advantages/immediate disadvantages for those high in future orientation vs. immediate advantages/distant disadvantages for those low; Strathman et al., 1994; Tangari & Smith, 2012), and many other individual identities (e.g., Coe et al., 2017; Mannetti et al., 2010; Williams-Piehotka et al., 2004, for a review, see Dijkstra, 2008). Indeed, even *self-esteem* has been effectively targeted: Advertising nonidealized (vs. idealized) content is more effective for consumers who view themselves unfavorably (Bian & Wang, 2015).

Personality Traits. The most widely employed approach to categorizing individuals' personality is the *Big 5 factors* model (Goldberg, 1990), where people are postulated to differ along five key dimensions (e.g., extraversion and openness). Matching the content of a message to consumers' standing along one or more of those dimensions has enhanced persuasion. In an early demonstration (Wheeler et al., 2005), participants who varied in their degree of extraversion received a message about a video player that was either framed to appeal to extraverts (e.g., you'll be the life of the party) or for introverts (e.g., you can enjoy movies without the crowds). When strong arguments were presented, the matched appeal was more effective.

In another study that looked at the entire Big 5 (Hirsch et al., 2012), individual ads for a cell phone were developed to match each of the personality factors (e.g., the extraversion ad emphasized the phone's ability to help consumers "be where the excitement is," whereas the neuroticism ad emphasized how it will help them "stay safe and secure"). Regardless of the dimension, when the ads matched a person's more dominant trait, they rated it as more effective and reported greater intentions to purchase the phone. Tailoring messages to consumers' Big 5 traits was reportedly a prominent strategy employed to influence U.S. political elections in 2016 (Hern, 2018). Although some analysts contest the extent of impact this approach had (Gibney, 2018), the viability of such a strategy has been confirmed by the laboratory studies just described as well as large-scale, digitally implemented field research (Matz et al., 2017).

These matching effects for personality traits seem to emerge regardless of whether consumers objectively versus subjectively possess them (Li, 2016). For example, whether or not consumers explicitly acknowledge themselves as high in neuroticism, messages matched to this dimension have increased persuasion (Hirsch et al., 2012). It is also worth mentioning that advances in technology and access to consumers' online and offline activity have

allowed for greater identification of both consumers' identities and personality traits (cf., Barberá et al., 2015; Kteily et al., 2019), expanding the possibilities for targeting consumers based on these dimensions. Of course, the employment of such strategies should be done with ethical considerations in mind.

Matching to Cultural Orientations

As a final category to which messages have been matched, we consider the various qualities bestowed upon people by their cultures. Culture can shape thinking styles, wherein Western cultures tend to emphasize thinking *analytically* and Eastern cultures tend to emphasize thinking *holistically* (Nisbett et al., 2001). Thus, when a message matches a consumer's culturally shaped thinking style (e.g., a product is portrayed in isolation for analytical thinkers vs. as part of a broader context for holistic thinkers), it tends to elicit more positive persuasive outcomes (Liang et al., 2011; Monga & John, 2006, 2010; Uskul & Oyserman, 2010).

Independent and Interdependent Self-Conceptual. Perhaps the most studied cultural dimension in personalized matching is a person's *independent versus interdependent self-construal*. People with an independent self-construal view themselves as separate and unique from others, whereas those with an interdependent self-construal view themselves as connected and related to others (Markus & Kitayama, 1991). Although there are individual differences within any given country (Park et al., 2002) and various situational factors (Aaker & Williams, 1998; Gardner et al., 1999) that influence the degree to which a consumer leans more toward independence versus interdependence, differences on this aspect typically emerge as a function of one's country of origin. Western consumers tend to be more independent, whereas Eastern consumers tend to be more interdependent (Singelis, 1994). Thus, when Western consumers received a message framed for independent self-construal (e.g., the consequences of product consumption pertain to the self), and Eastern consumers received a message framed for interdependent self-construal (e.g., the consequences of product consumption pertain to their relationships), it was more effective than the mismatched message (Uskul & Oyserman, 2009). Similar findings have occurred when self-construal was either measured or situationally manipulated for participants within the same culture (Sung & Choi, 2011).

Other research has identified more indirect variables that can produce similar outcomes. For

example, promotion (vs. prevention)-focused messages for independent (vs. interdependent) self-construal (Aaker & Lee, 2001; Lee et al., 2000; Sherman et al., 2011), individual (vs. collective)-focused appeals for independent (vs. interdependent) self-construal (Han & Shavitt, 1994; Zhang & Gelb, 1996), as well as temporally distant (vs. proximal) benefits for independent (vs. interdependent) self-construal (Pounders et al., 2015; Spassova & Lee, 2013) have all been shown to produce enhanced persuasion, because these kinds of messages are more compatible with the person's culturally bestowed self-construal (see Huang & Shen, 2016).

Practical Considerations for Message-to-Recipient Matches

Matching a message to aspects of a person relies on the general idea that people can have very different reasons for liking or disliking things, thereby leading them to weigh different dimensions in messages differently or find particular assertions to be more compelling than others. In addition to the general categories we have highlighted (e.g., matching to affect versus cognition), the reasons for liking and disliking things can also be quite specific. For example, some car purchasers might care primarily about gas mileage whereas others care more about repairability. Even though both concerns are cognitive and practical rather than affective or moral, matching the message to the highly specific concerns of the consumer should enhance message effectiveness. Indeed, we presume that the more specific and individualized the message content match is to the person's concerns, the more effective it can be. However, because this high level of personalization can be impractical, it is useful to know that even matching to general categories of attitudes, objects and people can enhance persuasion. Nonetheless, future research would benefit from a greater delineation of dimensions relevant to a specific consumer segment that might reliably serve as targets for personalized matching.

Another practical matter to consider is how the consumer's specific standing on that individual difference (i.e., higher vs. lower) determines which kind of matched message would be most effective. For example, consider *self-monitoring*, where people low on the scale tend to be influenced by "quality" appeals and people high on the scale tend to be influenced by "image" appeals (Snyder & DeBono, 1989). But, at what point along the scale is it most beneficial to switch from a quality to an image message? Fortunately, recent work has begun to look at

statistical procedures for identifying the "threshold" where it is optimal to switch participants from one communication type to another (Joyal-Desmarais et al., 2020).

Source-to-Recipient Matches

The bulk of research on personalized matching has examined the influence of aligning characteristics of the message with those of the recipient. However, personalized matching can also be instantiated by aligning source characteristics—regardless of what the message conveys—with that of the recipient. Broadly, any form of similarity between the source of the message and the recipient tends to enhance persuasive impact (e.g., gender, race, and motivational orientation; Lu, 2013; Phua, 2014). Although there are fewer studies on source-to-recipient than message-to-recipient matches, we provide a few examples below.

In different lines of research on matching to affective and cognitive states, emotionally intense consumers were shown to be more persuaded by more emotionally intense sources (Aune & Kikuchi, 1993); consumers higher in emotional intelligence were more persuaded by sources matched on this dimension (Kidwell et al., 2020); and consumers higher in power were more influenced by sources who possess a more powerful status (Dubois et al., 2016; Briñol et al., 2017). Similar findings have occurred for sources' motivational orientations, where promotion (vs. prevention)-focused consumers are more persuaded by sources who exhibit promotion (vs. prevention)-focused achievement styles (Lockwood et al., 2002) and/or use more eager (vs. vigilant) nonverbal communication styles (Cesario & Higgins, 2008).

Still, other work has shown how the source can match to individuals' relevant attitude functions. For example, consumers whose attitudes are knowledge- versus social adjustment-based are more persuaded by sources who serve a matched function: expert (knowledgeable) sources for recipients whose attitudes serve a knowledge function and attractive (socially desirable) sources for recipients whose attitudes serve a social-adjustive function (Evans & Clark, 2012; Ziegler et al., 2005). Moreover, because sources' identities are often salient for message recipients, this dimension, too, has reliably produced matching effects. For example, recipients who share the source's politics (e.g., a liberal source advocating to a liberal recipient) tend to exhibit greater attitude change (Hartman & Weber, 2009; Nelson & Garst, 2005), even if the content of the

message does not align with their stance (Bochner, 1996). Additionally, when a source's culture (which can be signaled with as little as an accent) aligns with the recipient, this too can enhance persuasion (Ivanic et al., 2014; Tsalikis et al., 1992).

One feature of personalized matching that is especially applicable to source-to-recipient matches (as well as setting-to-recipient matches) is that they often occur through physical cues (Guyer et al., 2019). For example, consumers are more persuaded by sources who physically resemble the consumer's in-group (e.g., Olivola et al., 2018). Similarly, when other physical traits of the source, such as the dominance conveyed by their facial appearance (Laustsen & Petersen, 2016) or the pitch of their voice (Banai et al., 2018), align with traits personally matched to the recipient, it can enhance persuasion. This is especially true when the source's physical traits match consumers from a minority group, including sources who match ethnic (Brumbaugh, 2002; Desphandé & Stayman, 1994; Whittler & DiMeo, 1991) as well as gendered traits (Rosenberg-Kima et al., 2010).

Setting-to-Recipient Matches

As a final form of personalized matching, marketers can match an aspect of the setting or context in which persuasion occurs (i.e., variables in the consumer's environment; Mehrabian & Russell, 1974) to an aspect of the message recipient. Setting-to-recipient matches could entail a characteristic of the setting aligning with an already established characteristic of the recipient (e.g., German versus French consumers exhibiting different purchase intentions as a function of playing German versus French music), or the setting can activate a personal characteristic that then matches the setting. For example, in one study (North et al., 1999), playing stereotypically German (vs. French) music in a store setting activated a greater self-perception of German (vs. French) working knowledge in customers, thereby increasing the sale of German (vs. French) wine.

In general, the personalized matching literature has conducted less research on setting-to-recipient matches, potentially due to the relative difficulty in personalizing the consumers' environment or the reduced ability to target a specific segment as the setting applies to all consumers who enter it. Nonetheless, if an aspect of the consumer's setting matches a consumer characteristic (e.g., delivering a message in a quieter room for introverts vs. a louder room for extraverts), it can produce

personalized matching effects. Work on setting-to-recipient matches has often examined how brick-and-mortar atmospherics (e.g., a store's ambient music, scent, and lighting) can interact with consumer characteristics to enhance influence. For example, a field study by Morrin and Chebat (2005) found that an affectively charged induction (i.e., emotional music) was more effective at increasing in-store purchases for *impulsive shoppers*, whereas an induction more linked to contemplation (i.e., scent; Chebat & Michon, 2003) was more effective for *nonimpulsive shoppers*.

Similar findings have emerged for consumers' purchasing goals. Whereas *hedonic shoppers* (i.e., recreational shoppers) report greater in-store purchase intentions for highly stimulating stores (i.e., with red walls and cluttered floorplans), *utilitarian shoppers* (i.e., economic shoppers) report greater purchase intentions for less stimulating stores (i.e., with blue walls and spacious floorplans; van Rompay et al., 2012). Additionally, consumers' *desire for control* can produce similar effects, where consumers higher in this dimension report greater purchase intentions in noncrowded versus crowded stores (van Rompay et al., 2008).

With online shopping becoming an increasingly dominant venue for consumer behavior, marketers can also utilize the atmospherics of the digital environment to create personally matched appeals (for a review, see Wan et al., 2009). For example, whereas hedonic online shoppers respond more favorably to immersive and experiential websites, utilitarian online shoppers find these features distracting (Hunter & Mukerji, 2011). In contrast, utilitarian shoppers respond more favorably to task-oriented features, such as the website's navigability and search functions (Gounaris et al., 2010; see also Bridges & Florsheim, 2008). Other research demonstrates the value of considering less controllable atmospherics in these online settings, such as the *time of day* when a persuasive message is read. For example, consumers categorized as morning types exhibited greater attitude change following a message with strong arguments delivered during the morning (vs. the evening; Martin & Marrington, 2005).

The Meaning of the Match

We have now covered a wide range of dimensions upon which personalized matching has enhanced persuasiveness. As mentioned already, however, this is not always the case. Sometimes, personally matched messages can reduce persuasion. In order to understand why and when this

occurs, it is useful to consider the valenced *meaning* that the match generates for consumers (i.e., whether the matching in a message is interpreted as positive or negative). For example, two people might each perceive a matched message to be familiar, but that familiarity could be interpreted positively by one person (e.g., desirable because of its fluency) or negatively by another (e.g., undesirable because the content seems already known). Regardless of how the meaning emerges (either implicitly or explicitly) or the specific experience that generated the meaning, the positivity or negativity of that meaning is a key factor in determining the effect of the matched content (Briñol et al., 2018). However, as we will see shortly, positive meanings do not invariably lead to positive persuasion outcomes and the converse is also true for negative meanings.

Positive Meanings

In general, personalized matching has been shown to produce positive meanings in most cases and this can stem from several sources. Perhaps most obviously, personalized matches can produce positive meanings due to the perceived *self-relevance* of the match (DeBono & Packer, 1991; Petty & Wegener, 1998; Abrahamse et al., 2007). Because most people have positive feelings toward themselves, anything linked to the self can also take on that positivity (Gawronski et al., 2007; Horcajo et al., 2010a). Indeed, recent neuroscience research demonstrates that matched messages activate individuals' ventromedial prefrontal cortex, which is associated with self-relevant evaluations (Aquino et al., 2020), thereby potentially increasing favorability toward matched appeals. Nonetheless, other positive meanings that matched messages can generate include a greater feeling of *rightness* or *fit* (Cesario et al., 2004; Higgins, 2005; see Cesario et al., 2008), *familiarity* or *fluency* (Labroo & Lee, 2006; Thompson & Hamilton, 2006), *self-efficacy* in attaining the advocated outcome (Han et al., 2016; Sherman et al., 2006; Bostrom et al., 2013), and *authenticity* (Bleidorn et al., 2016; Harms et al., 2006). Although the present research has treated the consequences of different positive meanings as relatively interchangeable, future research would benefit from determining whether specific positive meanings have specific effects.

Negative Meanings

As noted, there has been significantly less work identifying the potential negative meanings that

personalized matching can produce. Nonetheless, and perhaps most commonly, a personalized match can engender a negative meaning if it is interpreted as an *invasion of privacy* (e.g., van Doorn & Hoekstra, 2013; White et al., 2008). Other research has shown that matched messages can generate a negative meaning if they are interpreted as an *attempt at manipulation* (Briñol et al., 2015; David et al., 2012; Reinhart et al., 2007), or if they are interpreted to be based on an *unfair or stereotypic judgment* about the person (Derricks & Earl, 2019; Kim et al., 2019a; White & Argo, 2009). Additionally, a personalized match can elicit a negative meaning if the person interprets the message as containing *already known content* (Clark et al., 2008; Hastie, 1984; Maheswaran & Chaiken, 1991). Although there is less research on the emergence of negative meanings, they are nevertheless important to consider.

Eliciting Positive versus Negative Meanings

Understanding whether a personalized match generates a positive or negative meaning is critical for understanding how it will affect persuasion. Although people predominately appear to interpret personalized matches positively, certain individual differences and situational factors might be especially likely to undermine this. For example, people might be more likely to interpret a personalized match negatively if they hold an interdependent (vs. independent) self-construal, because interdependent consumers prefer to think about themselves as part of the group (vs. individuated; Kramer et al., 2007; Li et al., 2011). Additionally, if consumers are marketing savvy (Friestad & Wright, 1994), they might be more likely to interpret a personalized match negatively (e.g., as a manipulation attempt) versus positively (e.g., as meaningful to me; Maslowska et al., 2013). Other research suggests that consumers' concerns about data privacy could also affect their reaction to personalized messages, where consumers higher in data privacy concerns are more likely to interpret a personalized match negatively (i.e., as an invasion of privacy; Hoffman et al., in press). Negative meanings are also likely if the message is *too* highly matched (e.g., it includes a consumer's prior transaction history; van Doorn & Hoekstra, 2013), or if the consumer recognizes that the information for matching the message was collected on a website separate from where the message is being delivered (Kim et al., 2019a). Across these examples, one common theme is that if consumers become explicitly aware of the personalized match (see Cesario et al., 2004),

then inferences about the source of the personalized information or the motives behind it are more likely to be negative.

Further research is needed to determine which factors lead a consumer to become aware of and interpret such personalization negatively. For example, when might a feeling of familiarity from a match instill a positive reaction (e.g., a feeling of comfort) versus a negative reaction (e.g., a feeling of boredom)? Some research has suggested that consumers are less likely to generate negative privacy concerns regarding personalized messages if they have previously consented to allow access to their data (Hoffman et al., in press). Or, what if the match simultaneously generates a positive and negative meaning? In any case, a better understanding of when matches generate different meanings is important, because as argued shortly, these meanings can play a critical role in determining the match's eventual effect on persuasion.

Multiple Processes in Personalized Matching

So far, we have shown there are many ways in which one can use the message, source, or setting to create a match with at least one of the aspects of the recipient. And from our discussion so far, it might sound like matches generating positive meanings invariably produce positive outcomes, whereas negative meanings produce the reverse. Unfortunately, this analysis is too simplistic. To understand how positive meanings can sometimes produce negative outcomes and negative meanings can sometimes produce positive outcomes, we turn to an analysis of the multiple *mechanisms* by which personalized matching can impact attitudes. Although there have been periodic calls for matching researchers to pay more attention to underlying processes (e.g., Hawkins et al., 2008), prior reviews have tended to focus primarily on matching effects and outcomes, as we did above. To elucidate the mechanisms of matching, we rely on a well-established general theory of persuasion, the *elaboration likelihood model* (ELM; Petty & Cacioppo, 1986; refer to Figure 1 for an overview of the ELM applied to matching effects). After a brief review of the ELM, we show how it can be useful in explicating when matching enhances persuasion and when it can backfire.

Decades of research have striven to describe and model the fundamental underlying processes of attitude change (for reviews, see Briñol & Petty, 2012; Eagly & Chaiken, 1993; Maio et al., 2019), and

much of this research has been unified and integrated under the ELM (Petty & Briñol, 2012; Petty & Wegener, 1998). In the ELM, different mechanisms are categorized into a finite number of general attitude change processes which emerge as a function of individuals' levels of *elaboration*. That is, in any given persuasion context, consumers can range from relatively low to high in how much they think about and scrutinize the message. Depending on where the person falls along this elaboration continuum, personalized matching can influence consumers' attitudes and behaviors through different types of psychological processes. The ELM holds that it is critical to understand the type of process through which the match has its effects in order to elucidate whether it will increase or decrease persuasion as well as whether those initial results are likely to be durable and impactful (Petty et al., 1995).

Individuals' degree of elaboration is determined by their *motivation* and *ability* to think critically about the message. The motivation to process a message can be affected by situational factors, such as the likelihood that a consumer is in the market for and will be able to purchase a product (Petty et al., 1983), or dispositional factors, like their general preference to engage in careful thinking (Cacioppo et al., 1983). Similarly, one's ability to process a message can be affected by situational factors such as the speed at which the message is delivered (Smith & Schaffer, 1995) or the number of times it is repeated (Cacioppo & Petty, 1989) as well as dispositional factors like a person's intelligence (Wood et al., 1995). Depending on a consumer's situational or dispositional state of elaboration, the ELM holds that the process by which a personalized match affects persuasion can change (Petty et al., 2000).

More specifically, if consumers are constrained to be rather low in their thinking (e.g., many distractions are present), personalized matching is expected to function as a simple *cue* or heuristic in the attitude change process. In these instances, the match produces an effect consistent with its valenced meaning. For example, a person might quickly reason that "I like this because it's similar to me," or "I don't like it because it is trying to manipulate me," without much thought about the merits of the advocacy. In contrast, if elaboration is constrained to be high (e.g., people are incentivized to think about the evidence presented), matching can influence persuasion through more effortful processes. For example, the personalized match can be carefully scrutinized as an *argument* in and of

itself in support or opposition to the appeal (e.g., “Its similarity to me is good evidence for the merits of this message”). Alternatively, the match could *bias* the valence of thoughts that come to mind (i.e., prompt a greater number of thoughts in favor of or opposed to the appeal depending on the match’s positive or negative meaning).

Beyond these effects on consumers’ primary cognitions, when thinking is high, personalized matching can also influence attitude change through *metacognitive* processes. Metacognition refers to thoughts about one’s thoughts (Briñol & DeMarree, 2012; Dunlosky & Metcalfe, 2009; Jost et al., 1998), and prior research shows that these secondary thoughts can have a significant impact on attitudes (Petty et al., 2007). First, under high levels of elaboration, if consumers perceive that a match has biased their thinking, it can lead them to engage in metacognitive *correction* (i.e., mentally adjusting the evaluations in order to correct for any “undue” influence of the match; Wegener & Petty, 1997). Additionally, personalized matching can affect attitudes by affecting the perceived *validity* of one’s thoughts (e.g., “My thoughts on this message are valid because they seem fluent or familiar”; Briñol & Petty, 2009).

Finally, if the extent of thinking is not already constrained to be relatively high or low, then the match itself can potentially influence the extent to which a person thinks about a message. For example, if the match makes the message seem highly relevant to the person, the match could motivate effortful analysis of the arguments presented. Alternatively, if the match makes the message seem like it has already been processed (i.e., is overly familiar), it could reduce the level of thinking the message receives. In sum, in order to anticipate when and how personalized matching will influence persuasion, it is necessary to consider the positive or negative meaning it generates and whether the person is in a lower, higher, or unconstrained state of elaboration at the time the message is received. We unpack how matching can affect persuasion under different elaboration conditions next.

Lower Elaboration: Serving as a Cue

When people are in a low elaboration state because they lack the motivation and/or ability to engage in more careful thinking, the personally matched appeal will most likely operate through a simple cue process. There are a number of relatively low thinking processes that could be involved. For example, it could entail a misattribution of affect

(whether positive or negative) from the matched advertisement to their attitudes (Jones et al., 2010; Payne & Lundberg, 2014) or a more direct affect transfer as specified by classical conditioning theories (Staats & Staats, 1958), or an attempt at maintaining cognitive consistency (balance) between the advertisement and their self-views (Horcajo et al., 2010a; Simon et al., 2004), or any other “low thought” process stemming from the basic positive or negative meaning of the match. What is important to note here is that regardless of the specific process involved, the personalized matching effect obtained stems from linking the valenced meaning of the match to the attitude object by some relatively low thought process which does not involve people carefully considering the merits of the appeal.

In one representative study, undergraduate students in a low elaboration state reported more positive attitudes toward a proposed week-long event, when the promotional message matched rather than mismatched their attitude function, even though no actual arguments were presented in support of the appeal (DeBono, 1987). In other words, the match generated a positive meaning which was then used as a simple positive cue. In contrast, if a match produces a negative meaning for low elaborating consumers, the opposite would be expected. For example, if the matched appeal signals to the consumer that the message is an attempt at manipulation, rather than being informative, it can elicit negative feelings associated with reactance (i.e., a sense of threat to the person’s freedom; Brehm, 1966; Quick et al., 2013). These negative feelings can then lead to a negative interpretation of the match (Bleier & Eisenbeiss, 2015; David et al., 2012; Reinhart et al., 2007), which can then result in more negative attitudes, regardless of what the message content conveys. Other research has corroborated these low-thought effects of matching (Kidwell et al., 2013; Lammers & Baldwin, 2018; Shavitt et al., 1994). Thus, when designing persuasive appeals for contexts in which consumers are unmotivated and/or unable to engage in much elaboration, the meaning of the match (positive or negative) determines its impact on persuasion by serving as a simple peripheral cue regardless of the nature of the arguments (if any) presented.

Higher Elaboration: Serving as an Argument

According to the ELM, when people highly elaborate on a persuasive appeal, personalized matching operates through a different set of

psychological processes. As one of these processes, a match can in and of itself be carefully evaluated for its strength or weakness as an argument for the appeal. For example, if consumers scrutinize an advertisement and find that its language matches their moral foundations, this match could be perceived as a compelling argument (i.e., a good reason) to support the advocacy regardless of the details for the appeal's individual claims. That is, the moral stance itself can serve as a worthy argument in support of the appeal. But, what if the message language matched a person's general moral foundations, even though the product was one that had no plausible link to morality? Under low thinking, a match to one's morality, being generally positive, would always be good for persuasion as a simple positive cue. Under high thinking, however, a match to morality would only serve as a good argument if morality was perceived to be relevant to the product purchase and not if it was irrelevant (cf., Pierro et al., 2004).

To further illustrate, consider an instance where an advertisement matches the consumer on information believed to have been obtained intrusively. Under low elaboration, this personalized match would seemingly elicit a negative meaning and thus reduce persuasion. Under high elaboration, however, the match might increase persuasion despite the intrusion of privacy because the matched content, when carefully evaluated, is seen as a strong argument in support of the appeal (e.g., "I know I was targeted, but I don't care because this product really is relevant to my needs"). In contrast, the opposite could be true for a personalized match that generates a positive meaning. To the low elaboration consumer, a simple match (e.g., using the consumer's name) might lead to enhanced liking. However, under high elaboration, the consumer might perceive such a match as trivial when considered as an argument, dampening its impact on attitudes (e.g., "The mere use of my name is not a good reason to like this product"). Thus, it can be very important to know whether a consumer is in a high or low elaboration state because this will help determine the ultimate effect of the personalized match on consumers' relevant attitudes. At this time, little or no previous research of which we are aware has explicitly focused on examples of personalized matches serving as an argument. Nonetheless, decades of research on persuasion processes indicate that personalized matches can operate in this manner in the right context (see Teeny, Briñol, & Petty, 2016).

Higher Elaboration: Biasing Thoughts

Under high elaboration, in addition to serving as an argument, a matched message can also produce a bias in the thoughts a person generates in response to the communication (Petty et al., 1993). Generally speaking, the more positive thoughts a person generates in response to an appeal, the more attitude change that is expected. Accordingly, when a personalized match generates a positive meaning for people who are elaborating, it can motivate them to generate a greater number of positive thoughts, thereby increasing persuasion. For example, in one study, Lavine and Snyder (1996) examined participants' thoughts in response to one of two persuasive messages on a high relevance topic—voting in the upcoming mayoral election. Participants received advertisements advocating voting that were either matched or mismatched to their level of self-monitoring. For example, the argument that voting enhances one's status was a match for high self-monitors, whereas for low self-monitors, the argument that voting allows people to influence societal issues was a match (with the reverse pairings constituting mismatched arguments). In line with the ELM, personally matched (vs. mismatched) messages produced greater attitude change by leading participants to generate a greater proportion of positive thoughts in support of the appeal (see also DeBono & Telesca, 1990; Kreuter et al., 1999).

Although personalized matching under high thinking conditions has generally been shown to bias recipients' thoughts in a positive direction, when the match elicits a negative meaning, it can have the opposite effect. For example, when personalized messages target a stigmatized identity, it can lead people to feel unfairly judged or stereotyped (Kim et al., 2019b; White & Argo, 2009), producing a negative meaning about the personalized match (e.g., El Hazzouri & Hamilton, 2019) and biasing people to generate unfavorable thoughts about the appeal. As one example of this, when overweight consumers believed they received information about a weight loss program based on their weight status (vs. randomly), they felt "unfairly judged" by the matched message. In turn, this caused them to generate more negative thoughts (e.g., perceptions of unfair judgment) about the message and its proposals, which resulted in lower intentions to engage in healthy behaviors (Derricks & Earl, 2019). Even though a message on weight loss to an overweight person is a personalized match, the feelings

of stigmatization produced a negative meaning for the match which biased thoughts in a negative direction.

When a personally matched message biases thoughts in either a positive or negative direction, it can do so by affecting the perceived desirability of or the likelihood that a specific outcome proposed by the appeal will be obtained, consistent with expectancy-value models of attitudes (Fishbein & Ajzen, 1975). For example, Wegener et al. (1994) placed participants who were high in their need for cognition into either a positive or negative mood and provided them with either a matched message (i.e., positively framed arguments for a positive mood and negatively framed arguments for a negative mood) or a mismatched communication. Participants rated the consequences included in the matched message as being more likely to occur than those in the mismatched message, thereby increasing persuasion.

In the prior study, the match was perceived positively (i.e., as a fit), but a similar process can occur when matching elicits a negative meaning. For example, when participants saw an advertisement for a bookstore that was ostensibly matched to their prior browsing history, participants who believed the information for the ad's personalization had been gathered intrusively (vs. not intrusively) evaluated the store's products as less desirable, reducing the advertisement's persuasive effectiveness (Kim et al., 2019a). This process can emerge even when the matched message better fits their preferences (van Doorn & Hoekstra, 2013; White et al., 2008). Importantly, both negative and positive biased processing effects are more likely to occur when the quality of the appeal's arguments is somewhat ambiguous (i.e., open to interpretation, Chaiken & Maheswaran, 1994; see also Ziegler et al., 2007).

Higher Elaboration (Metacognition): Correcting for Bias

We have focused so far on how personalized matching can influence individuals' primary thoughts about the product advertised. However, in accord with the ELM, personalized matching can also affect secondary (i.e., metacognitive) thoughts, which can have a significant influence on attitudes. Notably, when people are engaged in metacognitive processing (i.e., when in higher elaboration states), the belief that their attitudes were biased by the personalized match can lead them to mentally correct for the bias. That is, due to people's general desire to hold accurate attitudes (Festinger, 1950;

Petty & Cacioppo, 1986), under conditions of high elaboration, consumers are apt to try to identify and correct for any undesired influence they perceive could be biasing their judgments (Wilson & Brekke, 1994). According to the *Flexible Correction Model* (Petty & Wegener, 1993; Wegener & Petty, 1997), when people perceive a biasing influence on their thoughts, they will try to estimate both the *direction* and the *magnitude* of the perceived bias and attempt to subtract that bias from their overall evaluation. Thus, if consumers perceive the personalization in an appeal is an unwanted biasing factor, they may try to correct for its influence, regardless of whether the bias is positive (e.g., "I am likely too favorable toward this message because it matches me") or negative (e.g., "I am likely too negative toward this message because it stereotypes my group").

As an example of this process, Cesario et al. (2004) manipulated whether a message matched or mismatched participants' strategy for goal pursuit. The researchers then additionally manipulated whether participants were made aware (or not) of the match's positive influence. For those unaware, the matched message resulted in greater persuasion. For those made aware, the matched message prompted correction, resulting in reduced attitude change. Another example comes from research on consumers' accessible identities. In this work, the researchers manipulated the credibility of using an accessible identity when evaluating products (i.e., whether an accessible identity was or was not a trustworthy source for making evaluations). For those induced to consider their accessible identities, noncredible (vs. credible) messages matched to those identities were less effective (Zhang & Khare, 2009).

In order to correct for matching, a consumer must be motivated to detect biasing factors, possess a lay theory about that biasing factor's influence, and believe such an influence is inappropriate (McCaslin et al., 2010). Thus, consumers are more likely to correct for the impact of their emotions when evaluating utilitarian (vs. hedonic) products, because emotional reasoning seems more inappropriate for these purchases (Chien et al., 2010). In most prior work on correction, situational factors (e.g., the experimenters' explicit acknowledgment or a tagline in an advertisement; Chien & Hsiao, 2015; Kim et al., 2019a) were required to initiate consumers' correction. However, in the absence of these or other explicit signals of bias, consumers may be disinclined to correct for personalized persuasion (see Lombardi et al., 1987). That is, even

though consumers are increasingly aware that their personal data are being used for targeted advertisements (Summers et al., 2016), unless consumers interpret the match as an unwanted biasing factor, they would be unlikely to correct for its influence. Interestingly, we note that research has identified individual differences that moderate whether consumers are likely to correct for potential biases from personalized appeals. For example, Appelt et al. (2010) found that people who were high (vs. low) in the trait of self-assessment (i.e., those who tend to scrutinize their thoughts for accuracy; Higgins et al., 2003) were more likely to correct (and sometimes overcorrect) for the influence of personalized matching on their judgments.

Higher Elaboration (Metacognition): Validating Thoughts

In higher elaboration states, personalized matching can affect attitude change through another metacognitive process—by affecting the perceived validity of the thoughts that come to mind. According to the *self-validation hypothesis* (Petty et al., 2002), the more the people have confidence in or liking for the primary cognitions they generate, the more influence those cognitions have on their judgments and behavior. As an example, in an early study, participants whose positive thoughts about an advertisement for a household cleaner were validated (i.e., they learned the ad had come from a trustworthy government source) versus invalidated (i.e., they learned the ad had come from an untrustworthy company) reported more positive attitudes toward the product (Briñol et al., 2004).

Of relevance to the current review, personalized matching can affect attitudes through thought validation processes. To illustrate, in one study Evans and Clark (2012) asked highly elaborating participants to first read a message that contained compelling arguments for phosphate-based laundry detergents. Afterward, participants learned that the message came from a source that either matched their level of self-monitoring (i.e., an attractive source for high self-monitors and an expert source for low self-monitors) or mismatched it. In the matched condition, participants reported greater confidence in their positive thoughts toward the ad, which resulted in more attitude change (i.e., because the participants' favorable thoughts in response to the compelling arguments were validated and thus used in forming attitudes).

However, it is important to note a few caveats about these validation findings. First, validation

does not always increase persuasion; it simply increases the confidence in whatever thoughts have been generated. When thoughts are negative, then, validation reduces persuasion. For example, Huntsinger (2013) first gave participants strong or weak arguments for an appeal before matching the evaluative concepts of the appeal to participants' affective states. Because this match increased the perceived validity in participants' message-relevant thoughts, those in the matched (versus mismatched) condition who received strong arguments showed increased persuasion due to their now validated positive thoughts. In contrast, those who received weak arguments exhibited reduced persuasion because of their now validated negative thoughts. Thus, matching can produce a backfire effect when it validates negative thoughts about an appeal.

Second, matching is only expected to validate a person's thoughts if the match itself generates a positive meaning. Thus, if an individual reads a health pamphlet with compelling arguments, but later learns that it was provided due to the person's stigmatized identity, this match would presumably elicit a negative meaning (Derricks & Earl, 2019). In turn, the match's negative meaning should *invalidate* the message recipient's thoughts. Thus, if the health pamphlet initially elicited positive thoughts (due to its compelling arguments), the invalidating match would impart doubt to those positive thoughts, which should reduce persuasion.

Finally, for any of these self-validation effects to occur, the validating match should be presented *during* or *after* people have already processed the message and not *before* (e.g., Evans & Clark, 2012). As we discuss next, if the variables creating a personalized match comes *before* consumers scrutinize the details of message, it is more likely to affect how much they think about or elaborate upon the message (Avnet et al., 2013; DeBono & Harnish, 1988; Huntsinger, 2013).

Unconstrained Elaboration: Influencing the Amount of Elaboration

In the prior sections, we described how personalized matching could influence attitudes by different mechanisms according to the recipient's degree of elaboration. When constrained to states of lower thinking, matching influences attitudes through various low thought mechanisms (e.g., use of heuristics and affect transfer), but when constrained to states of higher thinking, matching influences attitudes through more elaborative processes (i.e., being assessed as an argument, biasing thoughts, eliciting

metacognitive correction, or validating thoughts). However, consumers are not always constrained to either low or high thinking states. When thinking is unconstrained by other variables, matching can influence the *extent* to which they engage in thinking. Petty et al. (1976) introduced a way to examine whether variables increased or decreased message processing by varying the quality of the arguments in the message along with the variable of interest. This technique has been used subsequently to study how matching (e.g., DeBono & Harnish, 1988), along with many other variables (see Carpenter, 2015), can influence the extent of elaboration.

The basic idea of the argument quality paradigm is that if a variable of interest increases message processing from some baseline, then it should increase persuasion if the arguments in the message are *strong (compelling)*, because the merits of the arguments should be recognized with more thinking. In contrast, if the arguments in the message are *weak (specious)*, the increased elaboration from the variable of interest should result in reduced persuasion, because the flaws in the arguments will be recognized with more thinking. Conversely, if the variable of interest *reduces* thinking about the message compared to a baseline, then it should enhance persuasion if the arguments are weak (because their flaws will not be recognized) and reduce persuasion if the arguments are strong (because their cogency will not be realized). Put simply, if a variable affects message processing, it should determine how much consumers' attitudes in response to the appeal are tied to the quality of the arguments presented in the appeal.

According to the ELM, when people's extent of elaboration is not constrained by situational or dispositional factors, matching can influence persuasion by either increasing or decreasing message-relevant thinking. It appears that when matching fosters a positive interpretation (e.g., the match suggests self-relevance), it is more likely to increase message processing, but when it fosters a negative interpretation (e.g., the match implies a boring message), it is likely to decrease processing, though little research has explicitly addressed this prediction or situations in which a negative meaning (e.g., suspicion) could enhance thinking (Priester & Petty, 2003).

Matching Can Increase Message Elaboration

As noted earlier, a consumer's overall extent of message-relevant elaboration depends on the overall motivation and ability to think about the message. Perhaps the most common method for

increasing elaboration is to increase a person's motivation to do so by heightening the perceived *personal relevance* of the message (Petty & Cacioppo, 1979, 1990). By definition, personalized matching makes the appeal more personally relevant to the consumer in some way. When this self-relevance is interpreted positively (e.g., this message speaks to me), it is likely to increase thinking about the message. In one relevant study, Petty and Wegener (1998) gave participants who were unconstrained in their level of elaboration one of two types of shampoo advertisements: an image ad (i.e., it discussed how the shampoo made one's hair look) or a quality ad (i.e., it discussed how well the shampoo cleaned one's hair). For high self-monitors, the image ad was a match, whereas for low self-monitors, the quality ad was a match (with the reverse pairings constituting mismatches). In addition, the arguments used to support the image and quality ads were either strong or weak. The key result was that matching enhanced elaboration—the attitudes of those who received the matched (vs. mismatched) advertisements distinguished more between strong and weak arguments, indicating that the matched appeal led to greater message thinking (see top right panel of Figure 2).

Indeed, using this argument quality paradigm, multiple studies employing different matched communication factors (i.e., the message content, source, setting) and different matched variables (e.g., goals, identities, and culture) have found that the heightened relevance of a personally matched message motivates people to elaborate (e.g., DeBono & Telesca, 1990; Dimmock et al., 2013; Fujita et al., 2008; Huntsinger, 2013; Perrachio & Meyers-Levy, 1997; See et al., 2009; Updegraff et al., 2007; Wan & Rucker, 2013; Wheeler et al., 2005). Other research highlights how matched messages can also be *easier* to process (See et al., 2008; Thompson & Hamilton, 2006), which enhances people's ability to elaborate on the message (Wood et al., 1995; Wu & Shaffer, 1987). For example, matching the content of a message to regulatory focus can increase elaboration through the heightened ease and fluency consumers experience when processing the message (Lee & Aaker, 2004). A depiction of some examples in which various kinds of matching have enhanced motivation or ability to elaborate using the argument quality paradigm can be found in Figure 2.

The data in Figure 2 make it clear that even when matching elicits a positive meaning and enhances elaboration, this does not mean that persuasion will necessarily also be enhanced. In particular, when the arguments provided by the matched appeal are

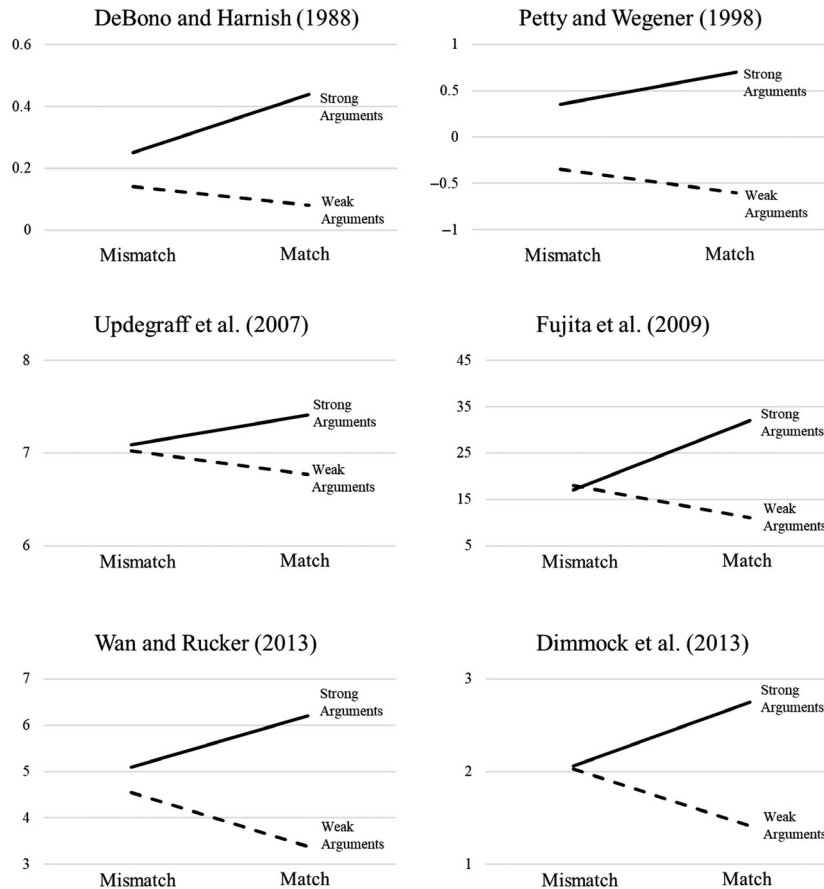


Figure 2. The graphs represent an illustrative set of how strong and weak arguments have influenced attitudes given a personalized matched (vs. mismatched) appeal over the past 25 years. In DeBono and Harnish (1988, Study 1), the message source (expert/attractive) was matched to self-monitoring (low/high) for attitudes toward a controversial calendar. In Petty and Wegener (1998, Study 2), the message arguments (quality/image) were matched to self-monitoring (low/high) for attitudes toward a shampoo product. In Updegraff et al. (2007, Study 1), the message framing (gain/loss) was matched to motivational orientation (approach/avoidance) for agreement with a proflossing advertisement. In Fujita et al. (2008, Study 3), the message framing (distant/near) was matched to construal level (abstract/concrete) on willingness to donate to a wildlife organization. In Wan and Rucker (2013, Study 4), the message arguments (concrete/abstract) were matched to confidence (low/high) on attitudes toward a fitness club. In Dimmock et al. (2013, Study 1), the message framing (long-term/short-term) was matched to chronic time orientation (future/present) on attitudes toward a self-improvement class.

relatively weak, matching is likely to backfire and reduce persuasion. Thus, although the first part of our review documented that many kinds of personalized matches can enhance persuasion, this is most likely to be true when the message contains reasonably strong arguments. If it contains weak arguments and the match increases the extent of processing, this persuasive strategy would likely backfire. Of course, if thinking was low and the matching served as a simple positive cue, then it would enhance persuasion regardless of the quality of the arguments presented.

Matching Can Decrease Message Elaboration

Although the personalized matching literature has predominantly shown how matching increases

elaboration (presumably because it has largely examined situations in which matching produces positive meanings), there are also cases when matching reduces elaboration. For example, if the personalized match generates a negative meaning, it could reduce elaboration due to consumers' motivation to ignore the appeal (e.g., the consumer perceives the advertisement is trying to manipulate them and thus wants to limit exposure to it; Xu, 2015). Probably, the most common instance of when matching decreases elaboration is when a message matches the particular *expectations* that consumers have about the message content. For instance, Smith and Petty (1996) used the headline of an advertisement to manipulate participants' expectations about its arguments (i.e., whether it would provide gain-framed or loss-framed

arguments). When the content matched participants' expectations, it produced less elaboration (as indexed through a reduced argument quality effect) than when it mismatched. Therefore, this match reduced persuasion when the arguments were strong but increased it when they were weak. Such congruence between a consumer's expectation and the message content, source, or setting can signal that the recipient already possesses the relevant information, reducing the perceived novelty of the information, and thus the motivation to think about it (Baker & Petty, 1994; Clark et al., 2008; Ziegler et al., 2002). Put differently, violating expectations through a mismatch of factors can suggest that something unique, interesting, or surprising is going to be presented that warrants scrutiny (see also Koenig et al., 2009; Fridman et al., 2018).

Unfortunately, there is limited research on instances when matching reduces elaboration in order for us to provide a more comprehensive accounting of when these effects might occur. For example, although we demonstrated how matching can reduce elaboration through motivational processes, at the present time, there is no research documenting how a match might reduce elaboration by affecting ability. One could speculate that if the personalized match generated a high amount of arousal because the appeal's self-relevance is particularly exciting or anxiety-inducing, it could inhibit message processing (i.e., as arousal disrupts elaboration; Sanbonmatsu & Kardes, 1988). Future research would benefit from considering when personalized matching reduces elaboration, either through its effects on consumers' ability or motivation to process messages.

Strength of Personalized Matches

We have now outlined how different forms of personalized matching can influence persuasion through different psychological processes. However, our discussion so far may make it appear that the attitude change *consequences* do not differ as a function of the process through which the match operated. As we alluded to already, the ELM holds that the psychological processes responsible for persuasion can be important in determining whether any attitude change is consequential or not. By consequential, we mean the extent to which the attitudes resulting from matched persuasion are relatively enduring over time, resistant to change when attacked, and/or are impactful on behavior. Attitudes that are consequential are considered

"strong," whereas those that are not have been labeled "weak" (Krosnick & Petty, 1995). According to the ELM, attitude changes brought about by higher elaboration processes tend to be stronger (Petty et al., 1995; Rucker, Petty, & Priester, 2007). For example, imagine that a message matched to a consumer's identity produced "3 units of attitude change," either by serving as a cue under low thinking conditions or by biasing thoughts under high thinking conditions. Although the extent of change is the same in both cases, the attitude change produced by the high thinking process is postulated to be more consequential (e.g., more predictive of behavior; Petty et al., 1983).

Interestingly, despite considerable research supporting this postulate of the ELM for many different variables (e.g., Haugtvedt & Petty, 1992), there is relatively little work examining it in the context of personalized matching. In one example, Pierro et al. (2012) provided either brief or lengthy messages to individuals who were either motivated or not motivated to elaborate. Long messages match the proclivities of those motivated to think, and short messages match those who are unmotivated. They measured attitudes immediately and then again three weeks later. Whereas attitudes showed effects when measured immediately in both of the matched conditions, only the effect of the high-thought match persisted three weeks later. Thus, this work suggests that instantiating matches when consumers are elaborating more (vs. less) will produce more impactful influence, though much more work on this topic is needed.

Assuming that matching effects resulting from high versus low thought processes do produce more consequential attitudes, it becomes important to know whether different variables or different kinds of matches might influence the corresponding attitude change processes to different degrees. In other words, is it possible that some kinds of matches evoke their underlying processes (and thereby consequences) to a greater extent than others? For example, under low thinking conditions, some matches might serve as more powerful cues than others. Or, when thinking is unconstrained, some matches might affect message processing to a greater extent than others. If so, these "stronger matches" might be particularly valuable for marketers, because these would be the kind most likely to elicit the corresponding persuasion process and subsequent downstream consequences. Thus, we next address which types of matches might differentially impact the underlying psychological process associated with attitude change.

Strengthening Matches by Targeting Consequential Dimensions

As one type of dimension potentially more impactful for matching processes, we consider those that are likely more *consequential* or important to the consumer (e.g., the consumer's morality) compared to those that are likely less consequential (e.g., the consumer's favorite color). Previous research has demonstrated that features of a consumer's psychology can vary in how meaningful they are for the person, including the consumer's emotions (Talarico et al., 2004), their goals and motivations (DeMarree et al., 2012), their attitude bases (Skitka & Morgan, 2014), their identities (Guadagno & Burger, 2007; Shoots-Reinhard et al., 2015), and even their cultural orientation (Swann & Buhrmester, 2015). Accordingly, matching the message content, source, or setting to a more important dimension of the consumer could potentially influence the relevant psychological process in a more powerful way. Thus, in deciding which dimension to target with a personalized match, it would be beneficial to know which characteristics are likely to be more consequential for the intended message recipient.

From the attitude strength literature (Petty & Krosnick, 1995), a number of attitudinal features have been identified that indicate an attitude's degree of impact—features likely relevant to other consumer characteristics. For example, attitudes that have resulted from greater thinking (Barden & Petty, 2008), or are held with greater certainty (Rucker et al., 2014), or come to mind faster (Hodges & Wilson, 1994), or are self-defining (Oyserman, 2009; Zunick et al., 2017), or are based on one's morality (Luttrell et al., 2016) typically signal a more impactful attitude. Thus, matching a message to dimensions (e.g., functions and identities) with these qualities will likely amplify the corresponding persuasion process. In one illustration, participants exhibited greater elaboration of a persuasive appeal when the message frame matched a chronically stronger (vs. weaker) aspect of their identity (Evans & Petty, 2003). Similarly, an advertisement matched to a social identity that had been manipulated to be more important resulted in greater product-relevant purchase intentions (Reed, 2004). Still, future research is needed to know which dimensions might be most meaningful for consumers in strengthening matches (e.g., such as matching messages to attitudes that consumers desire to hold but are not held already; DeMarree et al., 2014).

Strengthening Matches by Targeting Distinct Dimensions

In addition to the characteristics of the consumer that are naturally more consequential, characteristics that situationally reflect *socially distinct traits* also tend to elicit stronger personalized matching effects. For example, although one's gender might not be a particularly meaningful dimension to a consumer, when that consumer's gender is in the minority, the social distinctiveness might make it a more impactful target for matching processes. Indeed, in one study (Forehand et al., 2002), when participants' Asian identities were primed, those who perceived this identity as distinctive (i.e., as a minority identity in their social context) exhibited more positive attitudes toward an advertisement matching that social identity than those for whom the identity was not distinctive (see also Grier & Deshpandé, 2001; Horcajo et al., 2010b). Thus, in designing personally matched appeals, it is valuable to consider which consumer dimensions might socially distinguish them, because these dimensions should better elicit the intended psychological process. Of course, if consumers believe that targeting their socially distinct trait is stigmatizing, the augmented psychological processes would produce consequences in line with matches that generate negative meanings as described earlier (Derricks & Earl, 2019).

Strengthening Matches by Targeting Multiple Characteristics

As another approach for strengthening matches, one could target not only different types of dimensions but also *multiple characteristics* simultaneously (Kalyanaraman & Sundar, 2006; Strecher et al., 2008). For example, Joyal-Desmarais et al. (2020) gave participants a message advocating that they try eating a novel food (edible insects) that varied both in its regulatory focus (gain vs. loss framed) and its self-construal (interdependent vs. independent). These researchers found an additive effect of targeting multiple characteristics, where the messages that matched both characteristics (vs. only one or neither) were the most persuasive. In a similar way, Webb et al. (2005) compared the persuasive effectiveness of three types of smoking cessation messages: a nonpersonalized message, a minimally personalized message (i.e., containing the participant's name), and an extensively personalized message (i.e., including 50 matches). The more personalized the message was, the more

effective it tended to be across a variety of smoking-relevant outcome measures.

In targeting many (vs. a few) dimensions, one future area of research would be to examine how the relatedness of the matched dimensions themselves might influence persuasion. For instance, multiple-dimension matching might be most effective when the matched dimensions are somehow matched themselves (e.g., matching an appeal to a consumer's feeling of disgust in addition to their moral beliefs, two dimensions which have been shown to be interrelated; Schnall et al., 2008). Indeed, in the study on multiple-dimension matching just described (Joyal-Desmarais et al., 2020), both regulatory focus and self-construal have been previously linked (e.g., Aaker & Lee, 2001). Even so, although this and other approaches to multiple-dimension matching might enhance the underlying psychological process (e.g., serve as a more positive cue when thinking is low), it is important to note that the more dimensions of the consumer that are matched, the more likely the consumer might be to view the message negatively (e.g., as manipulative; van Doorn & Hoekstra, 2013).

Strengthening Matches with Moderators

As a final approach to strengthening matching, we consider whether personalized matching is a more effective persuasion technique for some people than others. Although this is an important question, there has been relatively little work addressing it. In the study just mentioned on personalized messages for smoking cessation (Webb et al., 2005), the researchers also assessed the extent to which the participants held a *naïve theory about matching* (i.e., possessed lay beliefs that personalizing was effective). Specifically, participants were asked whether, to be effective, a smoking treatment needed to be tailored. The more the participants endorsed this view, the more effective the personalized treatments were. In another study, this time on weight reduction (Holt et al., 2000), recipients who were high in *perceived internal control* over their weight showed greater influence from the tailored (vs. standard) messages in comparison with those who were low in their perceived internal control. Future work should address whether perceived control in other domains, or locus of control more generally (Rotter, 1990), would moderate personalization effects.

Perhaps most relevant to the ideas in this review, another potentially important moderator is an individual's chronic tendency to process media messages *carefully* or more *heuristically* (Schemer et al.,

2008). In one study examining this (Hooper et al., 2013), smokers were exposed to either an extensively personalized message or a more standard one in support of smoking cessation (cf., Webb et al., 2005). Message effectiveness was assessed at different points in time—7 days, 3 months, or 6 months after treatment. Although the personalized message generally worked better than the standard one at the shortest time interval, this matching effect was especially pronounced for people who tended to process media messages in a cursory way. Without an argument quality manipulation, however, we cannot know whether the matching effect for low thinkers was due to the personalization serving as a simple cue or whether the personalization enhanced thinking about the message resulting in more favorable thoughts (whereas high thinkers were likely processing regardless of personalization). Prior research has shown that people who generally do not like to think can be especially influenced to elaborate by inductions that provide some *external* motivation to do so, whereas high thinkers are less impacted by such treatments (see Petty et al., 2009). In sum, an examination of moderators of matching effects (both individual and situational) is a promising direction for future research, and moderators that link to the underlying processes of persuasion could be especially fruitful candidates for consideration.

Nonpersonalized Matching

In this review, we focused on personalized matching in which the match always involved a characteristic of the message recipient. However, in the persuasion literature, matching has been construed more broadly to include any kind of congruity between two factors in the persuasion context (Petty et al., 2000). We focused on personalized matching because this is both the most researched form of matching and the one in which managers are likely most interested in implementing effectively. Nonetheless, nonpersonalized matching has been studied and can have similar impacts. For example, instead of matching the message content to the message recipient as in personalized matching (e.g., a message using confident language presented to a powerful audience; Dubois et al., 2016), one can match the message content to the message source (e.g., a message using confident language presented by an expert source who is expected to be confident; Karmarkar & Tormala, 2009). Or one can match two message features, such as when

hedonic (vs. utilitarian) products are described in affective (vs. cognitive) language (Rocklage & Fazio, 2020).

Although we lack the space to review nonpersonalized matching studies here, it is important to note that such matches plausibly have been shown to affect attitudes by the same psychological processes as personalized matches (though, for a discussion of some potential differences, see Kim & Sundar, 2012). One important possible difference is that nonpersonalized matches might be less prone to eliciting negative meanings. Whereas highly personalized matches can be interpreted as intrusions on privacy, nonpersonalized matches would be less likely to generate these interpretations because no specific feature of the consumer is incorporated into the appeal. Nonetheless, future research should examine parallels and differences between personalized and nonpersonalized matching outcomes and processes.

Conclusion

Our aim in this review was to go beyond the prior wisdom that “personalized matching is good,” to elucidate when and why this is the case and when and why the opposite could occur. To do so, we first distinguished between two broad types of matching, focusing on personalized (rather than nonpersonalized) matching and the factors in the persuasion context through which it can be elicited (i.e., a match between some aspect of the recipient of the message and compatible aspects of the message content, source, or setting). We then detailed a host of variables that have exhibited effective personalized matching effects, before providing a theoretical account of when and how matching can affect persuasion. In describing these psychological processes, we explained when matching would be expected to enhance versus reduce persuasion (backfire) as a function of the meaning the match generates and the process through which it operates. For example, when matching conveys personal relevance, it could motivate more thinking about the appeal, resulting in greater influence when the arguments are strong but resulting in a backfire effect when the arguments are weak. We also noted that understanding the mechanisms underlying matching is a critical consideration because it has consequences for short- and long-term persuasion. We hope these efforts provide consumer researchers and managers with guidance in implementing the most effective forms of personally matched appeals,

while also providing consumers with some understanding of how matching can influence them, helping to provide protection from unwanted targeting effects.

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