9

MATCHING THE INTERVENTION TO ITS INTENDED OUTCOME

Effects of Introducing or Changing Beliefs, Attitudes, and Behaviors

Dolores Albarracín and Yubo Zhou

One understudied aspect of personalized persuasion is how to best target the belief (i.e., a probability judgment), attitude (i.e., an evaluation), or behavior (i.e., an overt action) of a particular person or group. What types of messages and interventions better match different outcomes and individuals and what strategies should be deployed when targeting them? Furthermore, does this choice depend on whether recipients have prior beliefs, attitudes, or behavioral dispositions that conflict with the advocacy? As these issues have been seldom conceptualized, this chapter presents a framework to think about the problem based on illustrative findings about persuasion, social influence, and behavioral change interventions.

To the best of our knowledge, what contents are most effective in influencing beliefs, attitudes, or behaviors has not been articulated in the literature. It is, however, undeniable that information about the property of an object or the outcome of a behavior is likely to be highly relevant to beliefs. Meanwhile, an affective experience is likely to be highly relevant to attitudes, and providing practice with a behavior is likely to be highly relevant to future behavioral performances. This relevance proposition is based on the correspondence (match) between the intervention content and the intended outcome, an issue we analyze in this chapter. Thus, for any given person, depending on what change was intended (in beliefs, attitudes, or behavior), a different strategy could be optimal. For example, information about the properties of an object or behavior is directly relevant to forming beliefs

 DOI: 10.4324/9781003380511-11

because beliefs are judgments of the probability that an object or behavior has specific properties or outcomes.

The self-evident assumption that matching contents and outcomes increases the relevance of an intervention to an outcome does not, however, imply that matching contents always increases the impact on the intended outcomes. Instead, we propose that the extent of impact depends also on whether a person's priors conflict with the intervention advocacy. When interventions introduce *new* beliefs, attitudes, or behaviors, a strategy that matches the targeted outcome should have more impact than one that does not, simply because the matching content is more diagnostic for the judgment or behavior. In contrast, when interventions counter prior beliefs, attitudes, or behaviors, a close match between the intervention and the targeted outcome may yield resistance to change.

The targeted outcomes and strategies we discuss in this chapter appear in Table 9.1 and the relation between the impact of matching contents and intended outcomes appears in Figure 9.1. In the coming sections, we first define the strategies of interest and then review findings that exemplify the impact of matching strategies in the absence of prior beliefs, attitudes, or behaviors, as well as in the presence of a conflict with preexisting beliefs, attitudes, or behaviors. Due to space constraints and limited evidence, the findings we review address only some possibilities. For example, comparisons across multiple strategies are only beginning to be made. Therefore, this chapter organizes what we know and poses some questions researchers might pursue in the future.

An important caveat is that the outcomes in Figure 9.1 are not independent of each other. In fact, most models of attitudes recognize that beliefs influence attitudes (Ajzen & Fishbein, 1980; Albarracin, 2021; Rosenberg, 1960b, 1960a) and some describe reciprocal influences of attitudes on beliefs as well (Albarracín & Wyer, 2001; Rosenberg, 1960a). Furthermore, research has shown that attitudes can affect behavior (Ajzen & Fishbein, 1980; Albarracin et al., 2001; Glasman & Albarracín, 2006) and that behavior also affects attitudes (Bem, 1972; Festinger, 1957). However, we propose that direct strategies that match beliefs may have a stronger influence on beliefs when recipients have no prior attitudes compared to when they bring conflicting attitudes to bear (see Figure 9.1). In contrast, indirect strategies may be more effective than direct ones when the advocacy contradicts preexisting beliefs, attitudes, or behaviors (see Figure 9.1).

Targeted Outcomes and Strategies

As mentioned, the analysis in Figure 9.1 introduces the hypothesis that a match between targeted outcomes and strategies is likely persuasive when the intervention operates *tabula rasa* and recipients form new beliefs, attitudes,

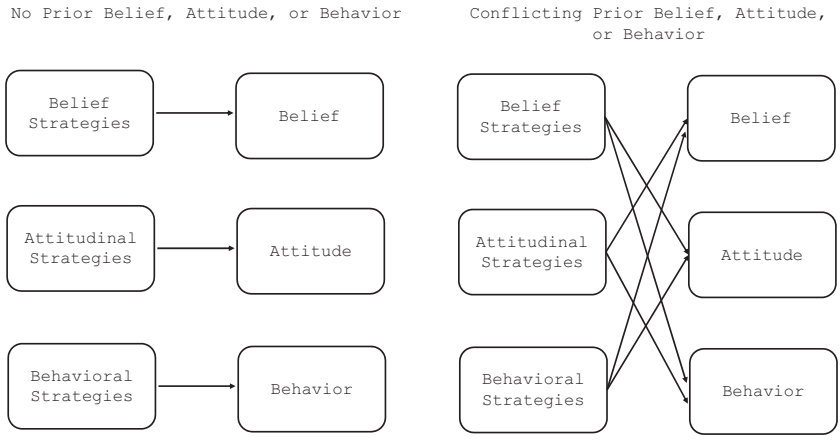

Figure 9.1 Hypothetical impact of belief, attitudinal, and behavioral strategies for different outcomes.

or behavioral patterns. However, the process is more complex when individuals already have beliefs or attitudes or have performed a behavior that communicators want to *change*. In that case, strategies that resemble the targeted outcomes may trigger disengagement, ambivalence (Van Harreveld et al., 2004), and resistance to persuasion, in the form of cognitive dissonance and defense mechanisms that rationalize the previous attitudes (McGuire, 1964; Petty & Cacioppo, 1979; Rucker et al., 2004; Saucier & Webster, 2010).

The predicted advantage of matching in *tabula rasa* conditions but mismatching when communicators want to change an audience's preexisting beliefs, attitudes, or behavioral patterns, is based on processes of attention, comprehension, and accepting or counterarguing the intervention content (Albarracín, 2002, 2021; McGuire, 1985). People who encounter a communication must first attend to and comprehend it, and attention is likely greater when the content is relevant to the judgment or decision at hand. In the absence of conflicting beliefs, attitudes, or behavioral dispositions, people who attend to and comprehend the content of a communication generally accept it. However, if people have conflicting beliefs, attitudes, or behavioral dispositions, contents that resemble the targeted outcome may seem disagreeable or even threatening (Albarracin, 2021; Albarracín et al., 2004; Brehm, 1966). Thus, in these situations, recipients may counterargue the communication and resent the persuasive attempt.

Predicting the degree of resistance produced by conflicting priors is as critical as it is difficult. If, for example, an audience accesses prior beliefs, belief strategies will be more relevant and potentially more impactful than either attitudinal or behavioral ones. This possibility is represented in Figure 9.2,

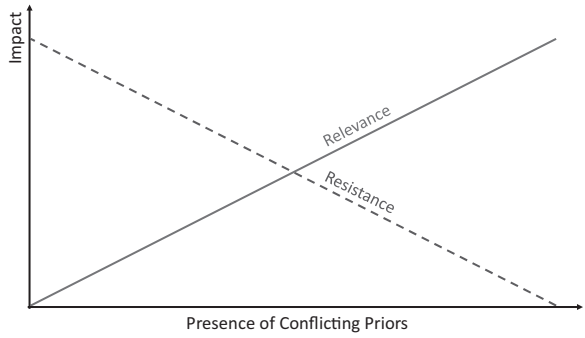

Figure 9.2 Varying effects of conflicting priors (Conflicting priors enhance communication relevance, but also resistance to it).

which shows how having a prior belief might make belief information more relevant and potentially more persuasive. However, people could also be more resistant to relevant information. That is, relevant information can conflict with priors and activate defensive processes such as counterarguing the communication. Therefore, some intended changes may produce more resistance than others and in turn result in different influences. For the most part, however, people form beliefs and attitudes and make decisions on the fly (without considering prior beliefs). Therefore, as matching contents are relevant to those on-the-fly judgments and decisions, positive effects of matching should be more common than negative ones.

The coming sections describe interventions that match each type of intended outcome. Many of the reviewed findings concern new issues, for which participants are unlikely to have formed beliefs or attitudes or to have executed behaviors. We also cover research on attempts at *changing* beliefs, attitudes, or behaviors, studied with topics and behaviors which were known to the research participants. However, most research has been conducted with new issues and the majority only looks at a single strategy at the time. Therefore, the comparisons relevant to our predictions are often made across studies or even areas of research, and our untested predictions are offered as a guide for future research.

Interventions Targeting Belief, Attitudinal, and Behavioral Outcomes

Belief strategies of influence typically introduce propositional information. Beliefs comprise probability judgments (Albarracin, 2021; Fishbein & Ajzen, 1975; Wyer & Albarracín, 2005) and may reference the probability that an object has an attribute, such as "the vaccine uses new technology." They may also reference the probability that a behavior has an outcome, such as "the

vaccine will save lives" or the probability that an object or event is real, such as "a vaccine was invented." It is also possible to influence beliefs by providing normative information such as describing the extent to which a group holds a particular belief and to deploy rituals, such as praying, to increase the belief in God. As shown in Table 9.1, any of these strategies should be a good match when beliefs constitute the intended outcome.

Attitudinal strategies of influence that have been effective in prior research involve, for example, messages to ensure the popularity of a president. These strategies can take various forms, including presenting information with evaluative implications, instilling injunctive norms, and promoting particular affective experiences. As attitudes often depend on beliefs about and evaluations of the attributes of an object or the outcomes of a behavior (Ajzen & Fishbein, 1980), propositional information with evaluative implications is highly relevant to attitudes. For example, messages to improve attitudes toward vaccination may describe vaccines as promoting health and reducing infections (Albarracín & Wyer, 2001; Fishbein & Ajzen, 2011). In addition to using evaluative information, one can attempt to influence attitudes by getting an audience to believe that other people want them to vaccinate (Cialdini et al., 1991) or by inducing positive affective feelings such as happiness (Schwarz & Clore, 1983). Several attitude-matching strategies appear in the second row of Table 9.1.

Behavioral strategies of influence can directly recommend a behavior, introduce propositional information about how to perform it, and instill practice with it. Exposure to the behavior of others, for example, can provide vicarious behavioral experiences (Bandura, 1986), and behavioral (i.e., descriptive) norms can guide recipients' behaviors (Cialdini et al., 1991). Other strategies that promote behavior relatively directly include verbally addressing factors like fear of failure, perceived difficulty, or low self-efficacy (Bandura, 1991, 1997), and using behavioral skills training and practice. Behavioral skills arguments, for example, are verbal instructions designed to help recipients acquire resources for and overcome obstacles to a behavior (Albarracin, 2021; Albarracin et al., 2003, 2005). Behavioral skills training is an active practice strategy in which individuals role-play or engage in

Table 9.1 Matching Strategies

Type of Outcome	*Propositional Information*	*Norms*	*Behavior*
Belief	Probability information	Belief consensus	Belief rituals
Attitude	Evaluative information	Attitudinal consensus (injunctive norm)	Affective experience
Behavior	Recommendations and behavioral information	Behavioral consensus (descriptive norm)	Behavioral practice

supervised skills execution such as more effective communication with others (Albarracín et al., 2005; Fisher et al., 2002). Implementation intentions are also closely connected to behavioral skills training because they provide behavioral scripts to deploy in particular circumstances (P. Gollwitzer, 2004; P. M. Gollwitzer, 1996). These behavioral strategies appear in the third row of Table 9.1.

Findings about Influences on Beliefs

Propositional information about the antecedents of a belief is particularly well suited to influence beliefs. A model developed by McGuire (McGuire, 1960a, 1985) and extended by Wyer (Fong & Wyer, 2003; Wyer, 1974) characterized the influence of one belief on another as logical reasoning. Two beliefs, *A* (antecedent) and *C* (conclusion) are related to each other through a syllogism of the form "*A*; if *A*, then *C*; *C*." Therefore, the probability of *C* (e.g., "the vaccine will be accepted by a large segment of the population") is the result of the beliefs that "*A* is true" and "if *A* is true, *C* is true." For example, "the vaccine saves lives" may be combined with "if a vaccine saves lives, it will be accepted" to conclude that "the vaccine will be accepted."

As mentioned, information about a belief in a premise is clearly highly relevant to the belief in a conclusion. In this case, the similarity between the strategy and the intended outcome ensures that, when forming a belief, the relevant content will be readily available to make a belief judgment. Accordingly, a meta-analysis of the influence of introducing misinformation *tabula rasa* estimated that misinformation has 272 chances to 1 of inducing a belief in the misinformation (M.-P.S. Chan et al., 2017). In other words, it is almost impossible not to believe misinformation when one knows nothing about the subject matter.

Belief consensus information has also been underscored as a strategy that can impact beliefs in a variety of domains. For example, in experiments on the formation of status beliefs, participants judged which members had greater status within a group (Ridgeway & Cornell, 2006). The status of members of the group was determined based on the deferential or dismissive reactions of confederates who posed as group members, and the effect was quite large (*F*-ratio = 70.32). Thus, social influence can have powerful effects on beliefs when they are formed *de novo*.

Although understudied, behaviors that endorse a belief should influence belief formation. For example, in a series of studies conducted on judgments about the nature of an experience (Tan et al., 2021), the belief that experiences are either physical or mental was induced by asking participants to respond to opinion statements that were ostensibly flashed subliminally on a computer screen. Participants then received feedback that they had reported that an experience was either physical or mental and this feedback

influenced subsequent beliefs about the experience. Both feedback about their own responses as well as feedback about the consensus of participants were effective.

Notably, other behaviors that are likely to influence probability judgments are belief rituals, such as praying. However, the impact of behavior on belief remains relatively understudied. Notable exceptions are experiments about the impact of rituals, conducted with young children presented with stress balls that change color (Mathiassen & Nielsen, 2023). In the ritual condition, an adult carried out a ritual consisting of a bogus action on the ball, which was novel to the children. As predicted, children's belief in magic was stronger after the ritual had been demonstrated, relative to conditions without the ritual. However, supporting our matching predictions, actual behavior has not been shown to be influenced by rituals that signal particular beliefs, such that rituals to make an object seem magical do not affect children's choice of the object (Kapitány et al., 2018).

Now, even though well-matched strategies strongly influence beliefs when people lack prior beliefs about an issue (see Figure 9.1), the impact of belief-based strategies should be lower in the presence of prior beliefs. First, prior and new beliefs are often averaged (Anderson, 1981), which results in diminishing returns for each subsequent message. Second, the subjective validity of a message is more questionable when recipients' prior knowledge conflicts with the message's claims (Albarracín & Wyer, 2001; Wyer & Srull, 1989). Third, new information contradicting prior beliefs is likely to elicit anger and annoyance expressed as reactance and defensiveness (Granados Samayoa & Albarracín, 2023).

The overall gap between the impact of belief strategies in the presence or absence of prior beliefs can be gauged by comparing the large impact of introducing misinformation *de novo* with the impact of attempting to correct the misinformation once it has been introduced. Whereas, as mentioned, the chances of the initial misinformation succeeding are 272 to 1, the chances of the correction succeeding are about 8 to 1 (M.-P.S. Chan et al., 2017). Indeed, the introduction of novel beliefs is 34 times more effective than the correction of previous ones.

Another meta-analysis of the impact of corrections that also makes this point focused on the impact of misinformation and corrections about science, a domain where people often have preexisting beliefs (M.-P.S. Chan & Albarracin, 2023). As in the prior meta-analysis (Chan et al., 2017), the effect of the initial propositional information, whose chances of success were 7 to 1, was stronger than the effect of the correction, which did not achieve statistical significance. Interestingly, there was also an indication that defensive processes intervened to make the effect of corrections negligible. Specifically, politically polarized issues were more difficult to correct than nonpolarized ones, for which the corrections were effective.

Another implication of our conceptualization is that when people have preexisting beliefs about an issue, information that is a *poorer* match could be more persuasive. Although belief and non-belief strategies are yet to be directly compared in their impact on beliefs, the notion can be illustrated by some of the findings from research on bypassing one belief by introducing or increasing access to a different one (Calabrese & Albarracín, 2023). This research investigated the possible advantages of *bypassing* beliefs by introducing other beliefs that can also affect attitudes toward a particular issue. Contrary to popular attempts at correcting the initial belief, the researchers presented a different belief that had implications for the relevant belief-linked attitude. Specifically, they first introduced popular misinformation that Genetically Modified (GM) foods cause cancer and then either denied that misinformation (i.e., the correction) or simply stated something positive about GM foods, such as their ability to curb hunger or save bee populations (i.e., the bypassing message). In all experiments, the newly introduced belief was effective, as judged by high levels of belief in the new propositions. In addition, in one of the experiments in the series (Experiment 2), the introduction of the new belief that GM foods curb hunger weakened the belief that GM foods cause cancer. The use of non-corresponding content was effective at instilling new beliefs in those contents as well as weakening the initial beliefs.

Even more direct evidence supporting the disadvantages of matching intended outcomes when people have conflicting priors comes from research on the effects of consensus information. Despite its promising effects when beliefs are influenced *de novo*, consensus information can elicit resistance to change. This was the conclusion of an experiment conducted by Chockalingam et al. (2021) in which standard corrections were compared with corrections presented along with information about a consensus of scientists, co-partisans, or the opposition. Results indicated that even though corrective information was effective at increasing belief in climate change, consensus information did not increase this effect. What future research must ascertain is whether consensus information is less effective than mismatched strategies, such as, for example, attitudinal strategies. Even though no research has addressed this question yet, evaluative information, for example, should be less relevant and thus less threatening than information that is clearly relevant to the beliefs in question.

Findings about Influences on Attitudes

Propositional evaluative information can affect attitudes in the same way as probability information affects attitudes. For example, the model developed by McGuire (McGuire, 1960a, 1960b) and extended by Wyer (1974) can

also be used to predict attitudes. In that case, the probability of *C* (e.g., an attitude such as "the vaccine is good") is the result of the beliefs that "*A* is true" and "if *A* is true, *C* is true." For example, "The vaccine saves lives" may be combined with "If a vaccine saves lives, it is good," leading to the conclusion that "the vaccine is good." As is the case with beliefs, this propositional evaluative information should be ideal to create attitudes, although, as shown by the work on misinformation correction, the same information can produce resistance when *changing* existing attitudes.

Attitudinal strategies also include inducing moods (i.e., feelings of positive and negative affect without a clear source Clore & Schnall, 2005) or emotions (i.e., visceral reactions like feelings of fear, happiness, sadness; Clore & Schnall, 2005) in the recipient, expecting that these feelings will bias attitudes to meet the persuader's objective. Emotional feelings can be elicited by describing some of the affective properties of an object, such as discussing "the buttery and sweet taste of a cookie." They may also be elicited in more indirect ways, such as showing presidential candidates kissing babies or introducing attractive product sponsors (Gasper & Clore, 2000).

Among different affective experiences, fear has been frequently studied because of its relevance to assessing risk. Fear appeals highlight a threat with the goal of promoting behaviors to avert it (Dillard & Peck, 2000; Maddux & Rogers, 1983; Tannenbaum et al., 2015). A meta-analysis of fear appeals (Tannenbaum et al., 2015) showed impacts on attitudes toward protection behaviors, particularly when the appeals discuss an audience's susceptibility to the threat, when behaviors are described as efficacious, and when the population is on average more sensitive to fear (i.e., females and populations of Asian descent). However, fear appeals are more effective at promoting positive attitudes toward one-time behaviors (e.g., vaccination) relative to attitudes toward repeated ones (e.g., dietary and physical activity habits). It is thus possible that fear may be perceived as manipulative by an audience with conflicting prior attitudes, generating resistance to persuasion. In contrast, introducing fear to create a new attitude toward a one-time behavior may fly under the radar.

The effects of attitudinal strategies can also be illustrated with behavioral approaches that induce a behavior as a way of influencing attitudes (Bem, 1967, 1972). A manipulation of people's perception that they performed a behavior *independently* of other cognitive activity was originally developed by Albarracin and Wyer (2000) in the context of influencing attitudes. In a series of experiments, college students were induced to believe that, outside of awareness, they had either supported or opposed the introduction of comprehensive exams at their university. Participants generated responses to the ostensible presentation of policy proposals and then received bogus feedback that they had either supported or opposed each policy. The perception of

having voted in favor of the exam policy led to a positive attitude toward the policy, and these effects were present even when participants were distracted. The behavior in support of the policy allowed participants to make attitudinal inferences even when they lacked the ability to think deeply about the issue.

One caveat is that Albarracín and Wyer's (2000) experiments involved a novel policy for which participants had no preconceived attitudes. However, the impact of a behavior that contradicts other behaviors or attitudes, is less straightforward. Past research (Albarracín et al., 2003) has demonstrated the ironic effects of behavioral recommendations in interaction with past behavior. In one of their experiments, participants received materials ostensibly from a consumer education program about products containing an ostensible alcohol substitute. The materials involved either abstinence or moderation messages, after which participants were or were not induced to drink by a confederate. Participants who did not drink the simulated alcohol after receiving the message had weaker intentions to drink it in the abstinence (vs. moderation) condition. However, those induced to drink had stronger consumption intentions when they had received the abstinence message than when they had received the moderation one. That is, when the advocacy and the behavior conflicted, the effect of the message was ironic, which was attributed to a self-perception inference that one strongly favored the beverage and drank it after being told not to do so (see Experiment 2 in Albarracin et al., 2003).

Findings about Influences on Behavior

Recommendations and information about others executing a behavior are critical to successful behavioral interventions, although such recommendations are absent in 95% of messages in the health promotion domain (Zhou et al., 2024). Research by Chan et al. (2024) compared social media messages that contained behavioral recommendations and described behaviors, thus being "actionable," with a random selection of messages in the same domain. An artificial intelligence classifier was created to code messages such as "This is how you use a condom" as being more actionable than messages like "Condoms are safe." An online experiment also showed that messages with behavioral content were seen as more efficacious and led to stronger intentions to disseminate them among an HIV (Human Immunodeficiency Virus) priority population—men who have sex with men. Moreover, in a field experiment that involved 42 United States counties, government and nongovernment agencies received behavioral and control messages for a time period. The results showed that the agencies selected and used the behavioral messages six times as frequently as the control ones.

Learning that others in one's network have performed a behavior, intend to perform it, or recommend it can produce similar dispositions to perform the same behavior among recipients (Cialdini et al., 1991). In experiments conducted by Zhou et al. (2024), participants witnessed others describing having performed supported actions or expressing attitudes toward an object. In other experiments of the same series, participants learned that others intended to perform these supported actions or recommended that the audience do. Compared to conditions in which only attitudes were described, the behavioral messages, which also contained evaluative information, had a greater impact on participants' behavioral intentions. The main process underlying these effects was that recipients of behavioral messages activated behavioral representations, which involved the feeling of performing the behaviors themselves. This information had a strong effect on behavioral intentions.

Experimental and meta-analytic research has also shown that the number of behavioral recommendations is important, with more behavioral recommendations generally increasing the behavioral impact of a message. In two laboratory experiments (McDonald et al., 2017), participants received different numbers of recommendations (e.g., quit smoking and relax for a day) and then completed measures of recommendation recall and intentions to enact them in the future. According to the study findings, as the number of behavioral recommendations rose, the total number of recalled recommendations and intentions to perform them increased along with them. Although, in these experiments, the proportion of intended behaviors decreased as the number of recommendations kept increasing, participants were able to develop goals as long as their choices increased. Similarly, in meta-analyses of randomized controlled trials testing health promotion interventions, the number of recommendations was generally linearly related to average behavioral and clinical change, highlighting that the inclusion of explicit recommendations is key (Dai et al., 2020; Sunderrajan et al., 2021; Wilson et al., 2015).

Despite the advantages of introducing behavioral content in persuasive communications and interventions aimed at behavior, it is worth considering that matching strategies and outcomes is potentially counterproductive when people have conflicting prior behavioral experiences. For instance, persuasive communications and interventions that prime behavioral contents such as "efficiency" or "speed" affect recipients' behaviors more than programs without these words. However, even though introducing behavioral concepts is helpful, primes alone are unlikely to forcefully guide behavior because the effect's direction depends on the recipients' pre-existing behavioral disposition (Hart & Albarracín, 2009; Strahan et al., 2002). For example, achievement goals prime higher performance in academic tasks among individuals who

are chronically motivated to achieve but correspondingly lower performance among those who are not chronically motivated to do so.

Some of the most effective ways of influencing behavior involve introducing skills-relevant information, including arguments about self-efficacy, defined as people's confidence in their ability to undertake an action (Bandura, 1986). Conveying manageable levels of task difficulty and providing encouragement can significantly enhance an individual's self-efficacy, leading to more frequent behavioral performance (Margolis & Mccabe, 2006). Typically, however, simply conveying that recipients can perform a behavior is likely to be of limited use, which is why interventions also teach recipients to overcome obstacles. Verbal arguments conveying how one might manage emotions to reduce sexual risk behavior have been shown to increase the efficacy of communications on condom use. In two meta-analyses (Albarracin et al., 2003, 2005), researchers coded for the presence of behavioral skills arguments (e.g., describing how carrying condoms around is beneficial), and training in condom-use skills (e.g., practice with unwrapping and applying condoms), interpersonal skills (e.g., role-playing interpersonal conflict over condom use and initiation of discussions about protection), and self-management skills (e.g., practice in decision making while intoxicated, avoidance of risky situations). Results indicated that including behavioral skills arguments as well as self-management behavior-skills training in the interventions led to more positive behavioral change than not doing so, over and above all other strategies used in these interventions.

Even though verbal arguments about behavioral skills can be effective, interventions that provide practice with behavioral skills are considerably better at producing behavioral changes than verbal instruction alone. Accordingly, active interventions to promote condom use, which include role-playing and client-centered counseling, increase condom use to a greater extent than interventions that merely present verbal arguments (Albarracín et al., 2005). Of the various types of skills to promote condom use, self-management-skills training has been shown to be the most effective (Albarracín et al., 2005). Other skills, such as interpersonal skills training to negotiate condom use, are effective only for women, and condom use skills training is effective for men but counterproductive for women (Albarracín et al., 2005). Presumably, gender-specific goals for the male condom are likely responsible for these differences as women must often ask male partners to wear condoms whereas the partners can simply wear them.

Similarly, asking people to think about how, when, and where they will perform a given behavior increases the likelihood that they will do so. According to Gollwitzer (1999), implementation intentions delegate control of goal-directed actions onto the environment by providing external reminders that help to automatically activate the behaviors in question (Aarts et al., 1999; Brandstatter et al., 2001; P. M. Gollwitzer, 1996). In addition to linking

goals to external stimuli, formulating these intentions allows one to mentally simulate behaviors, even actions that are new to the individual. As a result, implementation intentions increase numerous behaviors, including physical activity (Sweet et al., 2014).

When considering the match between these behavioral strategies and the targeted outcomes, however, contents may be perceived as intrusive when participants have engaged in opposing behaviors in the past. In fact, reactance can intensify, resulting in noncompliance, when persuaders introduce explicit instructions that anchor behaviors to locations and times. Rather than prescribing a detailed behavioral plan for individuals to follow, encouraging them to devise their own plans is more effective. This approach is supported by experimental research by Fennis and Stel (2011), who examined the efficacy of indirect persuasive strategies in promoting the consumption of fair-trade consumer products. In their experiments, participants who were merely informed of the potential efficacy of linking situational cues to a behavior accepted the implementation intention more than those who were explicitly instructed to form an implementation behavior. In summary, when the recommended behavior conflicts with what people have been doing, indirect persuasive techniques can successfully enhance the cognitive accessibility of contextual cues and the associated behavioral responses while producing less reactance.

Conclusions and Future Directions

In this chapter, we have proposed that matching intended outcomes and strategies can significantly impact attitudes, beliefs, or behaviors, although the direction of this impact depends on what the intervention recipients bring to the table. Our chapter introduced the three intended outcomes (i.e., beliefs, attitudes, and behaviors) and a set of intervention strategies for each (see Table 9.1). It then covered what happens when interventions are received *tabula rasa* as opposed to when interventions conflict with prior beliefs, attitudes, or behavioral experiences (see Figure 9.1).

We first described belief outcomes and propositional strategies to influence beliefs. Whereas, in the absence of prior beliefs, information influences recipients by creating syllogistically connected beliefs, in the presence of prior beliefs, directly countering the prior belief may be counterproductive. When recipients have prior beliefs about an issue, the new information is averaged (Anderson, 1974) and often questioned and actively counterargued by recipients who experience anger (Granados Samayoa & Albarracin, 2023). Addressing these issues is, therefore, essential to develop communications that properly match the presence or absence of prior beliefs with promising strategies.

Second, we reviewed attitudes as an intended outcome, the presence or absence of prior attitudes, and different intervention strategies (i.e., evaluative

information, affective persuasion, injunctive norms, and affective experiences). Other people's attitudes can inform recipients' attitudes, as can the opportunity to perform a behavior that implies a particular attitude. Third, we considered behavior as a vital intended outcome. We identified intervention strategies contributing to recipients' behavior, such as behavioral recommendations, descriptive norms, and training in behavioral skills. Targeting behaviors offers the advantage of prompting recipients to perform behaviors directly without going through other mental processes such as forming beliefs and attitudes. However, directly targeting recipients' behavior may evoke reactance and decrease adherence to behavioral recommendations when people have refused to perform that behavior in the past. Instead of requesting a specific behavior, encouraging recipients' autonomy to perform it and fostering necessary skills and implementation plans is likely to prove more useful.

Today, behavioral intervention research is a vibrant and continuously growing area of social psychology and many allied disciplines. The conclusions from this chapter bring up three critical research questions. First, even though we sequentially listed the three targeted outcomes (i.e., beliefs, attitudes, and behaviors), the order of these stages is known to vary (Albarracín, 2002, 2021). For example, people who form beliefs may simultaneously form attitudes toward an object, and individuals who imagine themselves performing an action may form both attitudes and beliefs as a result (Albarracin, 2021; Albarracin & Wyer, 2000, 2001). Thus, future research should study the possibility of simultaneous effects on different intended outcomes and determine how different sequences of processing operate.

Second, we discussed different targeted outcomes and psychological mechanisms that have been studied primarily via self-report. However, cognitive neuroscience techniques may be useful to understand how these processes operate at the brain level (Cikara & Van Bavel, 2014; Davidson et al., 2000; Siegel & Victoroff, 2009). Other fundamental work might include within-subjects experimental designs that can more precisely identify the effects of different strategies on specific outcomes and how motivation and ability conditions moderate these effects.

In closing, this chapter proposed the importance of selecting the appropriate influence strategy when attempting to produce new beliefs, attitudes, and behaviors, or to influence prior ones. We gathered pertinent evidence and articulated new hypotheses that might be investigated in the future. We proposed a framework to match targeted outcomes with particular strategies, hoping that this work will inspire not only future research but also new modes of intervention to curb pressing social problems such as epidemics and the ongoing climate change crisis.

References

Aarts, H., Dijksterhuis, A., & Midden, C. (1999). To plan or not to plan? Goal achievement or interrupting the performance of mundane behaviors. *European Journal of Social Psychology*, *29*(8), 971–979. https://doi.org/10.1002/(sici)1099-0992(19 9912)29:8<971::aid-ejsp963>3.3.co;2–1

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Albarracín, D. (2002). Cognition in persuasion: An analysis of information processing in response to persuasive communications. *Advances in Experimental Social Psychology*, *34*, 61–130. https://www.sciencedirect.com/science/article/pii/S0065260102800041

Albarracin, D. (2021). *Action and Inaction in a Social World: Predicting and Changing Attitudes and Behaviors*. Cambridge, UK: Cambridge University Press.

Albarracín, D., Cohen, J.B.J.B., Kumkale, G.T., Albarracín, D., Cohen, J.B.J.B., Tarcan Kumkale, G., Albarracin, D., Cohen, J.B.J.B., & Kumkale, G.T. (2003). When communications collide with recipients' actions: Effects of post-message behavior on intentions to follow the message recommendation. *Personality and Social Psychology Bulletin*, *29*(7), 834–845. https://doi.org/10.1177/0146167203029007003

Albarracin, D., Fishbein, M., Johnson, B.T., & Muellerleile, P.A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin*, *127*(1), 142–161. https://doi.org/10.1037/0033-2909.127.1.142

Albarracín, D., Gillette, J., Earl, A., Glasman, L., Durantini, M., & Ho, M.H. (2005). A test of major assumptions about behavior change: A comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. *Psychological Bulletin*, *131*(6):856–897. https://doi.org/10.1037/0033-2909.131.6.856. PMID: 16351327; PMCID: PMC2713787.

Albarracin, D., McNatt, P.S.P., Klein, C.T.F., Ho, R., Mitchell, A.L., & Kumkale, G.T. (2003). Persuasive communications to change actions: An analysis of behavioral and cognitive impact in HIV prevention. *Health Psychology*, *22*(2), 166–177. https://doi.org/10.1037/0278-6133.22.2.166

Albarracín, D., Wallace, H.M., Glasman, L.R., Albarracin, D., Wallace, H.M., & Glasman, L.R. (2004). Survival and change in judgments: A model of activation and comparison. *Advances in Experimental Social Psychology*. https://doi.org/10.1016/S0065-2601(04)36005-3

Albarracin, D., & Wyer, R.S., Jr. (2000). The cognitive impact of past behavior: influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology*, *79*(1), 5. https://doi.org/10.1037/0022-3514.79.1.5

Albarracín, D., & Wyer, R.S., Jr. (2001). Elaborative and nonelaborative processing of a behavior-related communication. *Personality and Social Psychology Bulletin*, *27*(6), 691–705. https://doi.org/10.1177/0146167201276005

Anderson, N.H. (1974). Information integration theory: A brief survey. *Contemporary Developments in Mathematical Psychology*, *2*, 236–305.

Anderson, N.H. (1981). *Foundations of Information Integration Theory* (Vol. 578). New York: Academic Press.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, *50*(2), 248–287. https://doi.org/10.1016/0749-5978(91)90022-L

Bandura, A. (1997). *Self-efficacy: The Exercise of Control*. Macmillan.

Bem, D.J. (1967). Self-perception: An alternative interpretation of cognitive dissonance phenomena. *Psychological Review*. https://doi.org/10.1037/h0024835

Bem, D.J. (1972). Self-perception theory. *Advances in Experimental Social Psychology*, *6*, 1–62. https://doi.org/10.1016/S0065-2601(08)60024-6

Brandstatter, V., Lengfelder, A., & Gollwitzer, P.M. (2001). Implementation intentions and efficient action initiation. *Journal of Personalitty and Social Psychology*, *81*(5), 946–960. https://doi.org/10.1037//0022-3514.81.5.946

Brehm, J.W. (1966). *A Theory of Psychological Reactance*. New York, NY: Academic Press.

Calabrese, C., & Albarracín, D. (2023). Bypassing misinformation without confrontation improves policy support as much as correcting it. *Scientific Reports*, *13*(1), 6005. https://doi.org/10.1038/s41598-023-33299-5

Chan, M.-P.S., & Albarracin, D. (2023). A meta-analysis of correction effects in science-relevant misinformation. *Nature Human Behavior*, *7*(9), 1514–1525.

Chan, M.S., …, & Albarracin, D. (2024). Living Health-Promotion Campaigns for Communities in the United States: Recipient Responses and Adoption of Social Media Messages Extracted via Artificial Intelligence. Manuscript under review.

Chan, M.-P.S., Jones, C.R., Hall Jamieson, K., & Albarracín, D. (2017). Debunking: A meta-analysis of the psychological efficacy of messages countering misinformation. *Psychological Science*, *28*(11). https://doi.org/10.1177/0956797617714579

Chockalingam, V., Wu, V., Berlinski, N., Chandra, Z., Hu, A., Jones, E., Kramer, J., Li, X.S., Monfre, T., Ng, Y.S., Sach, M., Smith-Lopez, M., Solomon, S., Sosanya, A., & Nyhan, B. (2021). The limited effects of partisan and consensus messaging in correcting science misperceptions. *Research & Politics*, *8*(2), 20531680211014980. https://doi.org/10.1177/20531680211014980

Cialdini, R.B., Kallgren, C.A., & Reno, R.R. (1991). *A Focus Theory of Normative Conduct: A Theoretical Refinement and Reevaluation of the Role of Norms in Human Behavior* (M.P.B.T.-A. in E.S.P. Zanna, Ed.; Vol. 24, pp. 201–234). Academic Press. https://doi.org/https://doi.org/10.1016/S0065-2601(08)60330-5

Cikara, M., & Van Bavel, J.J. (2014). The neuroscience of intergroup relations: An integrative review. *Perspectives on Psychological Science*, *9*(3), 245–274. https://doi.org/10.1177/1745691614527464

Clore, G.L., & Schnall, S. (2005). The influence of affect on attitude. In *The Handbook of Attitudes* (pp. 437–489). Mahwah, NJ.

Dai, W., Palmer, R., Sunderrajan, A., Durantini, M., Sánchez, F., Glasman, L.R., Chen, F., & Albarracín, D. (2020). More behavioral recommendations produce more change: A meta-analysis of efficacy of multi-behavior recommendations to reduce non-medical substance use. *Psychology of Addictive Behaviors*, *34*(7), 709–725. https://doi.org/10.1037/adb0000586

Davidson, R.J., Jackson, D.C., & Kalin, N.H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. In *Psychological Bulletin* (Vol. 126, Issue 6, pp. 890–909). American Psychological Association. https://doi.org/10.1037/0033-2909.126.6.890

Dillard, J.P., & Peck, E. (2000). Affect and persuasion. *Communication Research*, *27*(4), 461–495. https://doi.org/10.1177/009365000027004003

Fennis, B.M., & Stel, M. (2011). The pantomime of persuasion: Fit between nonverbal communication and influence strategies. *Journal of Experimental Social Psychology*, *47*(4), 806–810. https://doi.org/10.1016/j.jesp.2011.02.015

Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior. In *Addison-Wesley Series in Social Psychology*. https://doi.org/10.1016/j.ecolecon.2004.07.008

Fishbein, M., & Ajzen, I. (2011). Predicting and changing behavior: The reasoned action approach. In *Predicting and Changing Behavior: The Reasoned Action Approach*. Psychology Press. https://doi.org/10.4324/9780203838020

Fisher, J.D., Fisher, W.A., Bryan, A.D., & Misovich, S.J. (2002). Information-motivation-behavioral skills model-based HIV risk behavior change intervention for inner-city high school youth. *Health Psychology*, *21*(2), 177–186. https://doi.org/10.1037/0278-6133.21.2.177

Fong, C.P.S., & Wyer, R.S. (2003). Cultural, social, and emotional determinants of decisions under uncertainty. *Organizational Behavior and Human Performance*, *90*(2), 304–322. https://doi.org/10.1016/S0749-5978(02)00528-9

Gasper, K., & Clore, G. L. (2000). Do you have to pay attention to your feelings to be influenced by them?. *Personality and Social Psychology Bulletin*, *26*(6), 698–711.

Glasman, L.R., & Albarracín, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin*, *132*(5), 778–822. https://doi.org/10.1037/0033-2909.132.5.778

Gollwitzer, P. (2004). The psychology of goals. *International Journal of Psychology*, *39*(5–6, S), 502.

Gollwitzer, P.M. (1996). How goals and plans affect social behavior. *International Journal of Psychology*, *31*(3–4), 2642.

Gollwitzer, P.M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, *54*(7), 493–503. https://doi.org/10.1037/0003-066X.54.7.493

Granados Samayoa, J., & Albarracin, D. (2023). *Effects of Correction and Bypassing Messages on Anger*. Philadelphia: University of Pennsylvania.

Hart, W., & Albarracín, D. (2009). The effects of chronic achievement motivation and achievement primes on the activation of achievement and fun goals. *Journal of Personality and Social Psychology*, *97*(6), 1129–1141. https://doi.org/10.1037/a0017146

Kapitány, R., Davis, J.T., Legare, C., & Nielsen, M. (2018). An experimental examination of object-directed ritualized action in children across two cultures. *PLoS One*, *13*(11), E0206884. https://doi.org/10.1371/Journal.Pone.0206884. PMID: 30485288; PMCID: PMC6261563.

Maddux, J.E., & Rogers, R.W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology*, *19*(5), 469–479. https://doi.org/10.1016/0022-1031(83)90023-9

Margolis, H., & Mccabe, P.P. (2006). Improving self-efficacy and motivation: What to do, what to say. *Intervention in School and Clinic*, *41*(4), 218–227. https://doi.org/10.1177/10534512060410040401

Mathiassen, A., & Nielsen, M. (2023). The role of ritual in children's acquisition of supernatural beliefs. *Religions*, *14*(6). https://doi.org/10.3390/rel14060797

McDonald, J., McDonald, P., Hughes, C., Albarracín, D., & Albarracin, D. (2017). Recalling and intending to enact health recommendations: Optimal number of prescribed behaviors in multibehavior messages. *Clinical Psychological Science*, *5*(5), 858–865. https://doi.org/10.1177/2167702617704453

McGuire, W.J. (1960a). A syllogistic analysis of cognitive relationships. In M.J. Rosenberg, C.I. Hovland, W.J. McGuire, R.P. Abelson, & J.W. Brehm (Eds.), *Attitude Organization and Change* (pp. 65–111). New Haven, CT: Yale University Press.

McGuire, W.J. (1960b). Cognitive consistency and attitude change. *Journal of Abnormal and Social Psychology*, 345–353. https://doi.org/10.1037/h0048563

McGuire, W.J. (1964). Inducing resistance to persuasion. Some contemporary approaches. *Advances in Experimental Social Psychology*, *1*, 191–229.

McGuire, W.J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The Handbook of Social Psychology* (pp. 233–346). New York, NY: Random House.

Petty, R.E., & Cacioppo, J.T. (1979). Effects of forewarning of persuasive intent and involvement on cognitive responses and persuasion. *Journal of Personality and Social Psychology*, *35*(9), 645–655. https://doi.org/10.1037/0022-3514.35.9.645

Ridgeway, C.L., & Cornell, S.J. (2006). Consensus and the creation of status beliefs. *Social Forces*, *85*(1), 431–453. https://www.jstor.org/stable/3844422

Rosenberg, M.J. (1960a). Cognitive reorganization in response to the hypnotic reversal of attitudinal affect. *Journal of Personality*, *28*, 39–63. https://doi.org/10.1111/j.1467-6494.1960.tb01601.x

Rosenberg, M.J. (1960b). Inconsistency arousal and reduction in attitude change. *Puhbic Opinion Quarterly*, *24*, 319–340.

Rucker, D.D., Tormala, Z.L., & Petty, R.E. (2004). Individual differences in resistance to persuasion: The role of beliefs and meta-beliefs. In E. Knowles & J.A. Lynn (Eds.), *Resistance and Persuasion* (pp. 83–104). Mahwah, NJ: Erlbaum.

Saucier, D.A., & Webster, R.J. (2010). Social vigilantism: Measuring individual differences in belief superiority and resistance to persuasion. *Personality and Social Psychology Bulletin*, *36*(1), 19–32. https://doi.org/10.1177/0146167209346170

Schwarz, N., & Clore, G.L. (1983). Mood, misattribution and judgements of well-being: Informative and Directive functions of Affective States. *Journal of Personality and Social Psychology*, *45*(3), 513–523.

Siegel, A., & Victoroff, J. (2009). Understanding human aggression: New insights from neuroscience. *International Journal of Law and Psychiatry*, *32*(4), 209–215. https://doi.org/10.1016/j.ijlp.2009.06.001

Strahan, E.J., Spencer, S.J., & Zanna, M.P. (2002). Subliminal priming and persuasion: Striking while the iron is hot. *Journal of Experimental Social Psychology*, *38*(6), 556–568. https://doi.org/10.1016/S0022-1031(02)00502-4

Sunderrajan, A., Durantini, M.R., Sanchez, F., Glasman, L.R., Parsons, J.T., & Albarracín, D. (2021). Multi-domain solutions for a complex problem: A meta-analysis of the efficacy of integrated interventions on change in behavioral and clinical outcomes related to HIV. In press. *Health Psychology*, *40*(9), 642–653. https://doi.org/10.1037/hea0001088

Sweet, S.N., Fortier, M.S., & Blanchard, C.M. (2014). Investigating motivational regulations and physical activity over 25 weeks. In *Journal of Physical Activity & Health* (Vol. 11, Issue 5, pp. 1052–1056). Human Kinetics. https://doi.org/10.1123/jpah.2012-0057

Tan, J.J.X., Karan, A., & Albarracín, D. (2021). Internal and social sources shape judgments about the mental and physical nature of an experience. *Psychology of Consciousness: Theory, Research, and Practice*, No Pagination Specified-No Pagination Specified. https://doi.org/10.1037/cns0000282

Tannenbaum, M.B., Hepler, J., Zimmerman, R.S., Saul, L., Jacobs, S., Wilson, K., & Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, *141*(6), 1178–1204. https://doi.org/https://dx. doi.org/10.1037/a0039729

Van Harreveld, F., der Pligt, J., de Vries, N.K., Wenneker, C., & Verhue, D. (2004). Ambivalence and information integration in attitudinal judgment. *British Journal of Social Psychology*, *43*(3), 431–447.

Wilson, K., Senay, I., Durantini, M., Sánchez, F., Hennessy, M., Spring, B., & Albarracín, D. (2015). When it comes to lifestyle recommendations, more is sometimes less: A meta-analysis of theoretical assumptions underlying the effectiveness of

interventions promoting multiple behavior domain change. *Psychological Bulletin*, *141*(2), 709–725. https://doi.org/10.1037/a0038295

Wyer, R.S., Jr., & Srull, T.K. (1989). Memory and cognition in its social context. Mahwah, NJ: Lawrence Earlbaum.

Wyer, R.S., & Albarracín, D. (2005). Belief formation, organization, and change: Cognitive and motivational influences. In D. Albarracin, B.T. Johnson, & M.P. Zanna (Eds.), *The Handbook of Attitudes* (pp. 273–322). Mahwah, NJ: Lawrence Earlbaum.

Wyer, R.S., Jr. (1974). *Cognitive Organization and Change: An Information-processing Approach.* Mahwah, NJ: Erlbaum.

Zhou, Y., Dai, W., XI, L., Sundaram, H., & Albarracin, D. (2024). *The Impact of Behavioral and Attitudinal Messages: An Experimental Investigation of How Behavioral Representations, Attitudes, and Norms are Formed Based on What Others Say in Interactions within a Group.* Unpublished Manuscript. Philadelphia: University of Pennsylvania.