Chapter 3
Action, Inaction, and Actionability: Definitions and Implications for Communications and Interventions to Change Behaviors

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Persuasive communications are designed with different objectives. For example, religious ministers try to strengthen their audiences' beliefs in the afterlife, and presidents defend the veracity of their statements. Marketing firms try to promote liking for a brand, and political campaign managers try to foster positive attitudes towards a candidate. Yet, other communications and programs try to change behavior, as when religious ministers solicit financial contributions, campaign managers strive to obtain votes for a candidate, or marketers seek to increase purchase. These communications to change behaviors bring up a number of important questions, including what contents maximize behavioral impact and the degree to which communications are successful in trying to induce actions or inactions. We begin this chapter with a discussion of action and inaction judgments that may affect one's disposition towards behaviors, such as those recommended in persuasive communications. We then follow with the notion of actionability, or the degree to which a communication or intervention is likely to influence behavior.

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Action and Inaction

An important consideration when assessing the likely impact of communications intended to change behavior is the construal of the recommendation as an action or an inaction. We define behavior as something that involves either motor or cognitive processes, such as sleeping, walking, or solving an intellectual problem. Behavior can be objectively conceptualized as active or inactive depending on the effort or energy expenditure involved in the process (Albarracín et al., 2008). For example, behaviorally, running is more active than sleeping. As such, the ends of an action/inaction continuum may be represented by a sprint on the action end and non-REM sleep on the inaction end. As analyzed presently, however, a person may arrive to a state of inaction in a restful or effortful manner, which leads to the distinction between restful and inhibitory inaction.

Factors Influencing Judgments of Action and Inaction

Although one may classify behavior objectively, whether a behavior is an action or an inaction is primarily a judgment, which has implications for other judgments, goals, and behaviors. For example, the contents of a communication may convey actions or inactions as goals and our judgments of each may influence adherence to the recommended behavior. These judgments are represented in Fig. 3.1 and concern evaluative valence (whether a behavior is positive or negative), intentionality (whether a behavior can be initiated willfully), control (whether a behavior can be stopped willfully), and effort (whether a behavior demands energy). Interventions may recommend actions and inactions, and their potential at achieving each is
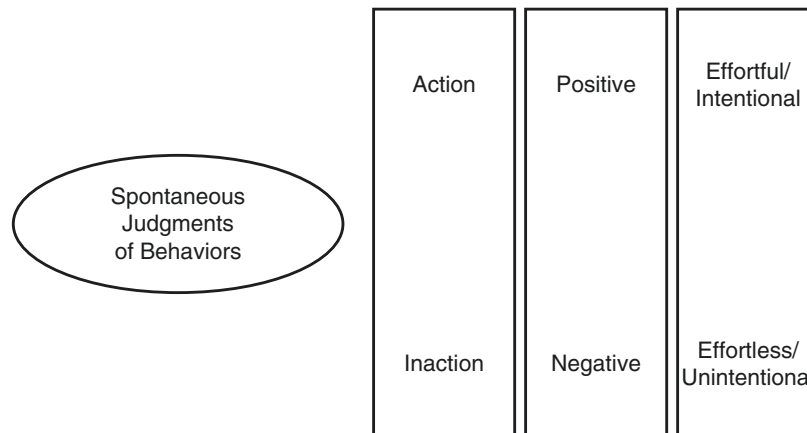
Fig. 3.1 Judgments of action and inaction

hereafter termed "actionability," which is the degree to which the program is successful at eliciting the recommended behaviors, be those actions or inactions.

Actions Are Seen as More Positive than Inactions Past evidence suggests that naïve definitions of action and inaction likely diverge in terms of valence, with evaluations of action being more positive than those of inaction. For example, work by McCulloch, Li, Hong, and Albarracín (2012) has found that people tend to rate words like "active," "run," and "jump" more positively than words like "inactive," "stationary," and "still." Similarly, cultural research has revealed that the general concept of action (e.g., "action is good") is rated subjectively more favorably than the general concept of inaction (e.g., "inaction is good"), especially in Western cultures (Ireland, Hepler, Li, & Albarracín, 2015; Zell et al., 2013).

This prior research, however, has been limited in having people rate words or concepts, instead of actual behavior. Thus, recent work has been done to determine whether this difference in evaluation would persist when rating actual (active and inactive) behaviors. In Experiment 2 (Sunderrajan & Albarracín, 2018), participants were asked to imagine themselves eating (or not eating) broccoli. When given no additional information, results showed that participants who were asked to eat broccoli (an action) evaluated the behavior more favorably than participants who were asked not to eat broccoli (an inaction). To ensure these results were not due to any association participants may have formed between eating broccoli and healthy behaviors (or other valenced contexts), Experiment 3 was run using the trivial behavior of pressing (or not pressing) a button, replicating results. This shows that behaviors falling under the umbrella of "action" are evaluated more positively than those falling under the umbrella of "inaction."

Why are naïve evaluations of action more positive than those of inaction? The extant literature provides three possible explanations. First, our social ethics tend to prescribe work while condemning laziness (Miller, Woehr, & Hudspeth, 2002). Thus, it is feasible that any behavior falling under the overarching action umbrella might similarly be valued more, relative to those behaviors categorized as inactions. Second, there is evidence to suggest that actions are more salient than inactions, which would presumably result in actions obtaining more of our attention and thus, being evaluated to a great extent (Fazio, Sherman, & Herr, 1982; Kahneman & Miller, 1986). Third, probably because they reflect a fundamental property of goals (i.e., individuals tend to pay more attention to what to do; Albarracín, Wang, & McCulloch, 2018), actions provide a more concrete indicator of progress on a task (Ferguson & Bargh, 2008).

Actions Are Seen as More Intentional than Inactions Underlying these explanations for the action positivity bias could be the naïve belief that actions are more intentional and goal-directed than inactions (Sunderrajan & Albarracín, 2018). This would be consistent with the explanations presented above, as engagement in work and the formation of goals are often seen to be the result of intentional behaviors. Furthermore, intentionality may be a meaningful basis for evaluations of actions because social groups need to strategically direct members towards intentional

actions that are necessary for the group's survival. As such, a general positivity bias for action may be driven by a corresponding intentionality bias for action.

Sunderrajan and Albarracín (2018) tested this intentionality bias possibility using the broccoli experiment mentioned previously. In the experiment, participants were not only asked to imagine eating (or not eating) broccoli but were also asked to do so in one of three conditions: high-intentionality, low-intentionality, or unspecified-intentionality. In the unspecified-intentionality condition, participants were presented with the behavioral scenario with no additional information. In the high- and low-intentionality conditions, however, participants were given further information to manipulate the level of intentionality associated with the behavior (e.g., high-intentionality: *Imagine yourself eating some broccoli … with a goal in mind*; low-intentionality: *Imagine yourself eating some broccoli … without a goal or purpose*).

Findings reported by Sunderrajan and Albarracín (2018) suggests that judgments of intention drive evaluations of actions and inactions. Specifically, their results found that, for the behavioral action, evaluations did not differ between the high-intentionality and unspecified-intentionality condition. However, evaluations were more positive in both of these conditions compared to the low-intentionality condition. The lack of difference between the high-intentionality and unspecified-intentionality condition thus suggests that actions are perceived to be positive, and manipulating intentionality to be high has no additional effect. For the behavioral inaction, evaluations did not differ between the unspecified-intentionality or low-intentionality condition. However, evaluations were less positive in both of these conditions compared to those in the high-intentionality condition. This finding thereby suggests that inactions are spontaneously infused with more negative evaluations, and the manipulation of intentionality is important in shifting these evaluations.

Actions Are Seen as More Effortful than Inactions Definitions of action, however, entail both high effort and commission. For example, according to Albarracín et al. (2008), behaviors involving high motor or cognitive output are characteristic of action (e.g., running), and those involving neither motor nor cognitive output are more characteristic of inaction (e.g., non-REM sleep). Therefore, action is not only associated with commission but also effort, while inaction is associated with omission and low effort.

This association between action, inaction, and effort is most transparent in McCulloch et al.'s work (2012). In Experiment 1, participants were given a list of words to rate on two scales, one measuring activity and one measuring valence, which the authors used to place these words along an activity continuum. Overall, the authors found evidence to suggest that ratings of action and inaction were more variable in the middle than at the ends—a fact which might be due to the amount of effort associated with each word. For example, "select," "walk," and "run" were three words participants characterized as actions; however, none of them had the same average rating. Instead, "select" was rated as the least active word (from this

list), "run" was rated as the most active word, and "walk" was rated somewhere in between—a pattern which would be consistent with the amount of effort attributable to each behavior. While not conclusive, this suggests that lay definitions of action show them as more effortful than inaction.

Control, Intentionality, Effort, and Evaluation, However, Appear to Be Intrinsically Linked There is evidence that control, intentionality, and effort are characteristics associated with judgments of action. Yet, from the extant literature, it appears that the association between these characteristics, action, and evaluation shares a lot of overlap. For example, greater energy is ascribed to desirable behaviors via goal setting (Ryan, 2002). Furthermore, when behaviors can be controlled (i.e., when one can direct what will happen), people's motivation to perform the behavior is higher and the outcomes of the behavior are perceived as more favorable (Cornwell, Franks, & Higgins, 2014; Eitam, Kennedy, & Higgins, 2013; Franks & Higgins, 2012; Higgins, 2012). And, in fact, intentionality is normally associated with behaviors that are desirable (Fishbein & Ajzen, 2010). Thus, judgments of control, intentionality, and desirability are likely to be intricately linked.

Research has also found a strong association between labor and love, such that, the more effort placed into some pursuit, the more value is attached to it. Norton, Mochon, and Ariely (2012), for example, asked participants to either build an IKEA storage box or inspect one, and then, bid and rate how much they liked the product. Their results found that participants who built the storage box were willing to pay more for the storage box, but also for the product. This research shows that the subjective value of a behavior is determined by the effort that goes into that behavior (effort justification theory; Aronson & Mills, 1959), such that mere engagement in labor is sufficient to increase the valuation of task outcomes (the IKEA effect; Norton et al., 2012). This research reveals how interwoven control, intentionality, and effort are with each other, and with people's motivation to engage in a task, or their overall evaluation of the task.

An extension of the previously cited experiment (Sunderrajan & Albarracín, 2018) has, in fact, empirically shown that this interrelation is likely. In particular, to determine whether intentionality truly mediated the relation between action, inaction, and evaluation, the authors ran a mediation model. Results revealed a significant indirect effect of action/inaction on ratings of evaluation, mediated by intentionality. Yet, as it is conceivable that intentionality may be a byproduct of evaluation, the authors also ran a mediation model with evaluation as the mediator for the association between action, inaction, and intentionality. This model also showed a significant indirect effect. Hence, these results provide empirical support for a complex bidirectional relation between intentionality and evaluation. It will be interesting to further identify the specific roles control, intentionality, and effort play in the evaluation of actions and inactions, and just how much overlap they truly share.

We Live in an Action-Oriented Society That Favors Inaction When Outcomes Are Likely to Be Negative Action and inaction has been the focus of important decision-making research. Kahneman and Tversky (Kahneman & Miller, 1986;

Kahneman & Tversky, 1982) found that, when people experience a negative event, they value and regret commissions more than omissions. In part, this bias is because imaging a world without a committed behavior is easier than imagining a world with an omitted behavior. Research in the moral domain has thus shown that people prefer harm by omission over harm by commission (omission bias; Baron & Ritov, 2004), and in the classic notions of economy, the norm for investment decisions is pro-omission (Kahneman & Miller, 1986). According to this research, then, there exists a norm favoring inactions in our society.

Yet, recent work has revealed that the story is not as simple as it seems. In one experiment (Feldman & Albarracín, 2017), participants were presented with the classic Kahneman and Tversky (1982) investment scenarios describing two stock traders working for a financial firm: One who switched investments (action), and one who refrained from switching investments (inaction). Following the scenario, participants were asked to identify which of the two stock brokers the company would consider superior. Participants were also given a description of two invest-ment companies, one favoring action and one favoring inaction. Participants were then asked which of these two companies was more commonly occurring in their country of residence (all participants were US residents).

Results revealed that 76% of participants indicated that the investment company would consider the inaction-oriented stock broker to be a better worker, consistent with prior research. Yet, only 12% of participants indicated that the inaction-oriented company was more commonly occurring in the USA. These data thus reveal an inconsistency between a theoretical assumption for inaction in the regret literature and the general perception of the normative behavior to take action: Although the perceived social norms in society are for taking action, the perceived norms in an investment scenario are for inaction. Additional work has revealed that, in general, there exists a strong preference for taking action. But, when presented with possible negative consequences (a common theme in the domains of morality and economic theory), people prefer norms towards not taking action. Thus, reliance on action and inaction norms fluctuates with the scenario.

Yet, even when decisions carry the potential for negative outcomes, as in the case of investments, the specific norms are highly malleable. In another series of experi-ments, Feldman and Albarracín (2017) assigned participants to one of three norm conditions of action, inaction, and control. They adjusted the classic Kahneman and Tversky (1982) scenario so that it described two stock traders working at a financial firm. In the scenarios, George switches investments (action), and Paul remains with his original investments (inaction). The classic scenario describes the traders as independent and participants show greater regret in the action than the inaction condition, suggesting that the norm is pro-inaction. However, Feldman and Albarracín also manipulated the company norm. In Experiment 1, the action–norm condition involved statements that the company emphasized action and proactive decision-making, and evaluated its employees based on their ability to act and actively pursue good investments. The inaction–norm condition stated that the

company emphasized cautious and responsible decision-making, and evaluated its employees based on their ability to refrain from bad investments. There was also a control condition that did not indicate either preference. Following the scenario, participants indicated who was likely to experience higher regret. Participants indicated the highest probability of regret in the action–norm condition, followed by the control condition, followed by the inaction–norm condition (88%, 72%, and 56%, respectively). This supported that shifts in specific norms trigger changes in regret. Interestingly, the degree of regret was the same when participants were told that the investments were decided on intentionally by Paul and George, or by the toss of a coin (Experiment 2), and when the manipulated norms were societal (Experiment 3) or family-based (Experiment 4), rather than institutional.

Action and Inaction Goals and Active and Inactive Behavioral Means

An important distinction characterizing behaviors as actions or inactions is that of goals versus means. An inaction goal may be achieved by inhibition or by continued rest as means to the goal. When a person is sleeping, continuing to sleep requires no effortful means and is a mere continuation of the prior state. In contrast, switching to sleeping when a person is currently running involves effortful, inhibitory means. Likewise, an action goal may be achieved by inertia or by effortful behavioral means. Continuing to run when a person is running is often less effortful than stopping abruptly. In other words, changing from one state to the other is often effortful, but the degree of action or effort of the achieved state is independent of the means to arrive at that state.

General vs. Specific Action and Inaction

The construal of action and inaction operates at both general and specific levels. At a general level, action and inaction involve any behavior that can be conceptualized as involving high or low effort and engagement, respectively. For this reason, priming general action and inaction concepts has been shown to affect a variety of behaviors. Laboratory experiments have shown that when individuals have a general action (or inaction) goal, they ultimately pursue more active (or inactive) behaviors. For example, the priming procedures in Albarracín, Hepler, and Tannenbaum (2011) involved exposing participants to concepts linked to general action (e.g., "active" and "go") or general inaction (e.g., "rest" and "stop"). The assessment of activity following the primes has involved diverse tasks in the form of decision-making to political participation. For example, in Experiment 1 of Albarracín et al. (2008), participants were primed with action or inaction through a word-completion

task (e.g., "Fill in the missing letter(s): ac_ive"), which was followed by a choice to participate in an active task (drawing on a piece of paper) or an inactive task (resting with eyes closed). Findings revealed that 62% of participants primed with action chose to draw instead of to rest, whereas only 36% of those primed with inaction chose to draw instead of to rest. Further, the same general action and inaction primes can influence other behaviors that also fall under the conceptual umbrella of action and inaction. For instance, experimental studies have found effects on eating, physical movement, and political participation, as well as intellectual performance, although the latter effects have not been replicated (e.g., Albarracín et al., 2008; Albarracín & Hart, 2011; Minas, Poor, Dennis, & Bartelt, 2016; Noguchi, Handley, & Albarracín, 2011).

The operation of these general action and inaction goals obeys two important principles. First, symbols and words connect with the *conceptual* representation of action and inaction. Second, these representations connect to *physiological resources* that are mobilized to meet task demands. These resources involve sympathetic regulation of adrenaline, heart rate, and bronchial dilation, which prepare organisms for fight or flight (Brehm & Self, 1989). Exposure to action words—even below the level of conscious awareness—can modulate this type of physiological activity, such that action and inaction goals, respectively, increase and decrease resource mobilization (Gendolla & Silvestrini, 2010). The generality of these mechanisms is such that general action and inaction concepts can facilitate or hinder execution of activity in a variety of specific domains.

Even though general action and inaction goals are likely to recruit relevant specific goals, specific goals are likely to drive general goals as well. For example, children who are socialized to value sports and academic activities may value those specific activities but also generalize those evaluations and appreciate action more generally. Later, however, the general goal may operate independently and seek satisfaction through other means, including impulsive ones. In fact, effects of general action and inaction goals on impulsive behavior have been demonstrated by Hepler, Albarracín, McCulloch, and Noguchi (2012). Specifically, these authors found that priming words of general action and inaction increased false alarms on a Go/No-go task, suggesting that the generality of the goals can control not only deliberative behavior but also impulsive action.

### The Efficacy of Requesting Actions or Inactions

Requesting actions is likely to be more demanding than requesting inactions. As proposed by Albarracín et al. (2018), people are more likely to spontaneously form action than inaction goals. They are also more likely to experience difficulty and cognitive demands in response to multiple action demands than in response to multiple inaction demands. Compared to inactions, actions receive more attention (Kahneman & Miller, 1986) and elicit stronger emotional reactions (Landman,

1987; Zhou, Yu, & Zhou, 2010). In animal perception and learning, for example, pigeons are better able to associate rewards with video images of other pigeons that are moving than with other pigeons that are standing still (Dittrich & Lea, 1993). In humans, people who signal agreement by actively producing a response later agree with a behavior more than people who signal agreement by avoiding a response (Allison & Messick, 1988; Cioffi & Garner, 1996; Fazio et al., 1982).

The fact that action demands are greater than inaction demands is likely positive when a single behavior is requested and thus encourages attention and action preparation. However, when multiple behaviors are requested, a greater number of actions may have more detrimental effects than a greater number of inactions (Albarracín et al., 2018). Supporting this possibility, a series of experiments using a multiple Go/No-go task showed that both misses and false alarms were more frequent when participants had to press a key in response to 3 targets than when they had to not press a key in response to 3 targets. This pattern was attributable to the greater cognitive load posed by the multiple action goals and by people's natural focus on action. In fact, when participants were encouraged to focus on inaction (Experiment 4), the difference in errors decreased.

In sum, actions may be more salient, connote greater positivity, and engage greater intentionality, control, and effort. However, some interventions may seek to encourage actions (e.g., increase exercise) and others may seek to encourage inactions (e.g., sleep more). In both cases, interventions should be successful to the extent that they encourage positivity, intentionality, controllability, and effort. This is illustrated in Fig. 3.2 to emphasize that inactions must become goals that are pursued intentionally and which may require preparatory actions, or active means, to be successful. As in Albarracín et al. (2018), inaction can become a goal.
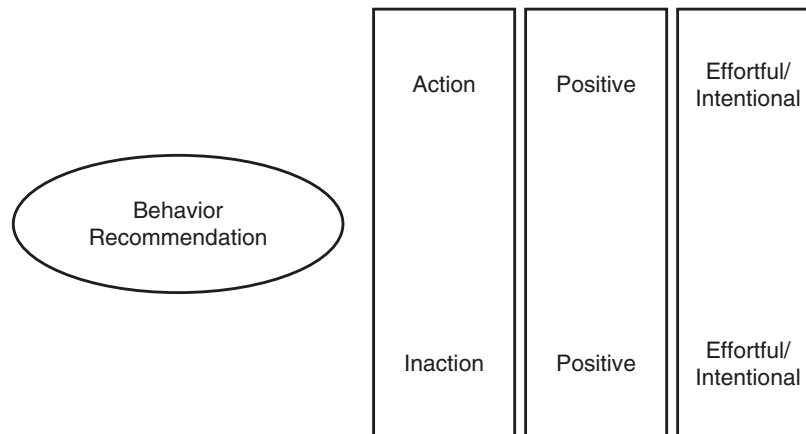
Fig. 3.2 Goal for behavior recommendations to be experienced as positive and be pursued effortfully and intentionally

Framing Inaction as Action and Action as Inaction

If action engages more effort and is generally perceived as more positive, it is only natural to try to reframe inaction recommendations by proposing substitute actions. There are several reasons for this proposal. First, at the level of cognitive change, it is easier to replace one cognition with another than it is to simply eliminate it (Chan, Jones, & Albarracín, 2017). Second, people have an easier time conceptualizing the presence of a behavior than the absence of a behavior (Albarracín et al., 2018). Third, behavioral skills programs tend to emphasize what you are going to do to change your behavior (Albarracín et al., 2005; Albarracín & Wyer, 2001; Bandura, 1986, 1997; Fisher & Fisher, 1992), so even the goal of not smoking again is likely reframed as behaviors during those models. Fourth, telling people what not to do tends to elicit psychological reactance (Brehm, 1966), thus leading us to conclude that it is better to encourage people on what to do instead of what not to do.

The degree to which recommending what to do may be more successful than recommending what not to do is illustrated by Albarracín, Cohen, and Kumkale (2003) research on abstinence and moderation. In their research, participants received a message that recommended either abstinence from, or moderation in, the use of a new type of alcohol product. After reading persuasive messages, participants either tried the product or performed a filler task before reporting their intentions to drink in the future. As predicted, participants who did not try the product reported similar intentions to drink when they received the moderation message and when they received the abstinence message. However, when participants tried the product after receiving the message, recipients of the abstinence message had significantly stronger intentions to drink than recipients of the moderation message. Apparently, trying the product after a strong recommendation led participants to the conclusion that they truly liked the forbidden product. In any case, the message anticipating some drinking was more effective than the extreme abstinence one.

Affirmed Action vs. Negated Inaction

An interesting question is whether discouraging or negating inaction is as effective at inducing active behavioral responses as is recommending action. In work conducted by Ireland, Hepler, and Albarracín (2013), participants read the political slogans used in presidential campaigns. The slogans and sources appear in Table 3.1, organized in terms of whether they affirmed action, negated inaction, and included a mix of affirmed action and belief-inducing messages as a control condition. In this experiment, both the high and moderate frequency of action conditions yielded similar intentions to vote for a political candidate that used the slogans. Thus, it appeared that moderate levels of action contents were sufficient to induce supporting intentions. More importantly, negated inaction led to much weaker intentions to vote for the candidate. Apparently, the negation, which is much more difficult to process, did not communicate action in the same way as did the affirmative statement about action.

Table 3.1 Affirmed and negated action slogans

Condition	Slogan	Source and election year
High frequency of affirmed action	*It's time to change.*	Bill Clinton (1992)
	It's time for us to get working again.	Rick Perry (2012)
	Come and take it.	Battle of Gonzales (1835)
	Stand up for your country.	George Wallace (1968)
	We're turning the corner.	Herbert Hoover (1932)
Moderate frequency of affirmed action	*It's time to renew.*	Herman Cain (2012)
	Believe in our country.	Ron Paul (2012)
	All the way.	Lyndon B. Johnson (1964)
	In your heart, you know he's right.	Barry Goldwater (1964)
	Restore our future.	Mitt Romney (2012)
High frequency of negated inaction	*You can't stop thinking about tomorrow.*	Bill Clinton (1992)
	We will not surrender.	Lyndon B. Johnson (1964)
	We can't wait.	Barack Obama (2012)
	The stakes are too high to stay home.	Lyndon B. Johnson (1964)
	Don't settle.	Michelle Bachman (2012)

Note. Slogans were adapted from Wikipedia's List of Political Slogans and other web searches. The Clinton slogan was a quote of Fleetwood Mac's (1977) "Don't Stop"

Homogeneous Action and Inaction Messages

Recommendations of action and inaction within an intervention are likely to trigger opposing processes of action initiation and inhibitory control of behavior. Action preparation entails an executive process that orchestrates a response (Jennings & Van Der Molen, 2005). Although the responses vary, the executive mechanisms of action preparation are common to a variety of tasks. Similarly, inhibitory processes generalize across tasks and behaviors. A meta-analysis of 18 experiments conducted by Tuk, Zhang, and Sweldens (2015) showed that engaging self-control in one domain (i.e., controlling thoughts, attention, food consumption, or emotions) facilitates self-control in other domains. Consistent with this finding, Berkman, Burklund, and Lieberman (2009) reported that inhibitory signals originate in the same areas of the brain across a variety of responses, suggesting a general inhibitory process.

The single process underlying action preparation in different contexts led Albarracín, Wilson, Chan, Durantini, and Sanchez (2017) to propose that a health recommendation of action would facilitate other health recommendations of action but have antagonistic effects when combined with recommendations of inaction. Furthermore, the single process underlying inhibitory control in different contexts led them to propose that a health recommendation of inaction would facilitate other inaction recommendations but hinder action recommendations. In other words, a

homogeneous set of health recommendations should be more efficacious than a heterogeneous set. Recommending increases in physical activity may be more efficacious when combined with recommending increases in fruit and vegetable intake than when combined with recommending decreases in fat intake. Likewise, recommending a decrease in fat intake may be more efficacious when combined with reducing sugar intake or quitting smoking than when combined with increasing exercise.

These hypotheses were tested in a meta-analysis of reports of the effects of multiple-behavior interventions in the area of lifestyle (diet, exercise, and smoking). Reports were required to include a pretest assessment of clinical and/or behavioral outcomes, which were averaged, and the final database included 216 multiple-behavior change intervention groups ($N = 74{,}000$ participants). For coding purposes, the recommendations were the goals, or behavioral categories, targeted in the interventions. They involved specific prescribed dietary, exercise, or smoking behaviors (e.g., reducing sedentary time) made by an intervention. The total number of recommendations contained in the intervention comprised a count of the total number of primary goals (e.g., three when the recommendations were to reduce calories, to increase fruit and vegetable intake, and to increase physical activity). For each recommendation, the researchers also coded (a) the domain of the recommendation (e.g., diet, and exercise) and (b) whether the recommendation was for action (e.g., increase physical activity; increase fruit intake) or inaction (e.g., reduce fat intake; quit smoking; rest and relax).

Albarracín et al. (2017) calculated Becker's (1988) *g* to indicate a change in pre- to posttest measures. They subtracted the mean at the posttest from the mean at the pretest and then divided the difference by the standard deviation of the pretest measure. The sign of the effect sizes was chosen to represent improvements from a health perspective (e.g., decrease in BMI, and increase in fruit intake) as positive. Common measures of behavioral outcomes in the area of *diet* were energy intake (e.g., kcal/week); carbohydrate, protein, fiber, fat, fruit, and vegetable intake (in grams or servings); number of meals per day; whether participants achieved dietary recommendations; whether participants achieved recommendations for fruit and vegetable intake; whether participants checked their blood pressure in the past 12 months; presence of unhealthy eating; and presence of overeating. Frequent behavioral measures in the *exercise* domain entailed whether participants engaged in daily exercise; weekly hours of physical activity; whether participants engaged in occupational physical activity; whether participants had regular physical activity; whether participants achieved certain exercise recommendations; whether participants were sedentary; whether participants reported high-impact physical activity; self-monitoring of pulse and blood pressure; self-monitoring with pedometer (daily pace); time spent in physical activity; energy expenditure in physical activity (k/cal); and number of TV hours per day. Frequent behavioral measures in the *smoking* domain included current smoking status; number of cigarettes smoked per day (often via diaries); number of years of smoking; whether participants were ex-smokers, and longest quit duration. Frequent clinical measures included body weight in kilograms; body mass index; hip size; waist size; hip/waist ratio; body fat;

whether participants were overweight; whether participants were obese; systolic/diastolic blood pressure; triglycerides level; HDL/LDL cholesterol; fasting blood glucose; presence of diabetes; presence of metabolic syndrome; pulse; results from spirometer tests; results from VO_2 Max tests; results from chest X-ray; presence of nicotine in blood; lab tests to confirm right dose of medication in blood; lab tests for diabetes; results from PAP tests; results from mammogram reports; results from dental records; and results from colonoscopy reports.

Albarracín et al. (2017) used this meta-analysis to test the hypothesis that homogeneous behavioral recommendations were more efficacious than heterogeneous ones. They created a variable that classified interventions as recommending predominately action behaviors, an equal number of action and inaction behaviors, or predominately inaction behaviors. They also created a variable that averaged all behavioral and clinical measures of change available in a study. Table 3.2 presents the average effect of that variable on overall change. The table also includes Q_B statistics, which indicated a significant effect of that variable on overall change. As predicted, interventions that predominantly included recommendations for either action or action were more effective than recommendations that were equal in the inclusion of action/inaction recommendations. Further, interventions with equal numbers of action and inaction did not differ significantly from single-behavior programs or control conditions (see subscripts e and d in Table 3.2). Finally, and unexpectedly, a predominance of inaction recommendations produced more change than a predominance of action recommendations.

In this section, we have shown that an important consideration when assessing the likely impact of communications intended to change behavior is the construal of recommendations as either an action or inaction. Actions are seen as more positive, controllable, intentional, and effortful, than inactions. Yet, favorability for norms associated with actions and inactions can fluctuate and, more importantly, so can the need for action and inaction goals and recommendations in the health domain. For example, interventions may seek to encourage actions (e.g., increase fruit consumption), whereas others may seek to encourage inactions (e.g., decrease sugar intake).

Table 3.2 Overall change as a function of the action and inaction recommendations (Albarracín et al., 2017)

	Predominately inaction	Equal	Predominately action	QB_2	k
k	30	106	80		
Fixed effects $d.$	0.35_a	0.11_{bde}	0.19_c	395.84***	216
Random effects $d.$	0.48_a	0.16_b	0.23_c	35.73***	216

Note. d. = weighted means. No-intervention control groups ($k = 39$, $d. = 0.06$, confidence interval $=-0.01$, 0.12) and single-behavior intervention groups ($k = 15$, $d. = 0.07$, confidence interval $=0.02$, 0.13) were excluded. Following the means, we present the *QB* for *the action/inaction* index. *QB* = homogeneity coefficient for the difference across levels of a factor, distributed as a chi-square with degrees of freedom equal to the number of factor levels—1. *d*s with similar subscripts a–c are not significantly different from one another. Subscript d indicates that change is not different from change in the no-intervention control group. Subscript e indicates that change is not different from change in the single-behavior control group. *k* number of conditions
***$p < 0.001$

Depending on factors such as intervention demand and psychological reactance, either type of communication is useful. As such, actions and inactions can both be the focus of behavioral interventions. The next step, then, is to understand what is required to achieve high levels of actual behavioral change.

Actionability

Even though successfully inducing beliefs and attitudes by means of persuasive communications is not without complications, the challenge of changing behavior is even higher. There are numerous reasons why changing behaviors is difficult. In the second part of this chapter, we propose a framework to analyze the factors that make persuasive communications actionable. We define *actionability* as the property of enabling and motivating recipients to make behavioral decisions based on the intervention content. Actionability comprises the inclusion of behavioral recommendations, the relevance of those recommendations within the context of behavior execution, and the influence of the message on the recipient's ability and motivation to carry out the recommendations. An intervention is actionable if it includes at least one behavioral recommendation, the recommendation is appropriate for the context, and the intervention promotes recipients' willingness and ability to carry out the recommendation. These premises are graphically represented in Fig. 3.3 and illustrated in the coming sections.

In our analysis, actionability varies from potential, when an intervention explicitly recommends one or more behaviors, to fully realized, when the behavior is relevant to the recipient's context and is ultimately executed. The upcoming sections cover these components of actionability and how to incorporate them in the practice of intervention design. We also review research findings and theories that have implications for our conceptualization and draw recommendations for communication and intervention design.
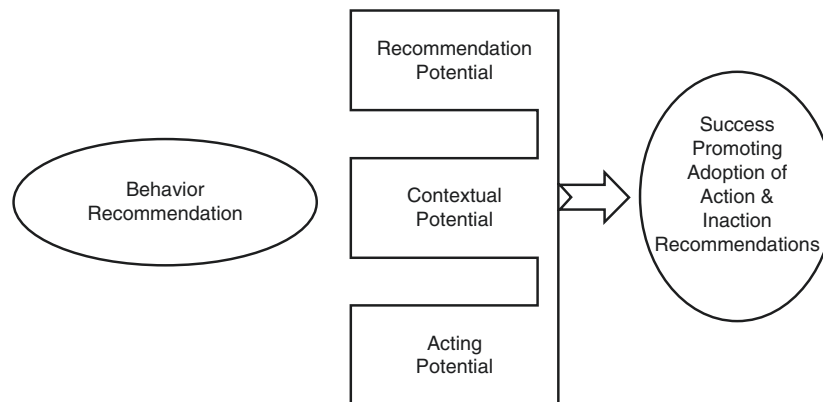
Fig. 3.3 Actionability

Table 3.3 Means (and standard deviations) of credibility and actionability as a function of message type (Dai & Albarracín, 2017)

	Credibility or strength	Actionability
High-actionability message	1.39 (0.88)	2.05 (0.71)
Low-actionability message	1.59 (0.99)	1.13 (1.11)

Distinguishing Actionability from Believability

Actionability is conceptually distinct from the believability or credibility of a persuasive communication or intervention. In theory, a message may be highly credible without having any implications for behavior. To test this possibility, we randomly assigned 28 participants to read either a positive review or a negative review of an ostensible product, a juice that could be customized to meet customer's specifications before an online order was placed (Dai & Albarracín, 2017). The high-actionability form of the message stated that the juice product offered a variety of flavors and could satisfy different needs for a wide range of customers; the low-actionability form of the message stated that the juice factor was infamous for its inefficient manufacturing process and excessive waste of fruit during manufacturing. Participants were instructed to read the message and then asked to rate their reactions on three scales. The credibility or argument strength scale included items such as "this information is persuasive" and "this information is compelling." The actionability scales include items such as "this piece of information influences my behavioral decision" and "this piece of information is relevant to my behavioral goal." The attitude scale includes items such as "this product is good" and "this product is positive." Table 3.3 summarizes participants' ratings based on each message. As shown in this table, the two messages were identical in credibility, but actionability differed.

Distinguishing Actionability from Desirability and Other Attitudinal Effects

Actionability is theoretically distinguishable from the desirability of the object or behavior promoted in an intervention. For example, a message may communicate that a future product will be more or less environmentally friendly. However, if the primary reason for purchasing the product is its low cost, arguing that it is or it is not environmentally friendly is likely to have little effect.

Even though actionability is conceptually distinct from desirability, action contents in a message tend to elicit positive feelings. For example, as mentioned previously, in research by McCulloch et al. (2012), participants were asked to rate words in terms of their action content as well as their valence. As expected, words like *action* were rated as more active than words like *freeze* or *relax*. Furthermore, words rated as active were also generally rated more positively than words rated

as inactive. Given these findings, it is not surprising that many marketing campaigns are structured around active words. For example, Nike's "Just do it!" says little about the trademark's sport products but likely capitalizes on the associations between doing and positive feelings.

Recommendation Potential: Nature of Behavioral Recommendations in an Intervention

Number of Recommendations Although there are exceptions, a communication or intervention that offers no behavioral recommendation is generally unlikely to elicit behavior. Thus, the presence and number of behavioral recommendations are primary considerations in thinking about the actionability potential of any program. A meta-analysis of multiple-domain health-promotion interventions revealed that moderate numbers (2–3) of recommended behaviors produce better clinical and behavioral outcomes than both fewer (0–1) and greater (4+) numbers (Wilson et al., 2015). However, the decrease in outcome quality from 2–3 to 4+ is generally negligible, which is probably attributable to the interventions being designed to be feasible and on the basis of significant pilot testing.

Comprehension Recommendations have comprehension potential when interventions are in the language of the recipients, have a linguistic complexity appropriate for the level of education of the audience, and use language and concepts that are accessible to the level of expertise of the audience. Sheridan et al. (2011) reviewed the features that make interventions accessible to audiences with low literacy and numeracy, which are, respectively, the ability to read written verbal materials and to execute basic mathematical functions. Peters, Dieckmann, Dixon, Hibbard, and Mertz (2007), for example, found that low- and high-literacy recipients of health information about hospital quality have better comprehension when they receive only essential information. Further, presenting the essential information first when all the information was presented also improved comprehension, but this effect was present only among low-numeracy participants. Other studies have found that using higher numbers to represent the presence of a characteristic (i.e., hospital quality) (Peters et al., 2007), and presenting disease risk and treatment benefit information using the same (versus different) denominators (Garcia-Retamero & Galesic, 2009), also improved comprehension when numeracy was low. Additionally, presenting comparative information about the harms and benefits of two drugs in tables, rather than text, improved understanding, particularly for recipients with low literacy (Tait, Voepel-Lewis, Zikmund-Fisher, & Fagerlin, 2010). Finally, adding pictorial information and graphic symbols can help, although some of the findings are conflicting (Sheridan et al., 2011).

Contextual Potential

The contextual fit or appropriateness of a behavioral recommendations is an important consideration because recommendations may not apply to a context, either because of structural differences or because of an inadequate specification of the behavior. Recipients construct a mental model of what behaviors are to be executed when and where. Mismatches with reality may come in different forms, including structural discrepancies and level discrepancies. Imagine a message that states that the way to reduce the threat of influenza is to take a pill. Recipients may correctly understand the message and then proceed to go to a health clinic only to find out that the flu vaccine only comes in injectable or nasal forms.

A structural mismatch between the recommendation contained in the intervention and the contextual reality is fairly extreme, but mismatches based on level of generality are common. For example, audiences may be told to have safe sex. This recommendation is general enough to include avoiding sex with HIV-infected partners, avoiding sex with HIV-infected partners not currently on PreExposure Prophylaxis (PrEP), having sex with a condom or latex barrier, and having sex while on PrEP. Thus, having "safe sex" is too general a recommendation without specifying the spectrum of behavioral possibilities in particular contexts. Furthermore, messages and interventions that are excessively specific are likely to lose actionability potential as well. For example, a patient who only knows the commercial name of a drug may fail to identify an entire category of substitutes with a different designation.

Acting Potential

Communications and interventions become truly actionable when they instill recipients' cognitive and motivational responses in line with the message recommendation. These include (a) activation of concepts, (b) formation of beliefs and attitudes, (c) emotional feelings, (d) behavioral skills, and (e) perceptions of control. Intentions may also be involved, except that some behaviors may be relatively automatic. Many of these variables overlap with the integrative model of behavior proposed by Fishbein (Fishbein, 2000, 2008; Fishbein & Ajzen, 2010).

Activation of Concepts Prior research has shown evidence that activation of concepts through such external signals as words and pictures can influence performance of behavioral tasks completed after the signal is presented. This type of subtle influence of simple signals is also known as a priming effect (for a review, see Weingarten et al., 2016). For example, college students who unscrambled words denoting rudeness during a sentence scramble task were more likely to interrupt a conversation than those who unscrambled words about either politeness or neutral topics (Bargh, Chen, & Burrows, 1996). Similarly, in their second experiment, participants who accessed words relevant to the elderly stereotype walked down the hallway more

slowly than did control participants. Despite the fact that some of these priming effects have been resistant to direct replication (Doyen, Klein, Pichon, & Cleeremans, 2012; Harris, Coburn, Rohrer, & Pashler, 2013), a large meta-analysis revealed a small but robust behavioral priming effects ($d_{FE} = 0.332$, $d_{RE} = 0.352$) (Weingarten et al., 2016). Weingarten and his colleagues also found that behavioral concepts that were valued more were associated with stronger priming effects.

The above findings suggest that interventions that can activate certain behavioral concepts, especially those that matter to the recipients, have greater potential to influence the recipients' future behaviors. For instance, a message that primes the concept "efficiency" by containing words like "fast," "speed," or "quickness" may have greater potential to speed up recipients' behaviors than a similar message without these words. Actionable interventions are often able to activate at least one, and often multiple-behavioral concepts that are relevant to the recommended behaviors. Without activating relevant behavioral concepts, messages are unlikely to have a behavioral impact. However, priming concepts alone is unlikely to exert predictable effects because the direction of the effects depends on preexisting motivations in the recipients (Hart & Albarracín, 2009; Strahan, Spencer, & Zanna, 2002). Therefore, more elaborate instructions such as belief-based messages are necessary.

Formation of Beliefs and Attitudes A belief refers to a subjective perception of the likelihood that something is true, or something will happen. Forming beliefs is one of the most mundane, yet important, capacities of the mind (Anderson, 1971; Fishbein, 1963; Wyer, 1970). It is also the foundation of most of our attitudes. Forming a belief about an object can lead to an attitude towards that object as well as an attitude towards certain behaviors related to that object. For example, a person who believes that a vaccine prevents disease tends to form a positive attitude towards both the vaccine (i.e., an attitude towards the object) and periodically receiving vaccines (i.e., an attitude towards behaviors). In contrast, a person who believes that vaccines do not prevent disease is more likely to form a negative attitude towards both the vaccine and getting vaccines.

Actionable interventions often allow recipients to form new beliefs or alter preexisting beliefs. Forming new beliefs can help with forming new attitudes and therefore developing new behavioral habits, whereas altering key prior beliefs can change preexisting attitudes towards certain objects, and therefore, change the way they interact with those objects. Messages to curb smoking emphasize that smoking is bad for health. However, such messages are likely ineffective because the primary preexisting beliefs leading to smoking concern the social image of smoking or the effects of smoking on smokers' moods. Thus, actionable messages to change behaviors require changing key beliefs at the basis of undesirable behaviors.

Emotional Feelings Another basis for attitudes is affective feelings. The question, "what do I believe about it?" is not the same as, "how do I feel about it?," and the answers to these questions may differ. For example, people might believe that the chance to win the lottery is low but still feel like purchasing a ticket each time they enter a gas station. In this case, the feelings towards the object can override the beliefs about that object and thus play a dominant role in shaping behavior.

In addition to the affect elicited directly by the attitude object, affect elicited by other relevant sources, such as experiencing a happy or sad mood, can also influence one's attitudes (Schwarz & Clore, 2007). Experimentally, induced irrelevant affect has been found to influence a wide variety of judgments, such as consuming products (Pham, 1998), risks (Gasper & Clore, 2000), and political decisions (Forgas & Bower, 1987), as long as the respondents are unaware of the true source of the affect (Gasper & Clore, 2000).

One explanation of why affects, even those that are irrelevant, can have a big influence on judgments is proposed by the Affect-as-Information model. Schwarz and Clore (1983) proposed that the embodied information of feelings can itself influence judgments. In one of their studies, they found that people were more satisfied with their lives when in a good mood (induced by sunny days) rather than when in bad mood (induced by rainy days). However, this effect would go away if people were instructed to attribute the affect information to its true source. The effect is thus unlikely when people have high knowledge in the judgment domain (Averbeck, Jones, & Robertson, 2011).

One of the more investigated emotional aspects in the area of persuasion and behavioral interventions is the use of fear. Fear appeals are persuasive attempts at arousing fear by highlighting a threat or danger (Dillard, Plotnick, Godbold, Freimuth, & Edgar, 1996; Maddux & Rogers, 1983). Tannenbaum et al. (2015) meta-analyzed the effects of fear appeals and found a moderate significant effect. In fact, fear appeals facilitated the recommended behavior in all of the conditions under which the effects were examined. Clearly, actionable interventions often elicit emotional responses among the recipients. In some cases, as in the case of fear appeals, the emotion is directly relevant to the recommended behavior. Other times, these emotions are not necessarily relevant to the target object or behavior but still prepare the recipients for the intended behaviors. For example, if a message is intended to encourage a positive attitude towards the purchase of a certain product, subtly inducing positive emotions using irrelevant stimuli can succeed at producing misattribution of those feelings to the product. Usually, the more intense emotions a message can elicit, the greater its potential to influence behavioral decisions among recipients is.

Behavioral Skills Atkinson (1964) introduced a formula to calculate the tendency to act using three determinants: (a) the motivation to act, (b) incentive for success, and (c) the probability of success, which is often based on behavioral skills. Based on Atkinson's model, even when a person has both a strong motivation and incentive to act, behavioral skills to ensure success are key for the person to perform the behavior. That is, a person whose significant other jumps off a bridge is likely to jump to their rescue only when the person knows how to swim.

There is considerable support for the importance of behavioral skills in changing behaviors. For example, Albarracín et al. (2005) found that interventions to promote condom use were more successful when they included behavioral skills training than when they did not. A lack of behavioral skills predicted failures to quit smoking (Tait et al., 2007), but training smokers in skills increased smoking

abstinence at a 4-year follow-up (Conner & Higgins, 2010). Similar results have been found in the area of alcohol use, where skills training reduced alcohol use at a 4-year follow-up (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2013). Therefore, actionable interventions must focus on altering recipients' beliefs and feelings about the behavior but also the skills necessary to execute a behavior.

Perceptions of Control In general, perceptions of control refer to a person's perception that he or she can influence the occurrence of an event (Wallston, Wallston, Smith, & Dobbins, 1987). A number of studies have shown that taking into account perceived behavioral control improves the prediction of behavior (Aizen, Fishbein, Lohmann, & Albarracín, n.d.). Meta-analyses have found that, on average, perceived behavioral control explains approximately 2% of the variance in behavior over and above behavioral intentions (Armitage & Conner, 2001; Cheung & Chan, 2000). However, the contribution of perceived behavioral control depends largely on the degree to which the behavior is under volitional control. When volitional control is high, intentions are good predictors of behavior and perceived behavioral control adds very little. In contrast, when a behavior is not under complete volitional control, perceptions of control become more important (Madden, Ellen, & Ajzen, 1992).

As such, perceptions of control are another important factor that can influence the perceived chance of success, increasing or decreasing a person's tendency to act. Smokers, for example, perceive a low probability of success for any attempt at quitting and therefore must change these perceptions to increase their chances of success. According to Bandura and Wood (1989), having perceived control, or having a high sense of self-efficacy, is key to human agency and attempts at changing one's circumstances and behaviors. Furthermore, there is evidence that persuasive communications designed to promote condom use are more successful when they include arguments designed to persuade recipients that they have control over their behavior (Albarracín, McNatt, et al., 2003).

In this section, we introduced actionability as the potential for intervention content to change behaviors. Actionability is conceptually different from credibility or desirability, although they tend to be correlated. To fully realize its actionability, an intervention needs to provide at least one behavioral recommendation, which are context appropriate, elicit recipients' cognitive responses (i.e., activation of concepts, formation of beliefs and attitudes, and perceptions of control) and affective responses (i.e., experience of emotions) in line with the desired behaviors, and teach necessary skills to implement the recommended behaviors. Readers can use our advice as guidelines in designing better intervention content to change behaviors.

Action/Inaction and Actionability

In this chapter, our objective has been to provide a framework and integration of our work of judgments of behavior and on behavioral change interventions and mechanisms of change. Both actions and inactions can be the focus of behavioral

interventions, and in both cases the interventions require high levels of actionability to be successful. As more research accumulates, readers should be able to further test these ideas and implement our advice in the development of successful programs to change behavior. We look forward to assess progress in this critical field in the next decade.

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