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### A new perspective on the attitude-behavior relation: The essential function of goals

**Abstract:** In theory, knowing an individual's attitude about a topic should allow us to predict his or her behavior. However, in a classic study, Wicker (1969) came to the surprising conclusion that attitudes and behaviors are only weakly related. We present a new theoretical perspective that describes the conditions necessary for an attitude to be translated into a behavior. More specifically, we propose that an attitude (i.e., liking of an end state) is not sufficient to cause behavior. Rather, that liking must first become a desire, which will only occur if an individual likes a potential future state more than the present state. The desire must subsequently be transformed into a goal, which will only occur if the desire is perceived as attainable. The goal must then become a focal goal (i.e., be momentarily dominant in an individual's goal system). Lastly, in order for a particular behavior to be enacted, it must be selected as a means that serves the focal goal. We offer empirical evidence for our theory and describe how it goes beyond previous models of attitude-behavior relations, such as the Theory of Planned Behavior (Fishbein & Ajzen, 2010) and the MODE model (Fazio, 1990).

**Keywords:** attitude, behavior, liking, want, desire, means, goal

Gordon Allport once wrote that “the concept of attitude...is the most distinctive and indispensable concept in contemporary American social psychology” (Allport, 1935, p. 798), and the immense amount of research on attitudes since then suggests he may have been right (e.g., Ajzen & Fishbein, 1975; Albarracín, Johnson, & Zanna, 2005; Bentler & Speckart, 1979; Eagly & Chaiken, 1993; Kelman, 1958; Petty & Cacioppo, 1986; Triandis, 1971). The term “attitude” yields almost half a million results in a PSYCIInfo search, much more than other popular search terms such as “decision”, “cognition”, or even “goals” (each of which yields less than a quarter of a million results). Presumably, one reason for the tremendous popularity of attitudes is that they are commonly believed – by both laypeople and researchers alike – to predict behavior. But is this belief justified?

#### Attitudes as predictors of behavior

Attitudes are typically defined as either positive or negative evaluations of some object (e.g., Bem, 1970; Cacioppo, Harkins, & Petty, 1981; Eagly & Chaiken, 1993; Fazio, 2007; Fishbein & Ajzen, 1975; Petty, Wegener, & Fabrigar, 1997; Thurstone, 1931). Attitudes were viewed as important predictors of behavior in classic psychological research: for instance, Cohen (1960) saw attitudes as “determinants of how a person will actually behave in his daily affairs” (pp. 137–138). Likewise, Allport (1929) concluded that an attitude reflected a “disposition to act” (p. 221). Petty and Wegener (1998) wrote that “attitudes [are] important because of the fundamental role that individuals' attitudes...play in the critical choices people make regarding their own health and security as well as those of their families, friends, and nations” (p. 3230). Given the assumption that attitudes, in general, were

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important to the prediction of behavior, researchers subsequently set out to find the specific kinds of attitudes that predict behavior, as well as potential moderators of the relationship between attitudes and behaviors (e.g., Ajzen, 1985, 2012, 2015; Fabrigar, Petty, Smith, & Crites, 2006; Fazio, Chen, McDonel, & Sherman, 1982; Fazio, Powell, & Williams, 1989; Fazio & Williams, 1986; Fishbein & Ajzen, 1975, 2010). Although this research has extended into the present day, not everyone is convinced that attitudes play a strong role in the prediction of behaviors. Indeed, based on an extensive review of the literature up to that point, Wicker (1969) concluded that attitudes had little or no association with behavior. Many researchers have since responded to Wicker's claim, but first, it is useful to look at the kind of evidence that he presented.

Wicker cited a meta-analysis conducted by Vroom (1964), which examined fifteen studies on the relationship between employee's attitudes toward their work and employer-rated job performance (i.e., behavior) in a variety of fields. The total correlation between attitudes and behavior was only .14 – and even this was positively skewed by a disproportionately high correlation in one study, in which the validity of the results was questioned. Likewise, Dean (1958) studied factory workers' attitudes towards labor unions and their participation in union meetings. Roughly 80% of participants did not attend any meetings, even though 91% of non-attendees had favorable attitudes towards the union. Interestingly, only 37% of non-attendees (vs. 69% of attendees) indicated that work conditions had improved since the union arrived. This could indicate that behavior is not merely dependent on attitudes, but also on the perceived utility of the behavior – a point we will return to later.

However, Wicker's conclusion about the practicality of using attitudes to predict behaviors extended beyond the workplace. Wicker also cited Linn's (1965) research on attitudes and behaviors towards minority groups, conducted during a time when the American civil rights movement was in full swing. Linn asked white women whether they would be hypothetically interested in being photographed with a black man; this photograph would be widely distributed. Later, the participants were asked, ostensibly as a part of a racial integration program, if they would consent to be photographed with a black man. 59% of the sample showed a discrepancy between their attitude and behavior towards being photographed; this discrepancy was strongest amongst women who had previously shown more positive attitudes.

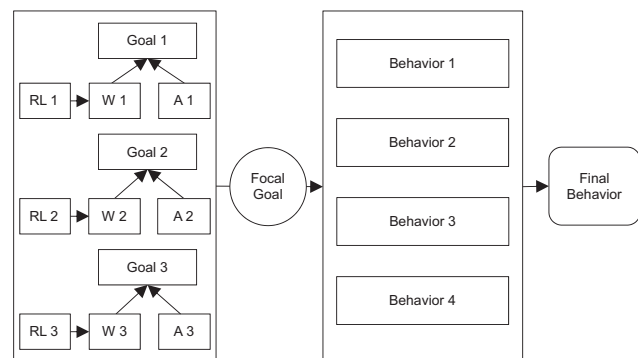
It was on the basis of these and many similar studies that Wicker concluded that attitudes had, at best, a weak relationship with behaviors. If true, this would be a grave blow to research on attitudes, as well as to behavioral interventions that rely on changing underlying attitudes. However, subsequent researchers have challenged Wicker's conclusions and set out to uncover if, and when, attitudes are useful predictors of behavior. This was largely undertaken by shifting how researchers conceptualize attitudes. That shift can be seen in the research on *attitude strength* (e.g., Krosnick & Petty, 1995), or the notion that only strongly held attitudes should lead to behavior, as well as research on *attitudes toward specific behaviors*

(e.g., Fishbein & Ajzen, 2010), or the notion that behaviors are only predicted by specific attitudes towards those behaviors. In what follows, we explain how our theory addresses the question of when and whether attitudes lead to behavior, then elaborate on what our theory has to offer that was missed by prior formulations such as the aforementioned *attitude strength* and *attitudes toward specific behaviors* frameworks.

### The “rocky road” from attitudes to behavior

We propose that there is a rocky stretch of theoretical road between attitudes and behaviors (Kruglanski et al., 2015). A general attitude must first become a desire – that is, *liking* of an attitude object must transform into *wanting* (desire) for that object. This desire must then be joined by an attainability, or an expectancy that the desired object can be reached. Some above-threshold level of both desirability and attainability is necessary for a goal to be formed (Kruglanski et al., 1996; Kruglanski, Chernikova, Rosenzweig, & Kopetz, 2014; Oettingen et al., 2001). Even once a goal has been formed, however, it will not necessarily be active in any given moment (Bargh, 1990; Bargh et al., 2001; Fishbach & Ferguson, 2007; Stroebe, van Koningsbruggen, Papiés, & Aarts, 2013). For instance, some individuals may have the general goal of eating healthy, but that goal will likely not be active when they are in class listening to a lecture. In addition, people can simultaneously have many different goals, so a goal must be sufficiently dominant in a given context in order to affect behavior (otherwise it will be overridden by other, more pressing, concerns). Finally, even when a goal is dominant, this does not mean that a specific goal-related behavior will necessarily be pursued. In order for a behavior to be enacted, it must first be selected as the preferred means to the currently dominant goal. In summary, in order for behavior to occur, multiple conditions must be met: (1) an attitude must become a desire; (2) the desire must be joined with a sufficient level of attainability to form a goal; (3) the goal must be activated; (4) the goal must be sufficiently dominant; and (5) a preferred means to the goal (i.e., a behavior) must be selected. We expand upon each of these conditions in the following sections (see Figure 1 for a general overview of the theory).

**Figure 1. The “rocky road” from attitude (i.e., relative liking) to behavior**



RL = Relative Liking; W = Wanting; A = Attainability.

### From attitudes to desire

In spite of the fact that the starting point of our theory is a general attitude toward some object, we argue that although such attitudes are relevant to behavior, they are not useful predictors of behavior in and of themselves. In order for an attitude to have an effect on behavior, it must first be transformed into a desire (or wanting). Desire is a product of *relative liking*, defined as one's greater (or lesser) liking of a future state, compared the current state. Thus, in line with many prior theories of motivation, we posit that wanting stems from a discrepancy between liking for the present and liking for some future state (cf. Carver & Scheier, 1982, 1998; Custers & Aarts, 2005, 2007; Higgins, 1987; Miller, Galanter, & Pribram, 1960; Oettingen, Pak, & Schnetter, 2001; Wiener, 1948). Relative liking can be divided into relative promotive liking (i.e., the future state is liked more than the current state) and relative preventive liking (i.e., the current state is liked more than the future state). If one is hungry, then a future state in which she eats a favorite food is more positive than her current hungry state (i.e., she has a relative promotive liking towards the future state of having eaten her favorite food). If she has just eaten a large meal, then the current state in which she is satiated is more positive than a future state in which she would be unbearably full (i.e., she has a relative preventive liking towards refraining from eating more). In each case, it is not mere liking, but *relative* liking that contributes to behavior.

The distinction between liking and wanting may seem strange at first glance, as surely individuals who like an object would also want that object. Despite this seemingly obvious connection, prior research and theorizing (e.g., Lewin, 1972) suggests that they are actually distinct constructs. Berridge and his colleagues have argued that liking is associated with the neurotransmitter GABA, whereas wanting is associated with dopamine (Berridge, 2004; Berridge & Robinson, 1995, 2003; Berridge, Robinson, & Aldridge, 2009; Pecina, Cagniard, Berridge, Aldridge, & Zhuang, 2003; Wyvell & Berridge, 2000). Thus, even though wanting and liking are sometimes used synonymously in everyday parlance, they are mediated by different neurotransmitters and, as a result, can appear separately. Indeed, the difference between liking and wanting can help explain the behavior of drug addicts who use to avoid withdrawal symptoms: these individuals often have the desire (or want) to use drugs even though they do not receive positive feedback from their drug of choice (Berridge, 2004). We propose that this distinction is also present in more mundane matters. For instance, as described earlier, one can have a positive attitude (i.e., liking) for her favorite food, but would not have the desire (i.e., want) for it if she is already full. An individual may have a positive attitude towards the benefits won by labor unions (e.g., better wages) but he may not want more of these benefits if his employer is facing bankruptcy. Individuals can have many attitudes that do not become desires, and it is precisely these attitudes that are unrelated to behavior.

### Goal formation

Although desire brings us closer to behavior, desire alone is not sufficient. Individuals can have many desires, many or even most of which are not attainable. For instance, an individual could desire to become president of her country. In our terminology, she has a positive attitude towards being president, which has been translated into a relative promotive liking towards the future state of being president, relative to the current state of not being president. However, she will only form the *goal* of becoming president if she perceives this desire to be attainable. Although desire is more important for goal formation than attainability (i.e., an individual will not form a goal to do something that is highly attainable but undesirable; Kruglanski, Chernikova, Rosenzweig, & Kopetz, 2014), an above-threshold level of both desire and attainability is necessary for a goal to be created (Atkinson, 1964; Kruglanski et al., 1996; Kruglanski et al., 2014; Oettingen et al., 2001; Vroom, 1964).

Past attitude research has either ignored the role of attainability or held it constant in a way that stripped it of its power. For instance, Fazio, Powell, and Williams (1989) examined the roles of attitude strength and attitude accessibility in a study of product preference. Participants rated a series of 100 products (e.g., peanuts, candy bars, soda) on a scale of "like" or "dislike"; their response latency was assessed. Participants then rated the same products on a 7-point scale in order to assess the strength of their attitudes. Afterwards, participants were presented with a subset of 10 products, and were allowed to take five home. The products that they selected, as well as the order in which they selected them, were predicted by both the strength and accessibility of their attitudes. However, this design rendered attainability irrelevant, because each product was equally attainable. Even if they did not pick a particular product, participants could have easily procured these products for themselves. We argue that participants would have been less likely to select products that they liked when those products were less (vs. more) attainable.

### From goal formation to goal activation and dominance

Even though individuals who desire a specific object and perceive this desire as attainable may form a goal, the mere presence of a goal is necessary but not sufficient for behavior to occur. In order to cause behavior, a goal needs to be active in a given situation; a dormant goal that is not of current concern is unlikely to lead to action (Eitam & Higgins, 2010). Even when a goal is currently active, an individual can have many active goals, some of which are likely mutually exclusive (Kruglanski et al., 2002). Thus, a goal must become sufficiently dominant in a given situation before it can influence behavior, so that it is not overridden by other, more pressing concerns. To give an example, if an individual has the desire to eat her favorite meal and perceives this as attainable, then she forms the goal to eat this meal. The goal might become activated when she passes her favorite restaurant in the street. At the same time, though, she has other, conflicting goals. For example, she has the goals to save money, lose weight, and

shop in a nearby clothing store, and not all of these goals can be pursued simultaneously. One of these goals will become dominant – the focal goal – and it is this goal that will be pursued via a particular behavior (e.g., eating at the restaurant).

### From goal dominance to behavior

Once a goal has become sufficiently dominant, an individual can choose from a range of behaviors that he or she perceives as instrumental for attaining that goal. Importantly, however, instrumentality is not the only consideration in means selection. Individuals often have other active goals in addition to their focal goal, and some behaviors can serve as means for more than one goal. Thus, a second criterion for means selection is multifinality, or the extent to which a means can serve more than one goal (Kopetz, Faber, Fishbach, & Kruglanski, 2011; Kruglanski et al., 2002; Kruglanski, Kopetz et al., 2013). For instance, if one has the focal goal of eating her favorite meal and the supplemental goal of saving money, she could select a behavior that is instrumental for both, such as cooking the meal at home instead of buying it from an expensive restaurant. Nonetheless, there is often a tradeoff between instrumentality and multifinality, such that the more goals a means serves, the less it is perceived as instrumental to any single goal (Zhang, Fishbach, & Kruglanski, 2007). Thus, the final behavior chosen to serve the goal will be determined in part by whether the focal goal is dominant enough to cause an individual to “forget all else” and choose only the most instrumental means (Shah, Friedman, & Kruglanski, 2002; Huang & Bargh, 2014), and in part by the extent to which the person generally values instrumentality more than multifinality (e.g., Orehek, Mauro, Kruglanski, & van der Bles, 2012).

To summarize the theory, a person’s positive attitude towards his favorite meal is related to the behavior of eating that meal in the following way: his positive attitude towards eating the meal must be viewed as more positive than his current state of not having this meal; eating the meal must be perceived as attainable; the resulting goal of eating this meal must be active and dominant over other goals; and he must perceive the chosen behavior as an instrumental means to reach the goal of eating this meal. As can be gleaned from this overview, there are multiple “bridges” in between our attitudes and behaviors; if these bridges are not crossed, then an individual’s attitude will be unrelated to his or her behavior. Within any given sample of participants who report their attitudes and behaviors, we would expect that most of them would not cross all the bridges, and consequently the correlation between their attitudes and behaviors should typically be low, and perhaps indistinguishable from zero (consistent with Wicker’s original claims).

### Revisiting past research

We next turn to the question of precisely how our theory can explain the weak relationship between attitudes and behavior that was demonstrated in past

research. Vroom (1964) found a tenuous correlation between employee-rated attitude towards their work and employer-rated work performance. This is to be expected, given the many steps that we propose lie between attitudes and behaviors. The employee’s attitude towards their work can of course take many forms (e.g., their attitude towards the work itself, toward the company, or toward their wages), but even if it takes the form of an attitude towards their specific work tasks, it will not necessarily translate into a desire to do this work, nor is this desire necessarily attainable in cases in which the work is difficult. Even if employees have the goal of performing well at work, they likely also have other goals (e.g., socializing with colleagues, spending time with their family), which may sometimes or even often take precedence over the former goal. These additional factors make it unlikely that employees’ work-related attitudes will predict their work-related behaviors, unless their goal to perform well is active and sufficiently dominant during the workweek.

We next turn to Dean’s (1958) conclusion that attitudes towards labor unions among factory workers was a poor predictor of their attendance of union meetings. Even if the measured attitude pertains to the benefits that labor unions can provide, it is not necessarily the case that these workers prefer the future state of having those benefits over the status quo (i.e., their current state). Thus, it is not clear that this attitude reflects a desire, which – as described above – is necessary to cause behavior. Beyond this, Dean also found that a majority of attendees at the meetings, but only a minority of non-attendees, perceived that working conditions had improved since the union began operation. In our terms, this could indicate either that non-attendees did not perceive that the benefits of labor unions to be attainable, or that non-attendees did not believe that attending labor union meetings was instrumental for accomplishing their goals. In our formulation, either of these perceptions would result in a lack of attitude-related behavior.

Finally, we turn to Linn’s (1965) conclusion that the attitudes of white women toward being photographed with a black man were very weakly related to actually consenting to be photographed for this purpose. The caveats described above likely also apply here. For instance, the attitude toward being part of this program may not have been more positive than the current state of not being in the program; participants may not have seen the goal of racial integration as attainable; and the behavior of being photographed with a black man may not have been viewed as an instrumental means towards this goal. In addition, given the very violent history of racial relations in the United States, a white woman and black man being photographed together in the early 1960s could be a dangerous proposition for both parties. From the point of view of the white women in Linn’s study, the negative consequences could include at least a loss of social status. Thus, even if participants had an active goal to further racial integration, many participants likely also had the goal of avoiding social punishment; this goal may



have been more dominant in the situation than the goal of racial integration, which would have prevented them from acting in accordance with their attitudes about racial integration. We suspect that if Linn had offered participants a third option – a behavioral means that could satisfy both the focal goal of avoiding social punishment *and* the supplementary goal of furthering racial integration – many participants would have selected that option.

### The current state of attitude research

Although we have proposed that goals play a critical role in the prediction of behavior, previous research on attitudes has either ignored goals or suggested they play an unimportant role. We now turn to two major research paradigms on attitude-behavior consistency – the *attitude strength* and *attitude toward the behavior* frameworks – and examine their relation to the present model. Both perspectives differ from the present approach in several important respects. For one, they focus on attitudes as the main predictor of behavior, while our theory assigns that critical role to goals. Second, both of the aforementioned models emphasize absolute liking for an object or behavior. On the other hand, our model focuses on the notion of relative liking and highlights the critical role of the discrepancy between current and future states. Third, the prior perspectives ignore the many bridges that must be crossed before an attitude can become a behavior. In contrast, the current “rocky road” model elaborates upon all of those contingencies and argues that it is necessary to emphasize the role of goals in order to fully understand how human behavior unfolds (Kruglanski et al., 2015).

#### Attitude strength

Krosnick and Petty (1995) argued that strong attitudes have four components: resistance to change, persistence, an impact on information processing, and an impact on judgments. According to their theory, only strong attitudes should resist change, be stable over time, influence how we process information, and affect our judgments – and behaviors. Weak attitudes should have few or none of these components. Thus, if attitudes are only weakly related to behaviors, one potential explanation is that the attitudes in question were weakly held. However, subsequent research on attitude strength concluded that the separate components of attitude strength actually represent different constructs, which in turn must be measured with different methodologies (Krosnick, 1993, 1994).

Consistent with that line of reasoning, Fazio (1990, 1995) argued that *attitude accessibility*, or the speed at which an attitude toward an object comes to mind, is indicative of attitude strength. Furthermore, attitude accessibility can be assessed through response latency, or the amount of time participants take in order to indicate their attitude. Theoretically, attitudes must be active – that is, accessible – in order to have any effect on behavior. Attitudes towards a particular object can be chronically accessible, but can also be primed by environmental stimuli. An individual who has a readily-accessible attitude

towards a particular object likely has a strong attitude (e.g., they have formed this attitude some time in the past). On the other hand, an individual with a relatively inaccessible attitude towards an object most likely has a weak attitude (e.g., they may have to “create” an attitude in the moment). The latter type of attitudes are more likely to change over time, and thus are less likely to be related to behavior. However, Fazio considered attitude accessibility to be just one aspect of a larger model: the MODE model (Fazio, 1990; Fazio, & Towles-Schwen, 1999; Olson & Fazio, 2008; Schuette, & Fazio, 1995).

According to the MODE model, there are two general types of attitude-behavior processes: spontaneous processes, in which the behavior follows from an attitude that is automatically activated upon perception of the attitude object, and deliberative processes, in which behavior follows from an attitude created in a laborious cost-benefit analysis (Fazio, 1990). Unlike the spontaneous process, the deliberative process is a time-consuming one that requires motivation, time, and cognitive resources (i.e., opportunity). In both processes, the attitude construct is the same; the critical difference between them is that, in the spontaneous process, strong attitudes are pre-existing and readily available, whereas in the deliberative process, strong attitudes are the result of an effortful process, and are formed only if an individual has sufficient motivation and opportunity.

Importantly, the research program on attitude strength has neglected the critical role of goals in driving behavior. According to our formulation, no matter how strong or accessible the attitude, it would fail to lead to overt behavior unless the other aspects of the model (want, attainability, etc.) were present. In our view, although some level of attitude strength is necessary to create wanting, it is not sufficient for creating wanting on its own. There must also be a discrepancy between an individual’s liking for the present state and his or her liking for a future state in order to create a want. A close inspection of the many studies on attitude strength reveals that, in fact, there was often a goal lurking in the background in each study (see Kruglanski et al., 2015, for more details).

#### Attitudes towards specific behaviors

The research summarized by Wicker, as well as the research undertaken by Krosnick, Petty, and Fazio had at least one common component: each model studied the relation between *general* attitudes and behavior. A different approach was taken by Ajzen and Fishbein in their theory of reasoned action (TRA; Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) and theory of planned behavior (TPB; Ajzen, 1988, 1991). The underlying theme of these theories is that while general attitudes can predict an aggregate of relevant behaviors (Ajzen, 2012; Fishbein & Ajzen, 1974, 2010), only specific *attitudes toward the behavior*, and not general attitudes toward the object, are predictive of specific behaviors. For instance, an individual’s attitude toward labor unions (i.e., their general attitude toward the object) may predict an aggregate of relevant behaviors, but will not predict attendance at union meetings or any other

specific behavior. Instead, attitudes towards the behavior of attending union meetings should be a better predictor of that specific behavior.

It is worthwhile to go deeper into precisely what is proposed by TRA and TPB. Both theories focus on *behavioral intentions* as the outcome of interest, rather than behavior. This accounts for the possibility that individuals will plan to engage in behaviors that are at least momentarily impossible (e.g., because they lack the skills, resources, or opportunities to enact the behavior). The TRA postulated the existence of two predictors of behavior: attitudes towards the behavior (which reflects the sum of the beliefs about the potential outcomes of the behavior) and subjective norms (which reflects both the expectations of important others and how these important others themselves behave). The TPB retained those two factors and added perceived behavioral control, which reflects the degree to which individuals believe that they can overcome internal and/or external obstacles in order to perform the specific behavior. Each factor in the theory is measured in regard to a specific behavior: for instance, in order to predict an individual's behavioral intention to walk her dog on Sunday evening, researchers should measure her attitude toward walking the dog on Sunday evenings, her subjective norms about walking the dog on Sunday evenings, and her perceived behavioral control over walking the dog on Sunday evenings. The TRA and TPB have been used to predict a wide range of behaviors such as exercise (Hausenblas, Carron, & Mack, 1997), condom use (Carmack & Lewis-Moss, 2009), adherence to treatments for chronic illness (Rich, Brandes, Mullan, & Hagger, 2015), and binge drinking (Smith, Coyle, Baldner, Bray, & Geller, 2013).

Nonetheless, research within the TRA/TPB framework has again ignored the critical role of goals in driving behavior. According to our theory, neither the attitude toward a behavior, nor a subjective norm, nor perceived behavioral control would predict behavioral intentions (or behavior) unless the goal that the behavior serves was activated. Thus, in contrast to the TRA/TPB framework, we suggest that general object attitudes can, in some cases, drive behavior (assuming the rest of the contingencies in our model are satisfied). In addition, we claim that behavioral intentions are always goal-driven, because the intention to perform any given behavior will be formed only when the behavior in question serves as a means to a currently active goal. To give an example, if an individual likes writing (attitude toward the behavior), the person's friends and acquaintances praise writing (subjective norms), and the person is able to write (perceived behavioral control), he or she will still form the behavioral intention to write (and engage in the behavior) *only* if a relevant goal – such as publishing an article in a journal – is active and dominant. If a different goal (such as going to a concert with friends) is dominant instead, the person will not form the behavioral intention to write, even if he or she has a positive attitude about writing, subjective norms for writing, and high perceived behavioral control about writing.

### Empirical evidence for our theory

In the preceding paragraphs, we have outlined the many theoretical steps that lie between attitudes and behavior, and described how prior formulations have neglected many of these steps. Of course, it is also important to collect empirical data that directly tests our model. We will now describe three such studies that were originally reported in Kruglanski et al. (2015).

The first empirical study we report pertains to the critical role of desire in driving behavior (Kruglanski et al., 2015, Study 2). In this study, participants at a university dining hall who either had just eaten lunch or were about to eat lunch were asked questions on the food that were about to eat/had just eaten, how much they liked it, and how much they wanted to eat it at that moment. The questions about liking were used as a measure of attitude, whereas the question about wanting was used as a measure of desire. If attitude and desire are synonymous, as they are often treated in the literature, then we would expect that attitudes and desires would be highly related both before and after participants had lunch. If, on the other hand, desires but not attitudes are reduced after eating, then we would have evidence that desire is more consistent with relative liking than with attitude itself. Participants who have not yet eaten, unlike participants who had just eaten, could reasonably look forward to a state in which they are no longer hungry. These participants could then have an attitude towards this future state which is more positive than the current hungry state. Consistent with our expectations, participants who had not yet eaten had levels of liking and wanting that were almost identical; on the other hand, levels of wanting were significantly lower than liking in participants who had just eaten.

The second study we report pertains to the interaction between attitude, attainability, and accessibility on behavioral choice (Kruglanski et al., 2015, Study 3). In this study, students from a large Italian university participated in an experiment on film genre preferences. Participants reported their like or dislike of 16 film genres on a computer program; their reaction time was also assessed as a measure of attitude accessibility. Participants then assessed their attitude towards each of these genres on 1–7 scales as a measure of attitude valence.

Participants were then asked to choose between either watching a film from the thriller genre (a relatively popular genre, according to a pre-test) or to solve math problems. There were three experimental conditions. In the high attainability condition, participants were told that if they chose to watch the film that they would have a 70% chance of being assigned to watch the film and a 30% chance of being assigned to solve math problems; if they instead chose to solve math problems they had a 100% chance of being assigned to this task. In the low attainability condition, these probabilities were switched: if they chose to watch the film there was a 30% chance that would be assigned to do so and a 70% chance that they would be assigned to solve math problems. The probability that they would be assigned math problems if they

chose that task remained 100%. In the control condition, participants were asked which they task they preferred without reference to probabilities.

This research design allowed us to assess whether attitude accessibility or attainability of a successful outcome could moderate attitude valence towards that outcome. If accessible attitudes lead to behavior, as argued by attitude accessibility researchers (e.g., Fazio, Powell, & Williams, 1989), then we would expect to find a significant interaction of valence and accessibility, controlling for attainability. If instead, as we expect, attainable desires (i.e., goals) must be present for behavior to occur, then we would expect to find a significant three-way interaction between valence, accessibility, and attainability. This result would provide support for our theory because it would indicate that the valence-accessibility interaction is importantly moderated by attainability. Further, if accessibility is viewed as a proxy for goal activation, then this result would also lend support to our suggestion that desire, attainability, and goal activation are all necessary steps on the path from attitude to behavior.

In order to test our hypothesis, we first divided our sample into control and experimental groups. In the control group, we found evidence for a valence x accessibility interaction, such that a strongly positive attitude towards the thriller genre was associated with watching the film when this positive attitude was associated with a fast reaction time; this is consistent with the approach of Fazio et al. (1989). In the experimental group, we were able to examine the three-way interaction in addition to each of the two-way interactions. We found significant effects for both the valence x accessibility and valence x attainability interactions as well as for the three-way interaction. Breaking down the three-way interaction, we found that the valence x attainability interaction was significant, such that choosing to watch the film was most likely among participants in the high attainability condition who had strong and positive attitudes towards the thriller genre, and only when these participants' positive attitude was associated with a fast reaction time. Thus, consistent with our model, strongly positive attitudes, attainability, and accessibility (which we view as a proxy for goal activation) are important factors in behavioral prediction.

The third, and last, study we report pertains to the roles of perceived instrumentality of the behavioral means and goal formation in behavioral prediction (Kruglanski et al., 2015, Study 5). Online participants completed measures about their attitude toward the behavior of drinking alcohol in social occasions, as well as the goal of having fun, the instrumentality of drinking for the goal of having fun, and the behavioral intention of drinking that night (data was collected on Friday and Saturday evenings). Subjective norms and perceived behavioral control with regard to drinking alcohol were also assessed.

This research design allowed us to compare the elements of our theory – specifically, the role of goals and instrumental means – to the elements of the Theory of Planned Behavior: attitude towards the behavior, subjective norms, and perceived behavioral control (Ajzen, 2012).

If our model is correct, we would expect that goals and instrumentality (rather than attitudes towards behavior, subjective norms, and perceived behavioral control), would be the most important predictors of behavioral intention. Consistent with our expectations, we found support for a moderated mediation model in which the effect of attitudes towards the behavior on behavioral intention was mediated by instrumentality; the path from instrumentality to behavioral intention was moderated by the presence of a goal. Subjective norms and perceived behavioral control were not significant when attitudes towards the behavior was included. The results from this study, as well as the results from the other studies that we have presented, are consistent with our model and inconsistent with rival models. For further empirical studies on our model, and further information about the above studies, see Kruglanski et al. (2015).

## Conclusion

To summarize, our “rocky road” model explicates the precise conditions under which attitudes lead to behavior. An attitude (or liking) toward an object is not sufficient to create desire for the object in question, unless there is a discrepancy (i.e., relative liking) between one's current state and a desired or undesired future state. Furthermore, wanting in and of itself will not necessarily lead to goal formation unless a sufficient degree of attainability is present. In turn, goal formation will not lead to behavior unless the goal in question is activated and dominant at any given time. Lastly, any given behavior must be chosen as the preferred means of goal attainment before it will be carried out. We therefore argue that any attempts at predicting human behavior must take an individual's goal constellation into account.

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