Chapter - 5

THEORY OF PLANNED BEHAVIOR
5.1 Circumstances that led to the model development:
The development of the TBP/TPA originated in the field of social psychology. As early as 1862 psychologists began developing theories showing how attitude impacted behavior. Social psychologists continued to study attitudes and behaviors between the years 1918 and 1925 saw many new theories emerging. Having their emphasis on attitude and behavior, it can be postulated that this theory grew out of the 19th century when the field of psychology began to look at the term "attitude". Those theories suggested that "attitudes could explain human actions" (Ajzen & Fishbein, 1980, p. 13). Thomas and Znaniecki were the first psychologists to view attitude as individual mental processes that determine a person's actual and potential responses. This was when social scientists began to see attitude as a predictor for behavior. These ideas remained relatively intact until the early 1960s when many social scientists began to review attitudes and behavior predictors.

The following were influential in the understanding of the relationship between attitudes and behaviors:

- In 1929 L.L. Thurston developed methods for measuring attitudes using interval scales. Following Thurston's scale came the famous, more specific and easier to use Likert-scale. This scale is widely used today.
- In 1935, Gordon W. Allport theorized that the attitude-behavior relationship was not uni-dimensional as previously thought, but multi-dimensional. Attitudes were viewed as complex systems made up of the person's beliefs about the object, his feelings toward the object, and his action tendencies with respect to the object.
- In 1944, Louis Guttman developed the scalogram analysis to measure beliefs about the object.
- Doob in 1947 adopted the idea of Thurstone that attitude is not directly related to behavior but it can tell us something about the overall pattern of behavior.
- In the 1950's, this point of view that attitude is multi-dimensional became universal.
Rosenberg and Hovland in 1960 theorized that a person's attitude toward an object is filtered by their affect, cognition and behavior.

In 1969, Wicker conducted an extensive survey and literature review on the subject and he determined "it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than those attitudes will be closely related to actions" (Ajzen & Fishbein, 1980, p. 25).

As a result of these developments, Fishbein and Ajzen joined forces to explore ways to predict behaviors and outcomes. They assumed that individuals are usually quite rational and make systematic use of information available to them. People consider the implications of their actions before they decide to engage or not engage in a given behavior" (Ajzen & Fishbein, 1980, p. 5). After reviewing all the studies they developed a theory that could predict and understand behavior and attitudes. Their framework, which has become known as the Theory of Reasoned Action, looks at behavioral intentions rather than attitudes as the main predictors of behaviors.

As the Theory of Reasoned Action began to take hold in social science, Ajzen and other researcher realized that this theory was not adequate and had several limitations (Godin & Kok, 1996). One of the greatest limitations was with people who have little or feel they have little power over their behaviors and attitudes. Ajzen described the aspects of behavior and attitudes as being on a continuum from one of little control to one of great control. To balance these observations, Ajzen added a third element to the original theory. This element is the concept of perceived behavioral control. The addition of this element has resulted in the newer theory known as the Theory of Planned Behavior.

**Purpose of Theory:**

- To predict and understand motivational influences on behavior that is not under the individual's volitional control.
- To identify how and where to target strategies for changing behavior.
- To explain virtually any human behavior such as why a person buys a new car, votes against a certain candidate, is absent from work or engages in premarital sexual intercourse.
Characteristics and key terms for Theory of Reasoned Action and the Theory of Planned Behavior.

This theory provides a framework to study attitudes toward behaviors. According to the theory, the most important determinant of a person's behavior is behavior intent. The individual's intention to perform a behavior is a combination of attitude toward performing the behavior and subjective norm. The individual's attitude toward the behavior includes; Behavioral belief, evaluations of behavioral outcome, subjective norm, normative beliefs, and the motivation to comply.

If a person perceives that the outcome from performing a behavior is positive, she/he will have a positive attitude forward performing that behavior. The opposite can also be stated if the behavior is thought to be negative. If relevant others see performing the behavior as positive and the individual is motivated to meet the exceptions of relevant others, then a positive subjective norm is expected. If relevant others see the behavior as negative and the individual wants to meet the expectations of these "others", then the experience is likely to be a negative subjective norm for the individual. Attitudes and subjective norm are measured on scales (as an example the Likert Scale) using phrases or terms such as like/unlike, good/bad, and agree/disagree. The intent to perform a behavior depends upon the product of the measures of attitude and subjective norm. A positive product indicates behavioral intent (Glanz, & Lewis, & Rimer, Eds, 1997).

TRA works most successfully when applied to behaviors that are under a person's volitional control. If behaviors are not fully under volitional control, even though a person may be highly motivated by her own attitudes and subjective norm, she may not actually perform the behavior due to intervening environmental conditions. The Theory of Planned Behavior (TPB) was developed to predict behaviors in which individuals have incomplete volitional control.

The major difference between TRA and TPB is the addition of a third determinant of behavioral intention, perceived behavioral control. Perceived Behavioral control is determined by two factors; Control Beliefs and Perceived Power. Perceived
behavioral control indicates that a person's motivation is influenced by how difficult the behaviors are perceived to be, as well as the perception of how successfully the individual can, or can not, perform the activity. If a person holds strong control beliefs about the existence of factors that will facilitate a behavior, then the individual will have high perceived control over a behavior. Conversely, the person will have a low perception of control if she holds strong control beliefs that impede the behavior. This perception can reflect past experiences, anticipation of upcoming circumstances, and the attitudes of the influential norms that surround the individual (Mackenzie & Jurs, 1993).

**Brief description of the theory:**

**Assumptions**

1. Human beings are rational and make systematic use of information available to them.
2. People consider the implications of their actions before they decide to engage or not engage in certain behaviors.

**Development**

1. The TRA/TPB began with looking at Behavioral Intentions as being the immediate antecedents to behavior. It is believed that the stronger a person's intention to perform a particular behavior, the more successful they are expected to be. Intentions are a function of salient beliefs and/or information about the likelihood that performing a particular behavior will lead to a specific outcome. Intentions can also change over time. The longer the time period between intention and behavior, the greater the likelihood that unforeseen events will produce changes in intentions. Because Ajzen and Fishbein were not only interested in predicting behavior but understanding it, they began trying to identify the determinants of behavioral intentions. They theorized that intentions are a function of two basic determinants: a) attitude toward behavior and b) subjective norms of behavior.
2. Attitude is populated to be the first antecedent of behavioral intention. It is an individual's positive or negative belief about performing a specific behavior. These beliefs are called behavioral beliefs. An individual will intend to
perform a certain behavior when he or she evaluates it positively. Attitudes are determined by the individual's beliefs about the consequences of performing the behavior (behavioral beliefs), weighted by his or her evaluation of those consequences (outcome evaluations). Those attitudes are believed to have a direct effect on behavioral intention and are linked with subjective norm and perceived behavioral control.

3. Subjective norms are also assumed to be a function of beliefs that specific individuals approve or disapprove of performing the behavior. Beliefs that underlie subjective norms are termed normative beliefs. An individual will intend to perform a certain behavior when he/she perceives that important others think he/she should. Important others might be a person's, spouse, close friends, physician, etc. This is assessed by asking respondents to judge how likely it is that most people who are important to them would approve or disapprove of their performing a given behavior.

Problems arise with the TRA when the theory is applied to behavior's that are not fully under volitional control. The TPB took into account that all behavior is not under volitional control and that behaviors are located at some point along a continuum that extends from total control to a complete lack of control.

The individual may have total control when there are no constraints of any type to adopting a reticular behavior. At the opposite extreme, there may be a total lack of control if adoption of a given behavior requires opportunities such as resources or skills which may be lacking. Control factors include both internal and external factors. Internal factors are such things as skills, abilities, information, emotions such as stress, etc. External factors include such things as situation or environmental factors.

To overcome this limitation, Ajzen modified the Theory of Reasoned Action by adding a third antecedent of intention called perceived behavioral control. With the addition of this third antecedent, he re-named this the Theory of Planned Behavior.

4. Perceived behavioral control refers to the degree to which an individual feels that performance or nonperformance of the behavior in question is under his or her volitional control. People are not likely to form a strong intention to
perform a behavior if they believe that they do not have any resources or opportunities to do so even if they hold positive attitudes toward the behavior and believe that important others would approve of the behavior (subjective norm). Perceived behavioral control can influence behavior directly or indirectly through behavioral intentions. A direct path from perceived behavioral control to behavior is expected to emerge when there is some agreement between perceptions of control and the person's actual control over the behavior.

**Key terms:**

**Main Constructs**

**Behavior:** It is the transmission of intention or perceived behavioral control into action.

**Behavioral Intention:** It is an indication of how hard people are willing to try and of how much an effort they are planning to exert, in order to perform the behavior. Influenced by three components: person's attitude toward performing the behavior, the perceived social pressure, called subjective norm and perceived behavioral control.

**Attitude:** It is the first determinant of behavioral intention. It is the degree to which the person has a favorable or unfavorable evaluation of the behavior in question.

**Subjective Norm:** It is considered the second predictor of behavioral intention. This is the influence of social pressure that is perceived by the individual (normative beliefs) to perform or not perform a certain behavior. This weighted by the individual's motivation to comply with those perceived expectations (motivation to comply).

**Perceived Behavioral Control:** Is the third antecedent of behavioral intention. This construct is defined as the individual's belief concerning how easy or difficult performing the behavior will be. It often reflects actual behavioral control.
Other Key Terms:

**Behavioral Beliefs**: Beliefs about the behavior.

**Normative Beliefs**: Beliefs about what others think about behavior.

**Control Beliefs**: Beliefs about the level of control over behavior.

**Self-Efficacy**: The individual’s perception that he/she will be able to perform a certain behavior successfully.

**Volitional Control**: The actual willful control over behavior.

**Actual Control**: An individual's control over behavioral factors such as readily available resources such as money, time, skills, cooperation of others, etc.

**Application to Health Education**:
- TPB is used in order to predict and understand healthy and unhealthy behavior and the outcomes of behavior.
- It has important implications for health education in examining health related behaviors and implementing and developing health prevention programs.
- It is used to predict and understand intentions, behaviors and outcomes of health related behaviors including weight loss, alcohol abuse, smoking behavior, physical activity and more.

**Attitude toward the Behavior**: "You know what? I think, smoking is dangerous for my health." Subjective Norms: "I wonder if my wife would like me to quit smoking." Perceived Behavioral Control: "I can quit smoking, even if I'm hooked on cigarettes!" Intention: I want to quit smoking right now!"

**Behavior**: "As you can see, I am not smoking anymore. Instead of taking a cigarette, when I get the cravings, I crumble paper now."
Limitations:
1. Factors such as personality and demographic variables are not taken into consideration.
2. There is much ambiguity regarding how to define perceived behavioral control and this creates measurement problems.
3. Assumption is made that perceived behavioral control predicts actual behavioral control. This may not always be the case.
4. TPB only works when some aspect of the behavior is not under volitional control.
5. The longer the time interval between behavioral intent and behavior, the less likely the behavior will occur.
6. The theory is based on the assumption that human beings are rational and make systematic decisions based on available information. Unconscious motives are not considered.

5.2 The Theory of Planned Behavior
As every student of psychology knows, explaining human behavior in all its complexity is a difficult task. It can be approached at many levels, from concern with physiological processes at one extreme to concentration on social institutions at the other. Social and personality psychologists have tended to focus on an intermediate level, the fully functioning individual whose processing of available information mediates the effects of biological and environmental factors on behavior. Concepts referring to behavioral dispositions, such as social attitude and personality trait, have played an important role in these attempts to predict and explain human behavior. Various theoretical frameworks have been proposed to deal with the psychological processes involved.

DISPOSITIONAL PREDICTION OF HUMAN BEHAVIOR
Much has been made of the fact that general dispositions tend to be poor predictors of behavior in specific situations. General attitudes have been assessed with respect to organizations and institutions (Blacks, Jews, Catholics), and particular individuals with whom a person might interact (a Black person, a fellow student). The failure of
such general attitudes to predict specific behaviors directed at the target of the attitude has produced calls for abandoning the attitude concept.

In a similar fashion, the low empirical relations between general personality traits and behavior in specific situations has led theorists to claim that the trait concept, defined as a broad behavior disposition, is untenable of particular interest for present purposes are attempts to relate generalized locus of control to behaviors in specific contexts.

One proposed remedy for the poor predictive validity of attitudes and traits is the aggregation of specific behaviors across occasions, situations, and forms of action. The idea behind the principle of aggregation is the assumption that any single ample of behavior reflects not only the influence of a relevant general disposition but also the influence of various other factors unique to the particular occasion, situation, and action being observed. By aggregating different behaviors, observed on different occasions and in different situations, these other sources of influence tend to cancel each other, with the result that the aggregate represents a more valid measure of the underlying behavioral disposition than any single behavior. Many studies performed in recent years have demonstrated the workings of the aggregation principle by showing that general attitudes and personality traits do in fact predict behavioral aggregates much better than they predict specific behaviors.

ACCOUNTING FOR ACTIONS IN SPECIFIC CONTEXTS: THE THEORY OF PLANNED BEHAVIOR

The principle of aggregation, however, does not explain behavioral variability across situations, nor does it permit prediction of a specific behavior in a given situation. It was meant to demonstrate that general attitudes and personality traits are implicated in human behavior, but that their influence can be discerned only by looking at broad, aggregated, valid samples of behavior. Their influence on specific actions in specific situations is greatly attenuated by the presence of other, more immediate factors. Indeed, it may be argued that broad attitudes and personality traits have an impact on specific behaviors only indirectly by influencing some of the factors that are more closely linked to the behavior in question.
Predicting Behavior: Intentions and Perceived Behavioral Control

The theory of planned behavior is an extension of the theory of reasoned action made necessary by the original model's limitations in dealing with behaviors over which people have incomplete volitional control. Figure 1 depicts the theory in the form of a structural diagram. For ease of presentation, possible feedback effects of behavior on the antecedent variables are not shown.

As in the original theory of reasoned action, a central factor in the theory of planned behavior is the individual's intention to perform a given behavior. Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance. It should be clear, however, that a behavioral intention can find expression in behavior only if the behavior in question is under volitional control, i.e., if the person can decide at will to perform or not perform the behavior. Although some behaviors may in fact meet this requirement quite well, the performance of most depends at least to some degree on such non-motivational factors as availability of requisite opportunities and resources (e.g., time, money, skills, and cooperation of others). Collectively, these factors represent people's actual control over the behavior. To the extent that a person has the required opportunities and resources, and intends to perform the behavior, he or she should succeed in doing so.

Figure 5.1 Theory of planned behavior

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The idea that behavioral achievement depends jointly on motivation (intention) and ability (behavioral control) is by no means new. It constitutes the basis for theorizing on such diverse issues as animal learning, level of aspiration.

The original derivation of the theory of planned behavior (Aizen, 1985) defined intention (and its other theoretical constructs) in terms of trying to perform a given behavior rather than in relation to actual performance. However, early work with the model showed strong correlations between measures of the model's variables that asked about trying to perform a given behavior and measures that dealt with actual performance of the behavior (Schifter & Ajzen, 1985; Ajzen & Madden, 1986). Since the latter measures are less cumbersome, they have been used in subsequent research, and the variables are now defined more simply in relation to behavioral performance. Performance on psychomotor and cognitive tasks and person perception and attribution. It has similarly been suggested that some conception of behavioral control be included in our more general models of human behavior, conceptions in the form of "facilitating Factors", "the context of opportunity", 'resources", or "action control". The assumption is usually made that motivation and ability interact in their effects on behavioral achievement. Thus, intentions would be expected to influence performance to the extent that the person has behavioral control, and performance should increase with behavioral control to the extent that the person is motivated to try. Interestingly, despite its intuitive plausibility, the interaction hypothesis has received only limited empirical support.

Perceived behavioral control. The importance of actual behavioral control is self evident: The resources and opportunities available to a person must to some extent dictate the likelihood of behavioral achievement. Of greater psychological interest than actual control, however, is the perception of behavioral control and is impact on intentions and actions. Perceived behavioral control plays an important part in the theory of planned behavior. In fact, the theory of planned behavior differs from the theory of reasoned action in its addition of perceived behavioral control.
Before considering the place of perceived behavioral control in the prediction of intentions and actions, it is instructive to compare this construct to other conceptions of control. Importantly, perceived behavioral control differs greatly from Rotter's (1966) concept of perceived locus of control. Consistent with an emphasis on factors that are directly linked to a particular behavior, perceived behavioral control refers to people's perception of the ease or difficulty of performing the behavior of interest. Whereas locus of control is a generalized expectancy that remains stable across situations and forms of action, perceived behavioral control can, and usually does, vary across situations and actions. Thus, a person may believe that, in general, her outcomes are determined by her own behavior (internal locus of control), yet at the same time she may also believe that her chances of becoming a commercial airplane pilot are very slim (low perceived behavioral control).

Another approach to perceived control can be found in Atkinson's (1964) theory of achievement motivation. An important factor in this theory is the expectancy of success, defined as the perceived probability of succeeding at a given task. Clearly, this view is quite similar to perceived behavioral control in that it refers to a specific behavioral context and not to a generalized predisposition. Somewhat paradoxically, the motive to achieve success is defined not as a motive to succeed at a given task but in terms of a general disposition "which the individual carries about him from one situation to another" (Atkinson, 1964, p. 242). This general achievement motivation was assumed to combine multiplicatively with the situational expectancy of success as well as with another situation specific factor, the "incentive value" of success.

The present view of perceived behavioral control, however, is most compatible with Bandura's (1977, 1982) concept of perceived self-efficacy which "is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). Much of our knowledge about the role of perceived behavioral control comes from the systematic research program of Bandura and his associates (e.g., Bandura. Adams, IV Beyer. 1977; Bandura, Adams, Hardy, & Howells; 1980). These investigations have shown that people's behavior is strongly influenced by their confidence in their ability to perform it (i.e., by perceived behavioral control). Self-efficacy beliefs can influence choice of activities,
preparation for an activity, effort expended during performance, as well as thought patterns and emotional reactions. The theory of planned behavior places the construct of self-efficacy belief or perceived behavioral control within a more general framework of the relations among beliefs, attitudes, intentions, and behavior.

According to the theory of planned behavior, perceived behavioral control, together with behavioral intention, can be used directly to predict behavioral achievement. At least two rationales can be offered for this hypothesis. First, holding intention constant, the effort expended to bring a course of behavior to a successful conclusion is likely to increase with perceived behavioral control. For instance, even if two individuals have equally strong intentions to learn to ski, and both try to do so, the person who is confident that he can master this activity is more likely to persevere than is the person who doubts his ability. The second reason for expecting a direct link between perceived behavioral control and behavioral achievement is that perceived behavioral control can often be used as a substitute for a measure of actual control. Whether a measure of perceived behavioral control can substitute for a measure of actual control depends, of course, on the accuracy of the perceptions. Perceived behavioral control may not be particularly realistic when a person has relatively little information about the behavior, when requirements or available resources have changed, or when new and unfamiliar elements have entered into the situation. Under those conditions, a measure of perceived behavioral control may add little to accuracy of behavioral prediction. However, to the extent that perceived control is realistic, it can be used to predict the probability of a successful behavioral attempt (Ajzen, 1985).

**Predicting Behavior: Empirical Findings**

According to the theory of planned behavior, performance of a behavior is a joint function of intentions and perceived behavioral control. For accurate prediction, several conditions have to be met. First, the measures of intention and of perceived behavioral control must correspond to or be compatible with the behavior that is to be predicted. That is, intentions and perceptions of control must be assessed in relation to the particular behavior of interest, and the specified context must be the same as that in which the behavior is to occur. For example, if the behavior to be predicted is
"donating money to the Red Cross," then we must assess intentions "to donate money to the Red Cross" (not intentions "to donate money" in general nor intentions "to help the Red Cross"), as well as perceived control over "donating money to the Red Cross." The second condition for accurate behavioral prediction is that intentions and perceived behavioral control must remain stable in the interval between their assessment and observation of the behavior. Intervening events may produce changes in intentions or in perceptions of behavioral control, with the effect that the original measures of these variables no longer permit accurate prediction of behavior. The third requirement for predictive validity has to do with the accuracy of perceived behavioral control. As noted earlier, prediction of behavior from perceived behavioral control should improve to the extent that perceptions of behavioral control realistically reflect actual control.

The relative importance of intentions and perceived behavioral control in the prediction of behavior is expected to vary across situations and across different behaviors. When the behavior/situation affords a person complete control over behavioral performance, intentions alone should be sufficient to predict behavior, as specified in the theory of reasoned action. The addition of perceived behavioral control should become increasingly useful as volitional control over the behavior declines. Both, intentions and perceptions of behavioral control, can make significant contributions to the prediction of behavior, but in any given application, one may be more important than the other and, in fact, only one of the two predictors may be needed.

**Intentions and behavior.** Evidence concerning the relation between intentions and actions has been collected with respect to many different types of behaviors, with much of the work done in the framework of the theory of reasoned action.

The behaviors involved have ranged from very simple strategy choices in laboratory games to actions of appreciable personal or social significance, such as having an abortion, smoking marijuana, and choosing among candidates in an election. As a general rule it is found that when behaviors pose no serious problems of control, they can be predicted from intentions with considerable accuracy. Good examples can be
found in behaviors that involve a choice among available alternatives. For example, people's voting intentions, assessed a short time prior to a presidential election, tend to correlate with actual voting choice in the range of .75 to .80. A different decision is at issue in a mother's choice of feeding method (breast versus bottle) for her newborn baby. This choice was found to have a correlation of .82 with intentions expressed several weeks prior to delivery (Manstead, Proffitt & Smart 1983).

**Predicting Intentions: Attitudes, Subjective Norms, and Perceived Behavioral Control**

The theory of planned behavior postulates three conceptually independent determinants of intention. The first is the attitude toward the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The second predictor is a social factor termed subjective norm; it refers to the perceived social pressure to perform or not to perform the behavior. The third antecedent of intention is the degree of perceived behavioral control which, as we saw earlier, refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles. As a general rule, the more favorable the attitude and subjective norm with respect to a behavior, and the greater the perceived behavioral control, the stronger should be an individual's intention to perform the behavior under consideration. The relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behaviors and situations. Thus, in some applications it may be found that only attitudes have a significant impact on intentions, in others that attitudes and perceived behavioral control are sufficient to account for intentions, and in still others that all three predictors make independent contributions.

**THE ROLE OF BELIEFS IN HUMAN BEHAVIOR**

True to its goal of explaining human behavior, not merely predicting it, the theory of planned behavior deals with the antecedents of attitudes, subjective norms, and perceived behavioral control, antecedents which in the final analysis determine intentions and actions. At the most basic level of explanation, the theory postulates that behavior is a function of salient information, or beliefs, relevant to the behavior.
People can hold a great many beliefs about any given behavior, but they can attend to only a relatively small number at any given moment. It is these salient beliefs that are considered to be the prevailing determinants of a person's intentions and actions. Three kinds of salient beliefs are distinguished: behavioral beliefs which are assumed to influence attitudes toward the behavior, normative beliefs which constitute the underlying determinants of subjective norms, and control beliefs which provide the basis for perceptions of behavioral control.

**Behavioral Beliefs and Attitudes toward Behaviors**

Most contemporary social psychologists take a cognitive or information processing approach to attitude formation. This approach is exemplified by Fishbein and Ajzen's (1975) expectancy value model of attitudes. According to this model, attitudes develop reasonably from the beliefs people hold about the object of the attitude. Generally speaking, we form beliefs about an object by associating it with certain attributes, i.e., with other objects, characteristics, or events. In the case of attitudes toward a behavior, each belief links the behavior to a certain outcome, or to some other attribute such as the cost incurred by performing the behavior. Since the attributes that come to be linked to the behavior are already valued positively or negatively, we automatically and simultaneously acquire an attitude toward the behavior. In this fashion, we learn to favor behaviors we believe have largely desirable consequences and we form unfavorable attitudes toward behaviors we associate with mostly undesirable consequences. Specifically, the outcome's subjective value contributes to the attitude in direct proportion to the strength of the belief,

i.e., the subjective

\[ A \propto \sum b_i e_i \]  

(1)

Probability that the behavior will produce the outcome in question. As shown in Eq. (1), the strength of each salient belief (b) is combined in a multiplicative fashion with the subjective evaluation (e) of the beliefs attribute, and the resulting products are summed over the n salient beliefs.
A person's attitude (A) is directly proportional (∝) to this summative belief index.

We can explore an attitude's informational foundation by eliciting salient beliefs about the attitude object and assessing the subjective probabilities and values associated with the different beliefs. In addition, by combining the observed values in accordance with Eq. (1), we obtain an estimate of the attitude itself, an estimate that represents the respondent's evaluation of the object or behavior under consideration. Since this estimate is based on salient beliefs about the attitude object, it may be termed a belief based measure of attitude. If the expectancy value model specified in Eq. (1) is valid, the belief based measure of attitude should correlate well with a standard measure of the same attitude.

A great number of studies have, over the years, tested the general expectancy value model of attitude as well as its application to behavior. In a typical study, a standard, global measure of attitude is obtained, usually by means of an evaluative semantic differential, and this standard measure is then correlated with an estimate of the same attitude based on salient beliefs. The results have generally supported the hypothesized relation between salient beliefs and attitudes, although the magnitude of this relation has sometimes been disappointing.

Various factors may be responsible for relatively low correlations between salient beliefs and attitudes. First, of course, there is the possibility that the expectancy value model is an inadequate description of the way attitudes are formed and structured. **Belief salience.** it is not always' recognized that the expectancy value model of attitude embodied in the theories of reasoned action and planned behavior postulates a relation between a person's salient beliefs about the behavior and his or her attitude toward that behavior. These salient beliefs must be elicited from the respondents themselves, or in pilot work from a sample of respondents that is representative of the research population. An arbitrarily or intuitively selected set of belief statements will tend to include many associations to the behavior that are not salient in the population, and a measure of attitude based on responses to such statements need not correlate highly with a standard measure of the at-titude in question. Generally speaking, results of empirical investigations suggest that when attitudes are estimated
on the basis of salient beliefs, correlations with a standard measure tend to be higher than when they are estimated on the basis of an intuitively selected set of beliefs.

**Optimal scaling.** A methodological issue of considerable importance that has not received sufficient attention has to do with the scaling of belief and evaluation items. In most applications of the theory of planned behavior, belief strength is assessed by means of a 7-point graphic scale (e.g., likely-unlikely) and evaluation by means of a 7-point evaluative scale (e.g., good-bad). There is nothing in the theory, however, to inform us whether responses to these scales should be scored in a unipolar fashion (e.g., from 1 to 7, or from 0 to 6) or in a bipolar fashion (e.g., from-3 to +3). Belief strength (b) is defined as the subjective probability that a given behavior will produce a certain outcome. In light of this definition, it would seem reasonable to subject the measure of belief strength to unipolar scoring, analogous to the 0 to 1 scale of objective probabilities. In contrast, evaluations (e), like attitudes, are usually assumed to form a bipolar continuum, from a negative evaluation on one end to a positive evaluation on the other (see Pratkanis, 1989, for a discussion of unipolar versus bipolar attitude structures).

From a measurement perspective, however, either type of scoring could be applied with equal justification. Rating scales of the kind used in research on the expectancy-value model can at best be assumed to meet the requirements of equal-interval measures. As such, it is permissible to apply any linear transformation to the respondents' ratings without altering the measure's scale properties. Going from a bipolar to a unipolar scale, or vice versa, is of course a simple linear transformation in which we add or subtract a constant from the obtained values?

**Control Beliefs and Perceived Behavioral Control**
Among the beliefs that ultimately determine intention and action there is, according to the theory of planned behavior, a set that deals with the presence or absence of requisite resources and opportunities. These control beliefs may be based in part on past experience with the behavior, but they will usually also be influenced by second-hand information about the behavior, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the
behavior in question. The more resources and opportunities individuals believe they possess, and the fewer obstacles or impediments they anticipate, the greater should be their perceived control over the behavior.

5.3 THE SUFFICIENCY OF THE THEORY OF PLANNED BEHAVIOR

The theory of planned behavior distinguishes between three types of beliefs—behavioral, nonnative, and control—and between the related constructs of attitude, subjective norm, and perceived behavioral control. The necessity of these distinctions, especially the distinction between behavioral and nonnative beliefs (and between attitudes and subjective norms) has sometimes been questioned. It can reasonably be argued that all beliefs associate the behavior of interest with an attribute of some kind, be it an outcome, a nonnative expectation, or a resource needed to perform the behavior. It should thus be possible to integrate all beliefs about a given behavior under a single summation to obtain a measure of the overall behavioral disposition.

The primary objection to such an approach is that it blurs distinctions that are of interest, both from a theoretical and from a practical point of view. Theoretically, personal evaluation of a behavior (attitude), socially expected mode of conduct (subjective norm), and self-efficacy with respect to the behavior (perceived behavioral control) are very different concepts each of which has an important place in social and behavioral research. Moreover, the large number of studies on the theory of reasoned action and on the theory of planned behavior have clearly established the utility of the distinctions by showing that the different constructs stand in predictable relations to intentions and behavior.

Perhaps of greater importance is the possibility of making further distinctions among additional kinds of beliefs and related dispositions. The theory of planned behavior is, in principle; open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables have been taken into account. The theory of planned behavior in fact expanded the original theory of reasoned action by adding the concept of perceived behavioral control.
Personal or Moral Norms
It has sometimes been suggested that, at least in certain contexts, we need to consider not only perceived social pressures but also personal feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behavior. Such moral obligations would be expected to influence intentions, in parallel with attitudes, subjective (social) norms and perceptions of behavioral control.

The Role of Past Behavior
The question of the model's sufficiency can be addressed at a more general level by considering the theoretical limits of predictive accuracy. If all factors—whether internal to the individual or external that determine a given behavior are known, then the behavior can be predicted to the limit of measurement error. So long as this set of factors remains unchanged, the behavior also remains stable over time. The dictum, "past behavior is the best predictor of future behavior" will be realized when these conditions are met.

Under the assumption of stable determinants, a measure of past behavior can be used to test the sufficiency of any model designed to predict future behavior. A model that is sufficient contains all important variables in the set of determinants, and thus accounts for all non-error variance in the behavior. Addition of past behavior should not significantly improve the prediction of later behavior. Conversely, if past behavior is found to have a significant residual effect beyond the predictor variables contained in the model, it would suggest the presence of other factors that have not been accounted for. The only reservation that must be added is that measures of past and later behavior may have common error variance not shared by measures of the other variables in the model. This is particularly likely when behavior is observed while other variables are assessed by means of verbal self-reports, but it can also occur because self-reports of behavior are often elicited in a format that differs substantially from the remaining items in a questionnaire.

According to these theorists, prior behavior has an impact on G later behavior that is independent of the effects of beliefs, attitudes, subjective norms, and intentions. Specifically, the assumption usually made is that repeated performance of a behavior
results in the establishment of a habit; behavior at a later time then occurs at least in part habitually, without the mediation of attitudes, subjective norms, perceptions of control, or intentions. It must be realized, however, that although past behavior may well reflect the impact of factors that influence later behavior, it can usually not be considered a causal factor in its own right. Nor can we simply assume that past behavior is a valid measure of habit; it may, and usually does, reflect the influence of many other internal and external factors. Only when habit is defined independently of (past) behavior can it legitimately be added as an explanatory variable to the theory of planned behavior. A measure of habit thus defined would presumably capture the residues of past behavior that have established a habit or tendency to perform the behavior on future occasions. Attitudes are, of course, such residues of past experience, as are subjective norms and perceived self-efficacy. The unique contribution of habit would lie in finding a residue of past experience that leads to habitual rather than reasoned responses.

In sum, past behavior is best treated not as a measure of habit but as a reflection of all factors that determine the behavior of interest. The correlation between past and later behavior is an indication of the behavior's stability or reliability, and it represents the ceiling for a theory's predictive validity. If an important factor is missing in the theory being tested, this would be indicated by a significant residual effect of past on later behavior. Such residual effects could reflect the influence of habit, if habit is not represented in the theory, but it could also be due to other factors that are missing.