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Theory of Planned Behavior

Why individuals choose to behave in one way and not another has been a source of interest to scholars for decades. What role does a person's attitude play? Is social influence a determining factor? Is past experience important? For obvious reasons, many science, health and environmental communicators are interested in both influencing behavior, whether it's exercising more, saving energy, getting a mammogram, or planting a tree. If communicators knew what factors were most associated with a particular behavior, it might be possible to influence the outcome.

One of the most influential and well-supported social-psychological theories for predicting human behavior is called the theory of planned behavior (TPB). In hundreds of studies around the world, the theory has been successful in predicting behavior in a variety of contexts and with increasing specificity. Overall, the model has a good track record, with just three variables able to explain 30-50% of the variance in behavior.

The TPB model maintains that three independent variables – attitude, subjective norm, and perceived behavioral control – predict the dependent variable of behavior or behavioral intention. The TPB is considered a deliberative processing model because it implies that people's beliefs and subsequent actions are formed after careful consideration of all the available information. Of course, behaviors aren't always rational and thoroughly reasoned, which is a criticism of the model. Irrational decisions, habitual actions or behavior that are not consciously considered cannot be explained by this theory. Because the TPB treats behavior as solely under the control of the individual, it is most appropriately used with volitional behavior and may poorly predict behaviors requiring skills or resources outside an individual's control.

The roots of the TPB are in the 1960s, when psychologist Martin Fishbein and others investigated the psychological processes by which attitudes "cause" behavior. In the 1970s, Fishbein and Icek Ajzen developed the theory of reasoned action, a parsimonious model which held that a person's intent to behave in a certain way was largely a function of the person's attitude toward the act and social norms. The TPB extended the theory of reasoned action by incorporating the third independent variable, perceived behavioral control.

In designing a test of this theory, Ajzen stresses the "principle of compatibility," which holds that each attitude and behavior has four elements of action, target (behavior), context, and time. It also maintains that the relationship between attitude and behavior will be greatest when they are measured at the same degree of specificity.

The theory has been employed to predict a variety of health-related behaviors, including exercise, smoking, diet, cancer screening, alcohol consumption, drug use, organ donation, and AIDS prevention. The model also has been used increasingly to predict various environmental behaviors, such as recycling, anti-nuclear activism, and water conservation. Another application of the TPB is predicting the dissemination and use of scientific research and willingness to spread science to the general public. Recently, the TPB has been used to predict behaviors in on-line environments and consumer behavior.

Variables of the TPB

The dependent variable "behavior" is sometimes measured as "behavioral intention," for people tend to engage in behaviors they intend to perform. Past studies have found a strong correlation between behavior and behavioral intention if both are measured at the same level of specificity and within a short time frame. Some studies might first ask a behavioral intention (such as, "how likely is it that you will use mass transit in the next week?") and follow up later with a measure of actual behavior (such as, "did you use mass transit last week?").

"Attitudes" are an individual's overall evaluation of a target behavior, or whether that behavior is viewed favorably or unfavorably. For example, if a person believes that eating fruits and vegetables is important and enjoyable, then she should be more likely to actually eat them. Some researchers have recommended measuring two different kinds of attitudes: instrumental attitudes (whether a behavior is thought to be desirable or valuable) and experiential or affective attitudes (whether a behavior is considered pleasant or interesting). Some behaviors may have a strong affective (or emotion-based) component, such as fear of a medical procedure or embarrassment.

"Subjective norms" are an individual's beliefs about whether significant others think he or she should engage in a behavior. This variable assesses the social pressures individuals feel to perform or not perform a certain behavior. For example, if you believe your neighbors think water conservation is important, this might pressure you to conserve water. Some scholars have argued for two distinct measures of these social pressure: injunctive social norms (perceptions of the social approval of others) and descriptive social norms (perceptions of what other people actually do).

"Perceived behavioral control" (PBC) is an individual's perception of control over a behavior. Thus, if you believe you have a good deal of control over a behavior, the more likely you are to perform that behavior. In a way, however, PBC acts both as a perception of one's actual control and as a measure of confidence in one's ability. The notion of "confidence" has been measured in various ways, including the degree of ease or difficulty of the behavior, self-efficacy (or confidence in one's ability to successfully perform the behavior), as well as whether one has access to the necessary resources, skills, and opportunities to perform the behavior. One way favored by some scholars was to consider both "internal" forms of control (such as information, personal skills and abilities, and emotions) as well as "external" control factors (such as barriers and dependence on others). Yet in an extensive review of past research, Conner Sparks found little evidence of any simple division or mapping of "internal vs. external" factors. They said recent opinion has favored another approach, measuring PBC as two distinct components: overall perceived controllability and self-efficacy (discussed more below).

Additional Independent Variables

Scholars have suggested that additional independent variables be included in the TPB to better account for the range of conditions and contexts in research settings. Ajzen has said that the theory is, in principle, open to the inclusion of additional variables if they help predict intention or behavior beyond attitude, subjective norm, and perceived behavioral control.

Additional Norm Components

Normative pressure can stem not just from social pressures but also from personal beliefs. Individuals may feel moral or ethical responsibilities that go beyond perceptions of self-efficacy

and control and beyond the social pressures applied by neighbors and friends. Moral norms are a person's perception of the moral correctness or incorrectness of performing a behavior or having personal feelings of a responsibility to perform. Moral norms provide an imperative beyond social values and have been found to affect intention. A study by Stavros Kikiakidis found that personal norm contributed a small but significant amount in predicting the intention of young criminal offenders to re-offend.

There is a growing body of research testing the role of personal moral norms in environmental behaviors. Environmental actions and issues often involve collective or community goods, such as air and water. Therefore, individuals may feel a moral obligation to take into consideration both other humans and the non-human world in evaluating environmental behaviors. According to norm-activation theory, an important antecendent to environmental behavior is the activation of a personal moral norm. This takes place when an individual has an awareness of environmental problems (and their adverse consequences), and believes that environmental conditions are creating a threat to things the individual values: threats to self (including health threats), other humans, and the biosphere. Researchers have found personal moral norms important in a person's awareness of environmental problems, and in one study, was an important factor in whether people intended to change their driving behaviors.

Self-identity

If a person is strongly identified with an in-group, it makes sense that the norms expressed in the group may be an important influence on that person's behavior. This suggests that self-identity may be another normative component worth consideration in the TPB, particularly if an individual sees the target behavior as fulfilling criteria for a societal role. Self-identity also is an important component in purchasing behaviors. However, Ajzen & Fishbein concluded that in some instances, self-identity might best be considered as an alternative measure of intentions.

Past Behavior

Although past behavior does not cause subsequent behavior, frequent or repeated performance may be strongly linked to future behavior and even help turn the behavior into a habit. In addition, repetition of a behavior should enhance perceptions of control (as tapped by perceived behavioral control). Some have suggested investigating what past behavior adds to our understanding of behavior after other TPB variables are taken into account, but caution giving it the same status as other predictors.

Several studies have concluded that for habitual acts such as recycling, past recycling may play a dominant role in predicting subsequent behavior. When a behavior becomes habitual, a person may be more likely to use simplified decision rules and to use the past behavior almost as a source of information; information possessed because of past behavior is then capable of being automatically activated by the context in which the behavior occurs.

Self-efficacy

People intend to engage in behaviors for which they possess self-efficacy or feel they are capable. Thus self-efficacy is conceptualized as the perceived confidence that an individual can successfully perform a behavior, distinct from perceived control over performance and the locus of control (whether one thinks the behavior is up to him or others) as measured by PBC. Several

researchers caution against defining self-efficacy as perceived ease or difficulty of a behavior because that may overlap with measures of affective attitude.

Information-seeking or -Processing

Some scholars have argued for the addition of information variables such as the degree of information seeking, information processing, or exposure to information as important links to behavior and behavioral intention. According to models of heuristic (using trial-and-error methods in problem-solving) and systematic information processing, "deep processing" of information may indicate a greater array of beliefs that are held more strongly and thus influence behavior.

In a test of the TPB that included information variables, one study found that information effects (information seeking, exposure, and attention) were strong predictors of both attitudes and norms, and all three variables helped predict intention to conserve water. Other studies have found that mass media information can be a major source of influence in the establishment of social norms and even attitudes. One study found that exposure to government information explained a significant amount of the intent to participate in a government program.

Study Design

Helpful guides for designing tests of the TPB model are available in Conner and Sparks' chapter on the TPB and health behaviors and from the website of Icek Ajzen. General recommendations include measuring at the same level of specificity and creating multiple-item measures of each variable for increased reliability. For example, a questionnaire might contain six different questions about a person's attitude toward the behavior. Typical questions include both Likert-type scale measurements, for example a scale from 1 to 7 with anchor points such as strongly agree/strongly disagree, definitely true/definitely false, and likely/unlikely. Also utilized are semantic differential scales with bipolar adjectives as endpoints, such as harmful/beneficial, good/bad, worthless/valuable, and pleasant/unpleasant.

The statistical analysis of the TPB typically involved correlation and regression. Generally, perceived behavioral control and attitude account for a larger portion of predicted variance in behavior with subjective norm as the weakest predictor.

Current Issues and Criticisms

Despite its overall success, scholars note several issues with the theory of planned behavior and its use. Perhaps the most common criticism is that the theory assumes that all behavior is rational, and thus most studies devote little attention to the possible role of affect or emotion and non-rational decision making.

To address this, some studies have tested for "anticipated affective reactions," a negative, cognitive-based emotion experienced when we realize that the present situation could have been better had we acted differently. This factor may be especially important if the target behavior is unpleasant or tied to negative emotions.

Another difficulty in testing the TPB is that adequately assessing all the required variables requires asking a lot of questions, which is difficult in many survey settings. Longer surveys can contribute to poor response rates and participation.

A related issue is how questions are developed to tap salient beliefs. One recommendation is an elicitation study, or pilot work to identify relevant behavioral, normative,

and control beliefs. Individuals are given a description of the target behavior and asked general questions about it, such as what disadvantages or advantages they believe are associated with the behavior. Researchers use the results to write more effective questions. X Sutton and his colleagues used an elicitation study to identify underlying beliefs about "being more physically active in the next 12 months" and found that what respondents identified as beliefs differed systematically from those elicited by traditional questions such as advantages and disadvantages.

Another constraint is that TPB research tends to rely on self-reports, which is naturally a limitation for all social science survey research. At the very least, scholars could endeavor to supplement self-reports of behavior with physical measures or direct observation whenever possible.

Behavioral Interventions

Studies using the TPB typically identify cognitive targets for change but stop short of offering suggestions on how these beliefs might be changed. In a review of intervention studies for behavior change, just half used the TPB to develop the intervention and the remainder used the theory only to assess the effectiveness of the intervention in changing intentions. Yet the model is open to behavioral interventions.

Ajzen and Fishbein suggest that persuasive communication targeting beliefs about the outcomes of a behavior are one key way to change attitude. Stephen Sutton identifies three ways of influencing intentions: change existing salient beliefs, make existing non-salient beliefs, or creating new salient beliefs. Another strategy would be to try and directly enhance self-efficacy, such as personal mastery experiences and observing others' successes.

Here is just one example of a successful intervention. In an experiment based on the TPB, a motivational intervention was compared with a volitional intervention in promoting the consumption of fruits and vegetables by children. The volitional group actually formed a plan specifying when, how, and where they would eat more fruits and vegetables; the motivational group completed an activity sheet with ways they could overcome motivational barriers to eating five portions a day. Both interventions increased consumption significantly, though only the volitional one resulted in a significant increase over the control group.

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