

**Reframing the Attitude-Behavior Debate:
The Case of Meat-Abstinence in
Vegetarian Student Cooperatives**

by
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ABSTRACT

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This thesis proposes a reconceptualization of the “attitude” as a multidimensional latent process, which may be unstable across situations, individuals, and time. A review of the literature in light of this reconceptualization reveals aspects of the survey situation that may systematically influence measures of attitudes, behaviors, and social norms. This suggests that contradictory findings regarding attitude-behavior consistency may be partly due to specific inadequacies of conventional measures. A reflexive research strategy is proposed, which supplements survey methods with both quantitative and qualitative assessments of measurement validity.

This strategy is applied in a case study of attitudes, norms, and diet in five vegetarian student cooperative houses. Analyses test the sufficiency of a revised Model of Reasoned Action for predicting members’ intentions to abstain from eating beef, chicken, or fish. Throughout the analyses, several methodological issues are explored in an effort to optimize validity: elicitation and fixed response items, generality of referents and expected consequences, subjective and objective measures of social norms, allowance for composite behavioral intentions, and specification of regression models. Implications for future theoretical research and the design of reflexive behavioral interventions are discussed.

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James A. Kitts

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PART I. INTRODUCTION

This study critically examines a perennial question of social psychology: *how is individual behavior related to psychological states?* That is, can we ascribe differences in overt behavior to corresponding differences in reasoning processes, affective preferences, or other factors intrinsic to the actor? Rather than posing this elusive question once again, I examine the analytical lens which has been used to answer it. In reviewing the many studies which have attempted to address the relationship between attitudes and behavior, I argue that the divergent findings can be explained by certain methodological differences between the studies. I then show how a specific reconceptualization of the attitude concept can accommodate the various findings and clarify our understanding of human behavior. Ultimately, I perform a test of the “attitude-behavior” question, comparing individual attitudes toward avoiding eating meat products with overt diet choices among members of vegetarian cooperative houses. At each stage of the analysis, I assess the construct validity of the chosen measures and methods. These parallel validity checks examine how our view of the attitude-behavior relationship may be obscured or skewed by scratches in our analytical lens.

This notion that our actions are determined by “attitudes” or similar inner dispositions is older than the scientific study of human behavior. As Doob (1947) notes, humans have intuitively used the attitude concept as a tool, to anticipate and explain patterns in each others’ behavior. If this naive inference does indeed correspond to an intrinsic motivational force, and if we can reliably measure this force in attitude surveys, then we may gain insight into vast domains of human behavior. Unfortunately, social scientists rarely find a strong correspondence between survey responses and overt behavior. As a result, some scholars contend that human behavior has little or nothing to do with intrinsic dispositions. Sixty years of research and debate have brought little hope for a resolution to this question.

The attitude-behavior literature consists of dozens of disparate models which attempt to explain how various concepts of attitude may contribute to prediction of behavior. While many models have seemed effective at predicting behavior from measured attitudes in certain contexts and for certain behaviors, these same models have proved inadequate predictors in other contexts or for other behaviors. In light of the vastly divergent findings of studies looking at different kinds of attitudes, behaviors, behavioral contexts, and individuals, it seems prudent to conclude that there is no single operationalization of attitude and no single prediction model that applies across all behaviors, individuals, and situations. In fact, I argue that there is little means or meaning in testing a general relationship between attitudes and behavior.

This is not to deny that some kinds of measured attitudes may be potent and meaningful predictors of behavior in some contexts. While the vastly diverse and contradictory literature that examines the attitude-behavior relationship may not offer any global conclusions, it does provide us with a collection of snapshots which, seen in concert, may help us learn how to ask questions. Hundreds of scholars have asked whether attitudes are related to behavior. Their answers varied from a resounding *yes* to an unequivocal *no*, with many answers in between. We can learn much about intrinsic determinants of behavior by comparing the research contexts and methods that produce these contrary answers with such confidence.

In this thesis, I use an interpretive focus to synthesize a set of clues from the piles of *yes* and *no* responses. This common focus seeks to integrate these contradictory findings by developing a working concept of attitudes which can accommodate these contradictions. This reconceptualization of attitudes leaves us strictly concerned with how our attitude measurements may determine our measured attitudes, and thus requires a new emphasis on measurement validity in attitude-behavior research. I apply this focus in a field test of such a self-reflective approach to attitude-behavior research.

Many of the attempts to relate attitudes and behavior during the past two decades have focused on commending, amending, appending, or defending the Model of Reasoned Action (see Fishbein, 1980), which purportedly is able to predict most behaviors from simple computations of attitudes and normative influences. Hundreds of studies have applied versions of this model to everything from purchasing behavior to infant-feeding practices. This thesis begins where most tests of the model leave off, however. It asks questions that are inconvenient -- perhaps impossible -- to answer conclusively, and which render problematic the assumptions that are the very foundation of these debates.

In my empirical analysis, I use a number of conventional measures and a few alternative measures to examine attitude-behavior relations in a field setting. Specifically, these measures are intended to represent the *psychological* (cognitive and affective) and *social* (normative and social-structural) determinants of *intentions* to avoid beef, chicken, and fish among members of vegetarian student cooperative houses. It begins as a fairly standard application of the two-component Model of Reasoned Action to a case study of individual behavior within an intensive and unambiguous normative climate.

Throughout this analysis of attitudes, norms, and behavior, I examine the links between these three abstract constructs and the scores which ostensibly represent them. The literature review looks across sixty years of seemingly irreconcilable findings in light of a dynamic interactional interpretation of the attitude concept, attempting to explain our failure to find consistent linear relationships between attitude scores and overt behavior. The empirical case study critically observes the process of inquiry, focusing on the validity of standard measures through a program of interviews, observation, cross-checks of multiple operationalizations, and qualitative survey items.

This case study may lack some of the internal validity of the many laboratory experiments that have tested this model because an inestimable number of uncontrolled factors may influence behavior in the “real” world. Although I attempt to measure as many of these factors as possible to control for their influence, I clearly cannot provide a

strong causal argument with these data. This case may also lack external validity, in that meat avoidance in vegetarian student co-ops certainly does not represent a universally applicable population, behavior, or situation. However, this study does not aim to develop a model which will predict and explain behaviors for all cases, but to provide an in-depth analysis of how a standard set of measurements (often assumed to be universally applicable) may apply to *this* case.

This particular case does provide an excellent opportunity to concentrate on *construct* validity, which has often been ignored in previous studies. The extensive qualitative exploration may allow for more valid interpretation of the data by showing how respondents understand and interpret (or *misunderstand* and *misinterpret*) typical survey items. Also, my in-depth study of five finite populations allows me to assess the reliability and validity of typical normative self-report items by comparing them against aggregate estimates of group norms and attitudes. This emphasis on the operationalization of attitudes, behavior, and social norms may shed some light on the tangle of theories which attempt to describe relationships between these constructs.

PART II. REVIEW AND ANALYSIS OF THE LITERATURE

A. The Conceptualization and Measurement of Attitudes and Behavior

1. Definition of Attitude

Surprisingly, sixty years of debate about the effects of attitudes on behavior has failed to even produce an accepted operational definition of the key terms. The ambiguity and disagreement over the nature of the attitude construct vitally threatens any attempt to synthesize conclusions from the broad range of attitude-behavior studies, as we cannot simply compare findings which draw from entirely different concepts of attitude. In order to derive general conclusions from this contentious literature, it seems sensible to translate the many conclusions into a comparable operational language. While it would be impossible to “standardize” all of these findings using a single definition of attitude, I will roughly reinterpret this literature in light of such a standard conceptualization of attitude. I will begin by reviewing the recent evolution of the attitude construct.

Early theories assumed that individuals behave in consistent patterns toward social objects and saw the attitude concept as a convenient explanation for this consistency (Doob, 1947). As attitudes were defined in terms of behavioral tendencies, they could best be measured through observations of overt behavior. Of course, this operationalization renders tautological the question of a link between attitudes and behavior.

A more recent definition of attitude, characterized by DeFleur and Westie (1963) as the “probability conceptualization,” similarly does not worry about attitude-behavior consistency. Rather than assuming an intrinsic tendency toward proattitudinal behavior, scholars in this tradition simply observe behavior, identify instances of cross-situational consistency in individuals, and label these as attitudes. Unfortunately, as Weissberg (1965) points out, this conceptualization wields little explanatory power.

A more common and less empirically verifiable conceptualization also notes that individuals may have tendencies to act in certain ways, but further envisions a latent

psychological process which leads to this tendency by directly guiding behavior. The term *attitude* then refers not to the propensity to act, but to a hypothetical psychological process that causes this propensity. Comfortably congruent with the commonsense notion of attitude held by most lay audiences, this popular idea of attitude as a latent process has received much attention but surprisingly little elaboration.

Some scholars have further specified this latent attitude as an “evaluative feeling that is invoked by a given object” (Fazio & Zanna, 1981) which may subsequently guide overt responses toward that object. To measure this variable, researchers generally ask subjects to evaluate an object, using Likert scales and/or semantic differential scores. These scores are taken to represent respondents’ attitudes toward that object (A_o). During the past three decades, many scholars have considered the behavior itself to be such an attitude object. In this case, attitudes are termed attitude-toward-action (A_{act}), and presumably determine whether the actor engages in the behavior.

These definitions lend themselves quite easily to survey research methods. Excluding a few attempts that used autonomic nervous responses (DeFleur & Westie, 1958), researchers have almost invariably measured attitude through survey responses. Unfortunately, because it so readily implies these methods, this operationalization of attitudes may also lead to overconfidence in the measured attitude as fully capturing the effect of the latent attitude. Researchers often ignore the fact that a survey response is itself a verbal *behavior*, and at best only an indirect indicator of any inner disposition. The attitude itself remains a hypothetical concept, a “black box” that ostensibly steers behavior.

Whenever empirical studies point to a discrepancy between these measured attitudes and observed behavior, we are forced to choose from a couple of explanations. First, this discrepancy may simply indicate an inconsistency between how a person acts and how she or he truly feels. Assuming *a priori* that their survey items perfectly represent a respondent’s attitudes, these researchers conclude that any behavior which

disagrees with an attitude scale is by definition, *counterattitudinal*.¹ Latent process theorists have frequently adopted this interpretation.

Alternatively, we may see the overt behavior as a more valid indicator of the “true” attitude and the verbal response as an inaccurate or dishonest introspection. Some say that it is impossible for survey responses to fully represent the effect of these hypothetical inner forces on behavior. If so, then it is unfair to accuse humans of acting contrarily with their inner dispositions, based on survey data. Predicting future behavior will depend either on improved measures of attitude or on actual observations of overt behavior.

Lastly, some scholars argue that verbal and overt behavior fail to match because there is in fact no underlying disposition causing either behavior. For example, Bierbrauer (1976) suggests that we envision attitudes as *interaktionskonzepte*, a dynamic and ephemeral interaction of numerous beliefs, feelings, vested interests, relationships to other actors, memories, etc., rather than as a coherent behavioral predisposition. This again turns a skeptical eye toward standard attitude measurements. If the determinants of behavior are an indeterminate morass of social and psychological intangibles, this does not bode well for the formation of a parsimonious model to predict behavior from attitude survey responses.

Actually, these divergent views may draw lines where there are little differences. The *interaktionskonzepte* notion may be quite compatible with the latent process conceptualization of attitudes. While I agree that attitude should be defined as a strictly hypothetical interaction of numerous factors, I will argue that this interaction may also “behave” as a latent motivational force, which may determine both survey responses and observed behavior. If a common factor does steer both verbal and overt behavior, then it logically follows that we should be able to predict overt behavior from verbal behavior.

¹ In order to skirt the common tautological pitfall of defining attitudes as “what the attitude scales measure,” I will take care in this review to keep the distinction between measured attitude and latent attitude clearly delineated in my own discussions. When referring to specific studies, however, I will use their original language, which generally refers to measured attitude as “attitude.”

Of course, the accuracy of this prediction will depend on the relative fidelity of both the verbal and overt behaviors in representing the effect of that interactional process. Decades of empirical research have (inadvertently) identified many factors which may interfere with this fidelity.

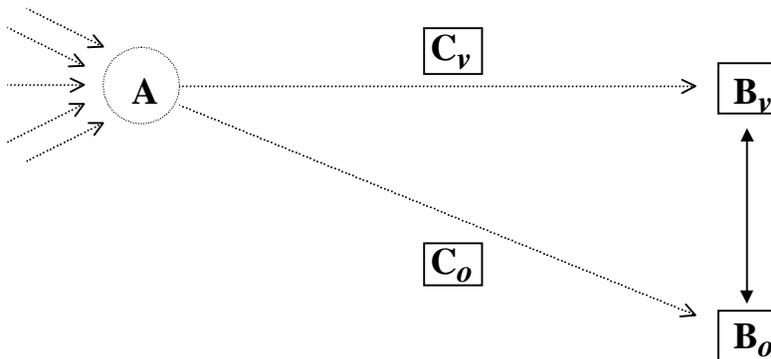
Given this indeterminacy, the limitations of attitude measures in particular and the attitude construct in general are undeniable. We must always resist the temptation to reify our intuitive understanding of attitudes, investing this hypothetical concept with a “real” status akin to height or weight. Latent attitudes, realized as interaktionskonzepte, are immeasurably multidimensional. There is no prefabricated *attitude toward doctors* stored in the patient’s brain as a prepackaged evaluation, awaiting measurement. Rather, there is a dynamic *potential* for such an evaluation. Any person bears an amalgam of different personal or vicarious experiences, personal associations, emotional residue, beliefs about consequences of behavior, and other variables that may remain comfortably independent (even dissonant) unless called together by a social context that demands this synthesis. That is, these various components only coalesce into a unified “attitude” if we ask respondents to infer and articulate an opinion from their stew of thoughts and feelings.

This social context which prompts a verbal behavior (e.g. a questionnaire or interview) bears its own host of attributes which may influence the expression of that verbal behavior by interacting with the various components of the latent process. Relevant attributes which could affect survey responses might include: demand characteristics, conflicting time commitments, fatigue, (in)ability to understand or apply scales to inner states, etc. An entirely different set of attributes may interact with the components of the latent attitude in an *overt* behavioral context, such as: ease of behavior, immediate alternative behaviors, unforeseen but presently apparent consequences of behavior, etc.

Drawing a distinction between the attributes of the verbal and overt behavioral contexts illuminates a central threat to correspondence between verbal and overt behavior: The extent to which these behavioral contexts interact differently with latent attitudes may

obscure a valid relationship between the two types of behavior. As I have diagrammed in Figure 1, we can expect a weaker relationship between verbal (B_v) and overt behavior (B_o) when attributes of the verbal behavioral context (C_v) are quite different from attributes of the overt behavioral context (C_o), because this context may activate or inhibit different components of the latent attitude (A). When C_v and C_o are very similar we may expect the attitude to have a congruent effect on both verbal and overt behavior, ultimately engendering correspondence.

Figure 1. The Indirect Effect of Attitude on Verbal and Overt Behavior



While we can never ensure that C_v and C_o are identical, we should at least draw a detailed picture of both the verbal and overt behavioral contexts, to help explain why B_v and B_o may differ. Of central concern in this study is how C_v may influence B_v *systematically*, so that it threatens the representativeness of the measured attitude. Given that the actual measurement process of B_v (usually a set of one or more survey items) is a key element of C_v , the “validity” of this measure becomes immensely relevant to any research question that examines the relationship between B_v and B_o .

The diagram above appears to be directly supported by a Carr and Roberts (1965) study which finds that various measures of attitude accurately predict behavior that is similar to filling out a survey (i.e. signing a civil-rights petition) but are very weakly

related to different behavior (i.e. actual participation in civil rights activities). This model implies that in order to maximize explanatory power of our attitude estimate, we need to assess the extent to which the verbal behavioral context (mostly characteristics of the survey itself) may activate components of the latent attitude that are not relevant to the behavior we hope to predict. It is probably best to use several different measures of attitude and use diverse survey situations to reduce the contamination of B_v by C_v . In fact, attitude is probably best estimated by using several different forms of verbal behavior *and* several measures of overt behavior to triangulate the latent concept.

Of course, attitude is a much less practical concept if it is limited to use as a dependent variable in this way. Often, we do not have measures of overt behavior, and hope to predict it from measured attitudes. Of the five variables in the above model, this leaves us with two unknown variables (A and B_o), as well as the measured attitude (B_v) and two ambiguous bundles of quantitative and/or qualitative variables (C_v and C_o) which may moderate these relationships. While it may appear difficult at first to predict overt behavior from verbal behavior, this should become more feasible if we gain a thorough understanding of relevant aspects of the verbal and overt behavioral situations.

In most research applications, measured attitude is limited to a small number of verbal responses, often realized in abstract terms which are very removed from the actual behavior. Variation between the verbal or overt behavioral context is not taken into account. Given these limitations, it is not surprising that numerous studies have found little or no correlation between measured attitudes and overt behavior. While this inconsistency may *sometimes* indicate a disagreement between an individual's latent attitude and behavior (such as when behavior is accidental, scripted, trivial, reflexive, compulsive, or otherwise unintentional), I argue that inconsistency is most often due to an inadequacy of attitude measures to represent the full domain of the latent interactional process. If our actions are determined by an interactive stew of interdependent and often

contradictory attitude components, then it is impossible to guarantee that a survey response indicates the full domain of that hypothetical attitude.

Using this interpretation, attitude-behavior inconsistency becomes extremely difficult to prove (or even observe) as the question of consistency becomes essentially moot. If various measures of verbal and overt behavior do not agree, this strongly implies that they activate different components of the latent interactional process, indicating that it would be inappropriate to use one to predict the other. If verbal and overt behaviors *do* correspond, then there is some evidence that the survey item captures the relevant components of the latent attitude.

Here we change our conceptualization of attitude from “what the attitude scales measure” to a hypothetical motivational force implied by patterns of intentional behavior. Perhaps this conceptualization simply trades one tautology for another. Even so, at least this definition prohibits overconfidence in attitude measurements and so avoids patently contradictory generalizations about human behavior.

It is tempting to ask, after we have amended the attitude concept to include this immeasurable congeries of interacting factors, why we should even bother to imagine a “latent attitude” at all. I will answer that the latent attitude concept provides an intuitive and parsimonious (if imperfect) explanation for consistent differences between individual actors’ behavior in identical situations and for constancy of each individual actors’ behavior across different situations.

Further, this parsimony is not necessarily lost when we accept that attitudes are multidimensional and interactional, as we may often use very simple measures to indicate attitudes-as-interaktionskonzepte. A basic operationalization, using Likert or semantic differential measures to evaluate a behavior or a behavioral object may serve to predict overt behavior reliably and parsimoniously in some circumstances. While the interactional definition of attitude does not automatically require us to use more complex measures, it does require us to think hard before we conclude that “attitudes don’t affect behavior”

whenever we find little or no correspondence between verbal and overt behavior. It encourages us to use *multiple* measures to tap our attitude construct, to obtain a thicker understanding of the latent cognitive and affective processes which may determine behavior.

While abandoning the notion of the equivalency of latent attitudes and verbal behavior certainly sacrifices much of the explanatory power that attitudes once had in theory, perhaps measures of verbal behavior have never really *deserved* the explanatory power that we have historically attributed to them (as is evidenced by their frequent failures to significantly predict behavior). This step in a more conservative direction may be long overdue.

Far from casting doom on the project of predicting behavior from measured attitudes, I will argue that under many specifiable circumstances, measured attitudes and overt behaviors will at least be reliable indicators of the latent process. I will add that we can approximately predict *when* our verbal measures adequately represent the latent attitude, by identifying attributes of the verbal or behavioral situation which may contaminate the observed behavior or measured attitude. We can estimate these attributes by examining the behavior, the behavioral situations, and population studied, and by consulting past research to determine how these attributes may moderate the effects of latent attitudes on verbal behavior. Similarly, we can examine attributes of the behavior, situation, and population, and extrapolate as to how these may moderate the relationship between latent attitudes and *overt* behavior.

In many cases and in approximately specifiable circumstances, simple measured attitudes may be strongly related to patterns of overt behavior. Of course, researchers can encourage this correspondence by seeking to design attitude measures which capture the relevant aspects of the latent attitude. Conversely, researchers may diminish this

correspondence by designing attitude measures which tap contradictory components of the latent attitude which have little effect on overt behavior.²

2. Measurement of Attitudes

Attitudes toward an object (A_o) are customarily measured along a multi-item semantic differential. These are then collapsed to form a unidimensional attitude score. Several early studies showed that A_o has little or no significant influence on behavior toward the object in question (LaPiere, 1937; Schwartz & Tessler, 1972; Wicker, 1969, 1971; Wicker & Pomazal, 1971). Carr and Roberts (1965) also found that a semantic differential measure, a Bogardus Social Distance scale, and a verbal Likert scale, all of which ostensibly measured the same A_o concept, demonstrated very little convergent validity.

Various tests compare the behavioral predictiveness of the attitude-toward-action (A_{act}) to the attitude-toward-object (A_o) measures, and find that A_{act} is generally a stronger predictor of behavior (Ajzen & Fishbein, 1970, 1973, 1977; Weigel & Newman, 1976; Wicker & Pomazal, 1971) and is easier to measure than A_o (Schwartz & Tessler, 1972). Others studies conclude that A_{act} is highly related to other predictors of behavior (Ajzen & Fishbein, 1969) and to prior behavior (Fredericks & Dossett, 1983). In some cases, such as when the object *itself* strongly implies a behavior (e.g. cigarettes, television, beef), A_o may not be separable from A_{act} . However, unlike A_o , A_{act} has proven strongly related to behavior (Davidson & Jaccard, 1979; Sapp, Harrod, & Zhao, 1994) and behavioral intentions (Montgomery, 1989) in many recent tests.

² In this paper, I use the term “construct validity” to denote the extent to which a measure captures the relevant aspects of the latent process without being systematically altered by irrelevant variation (“measurement error”), not the extent to which it represents any “true” attitude.

Early theorization about the nature of A_{act} postulated that this concept of attitude is multidimensional (Norman 1975), incorporating an *affective* component and a *cognitive* component. The affective component is generally measured on a semantic differential (Crosby & Muehling, 1984; Fishbein & Ajzen, 1969; Pomazal & Jaccard, 1976; Regan & Fazio, 1977; Sapp & Harrod, 1989; Schwartz & Tessler, 1972; Uomoto & Gorsuch, 1984; Zuckerman & Reis, 1978) and is taken to represent how a respondent *feels* about that action.

The *cognitive* component, which measures the extent to which a reasoning process would suggest the action, considers beliefs regarding the possible consequences of a given action. These are generally operationalized in terms of an “expectancy-value” statement (Ajzen & Fishbein, 1969, 1970, 1973, 1977; Bagozzi & Burnkrant, 1979; Davidson & Jaccard, 1979; Fazio & Zanna, 1978a, 1978b; Jaccard & Davidson, 1975), which is a summary of positive and negative outcomes that the respondent expects will occur as a result of performing the behavior. To form an expectancy-value response, subjects are asked to list possible consequences of a given act (i), assign probabilities (B) that each consequence would occur as an outcome of the act, and then evaluate them (E) on a semantic differential or Likert scale. The expectancy-value measure is thus based on the sum of the beliefs regarding the probabilities of anticipated consequences, weighted positively or negatively by the subjective evaluation of that consequence (Ajzen & Fishbein, 1969).

$$A_{act} = \sum B_i E_i$$

While several researchers have suggested that averaging would be more appropriate than summation (Cooper & Crano, 1974) and a measure of *importance* should replace *probability* (Lutz, 1976), Fishbein (1976) maintains that there is little reason to change the measure.

Pomazal and Jaccard (1976) find this expectancy-value measure to be significantly (.57) correlated to the semantic differential measure of A_{act} . Bagozzi (1981a) tests the validity of these two measures of A_{act} , finding them to be roughly equivalent, and later (Bagozzi, 1986) decides that moral (good/bad) and affective (pleasant/unpleasant) evaluations adequately represent the above expectancy-value configuration.

Recent years have produced a number of specific critiques of this operationalization of cognitive dimension of attitude. Jaccard (1981) argues that we cannot assume that all respondents interpret and weigh each response exactly the same way, so we cannot assume that attitude scales are *ratio* scales. This assumption is required in order to add, multiply, or average the scores for each variable. Accordingly, Ahtola (1976) suggests that conversion constants are needed and Bem and Allen (1974) propose a shift to a more ideographic methodology, to account for differences in individual interpretations by allowing subjects to frame responses in their own terms and scales.

Zajonc (1980) feels that these cognitive aspects of attitude are overemphasized. He argues that the affective component is more than a felt evaluation of a set of outcome beliefs, but that it influences behavior *directly*, and may even *precede* the cognitive component. He further argues that many behavioral contexts will never trigger a reasoning process because individuals may respond with a “gut” reaction, before they are able to contemplate consequences.

3. Measurement of Behavior and Behavioral Intentions

The fine line between attitudes and behavior has remained relatively obscure, and this distinction is further muddled by the literature's frequent conflation of latent and measured attitude. When attitude is realized as a questionnaire or interview response, researchers are often content to ignore the *behavioral* component (i.e. the overt act of responding to the surveyor's question).

When researchers assume that attitudes equate with survey responses, they must define the domain of behavior as all other actions *except* for those survey responses (see Schuman & Johnson, 1976). In doing so, they avoid a circular research question by adopting a dubious definition of behavior. The ambiguities inherent in this operationalization become most apparent when the overt behavior of interest is in fact *verbal* behavior. For instance, in a hypothetical study, a researcher may ask subjects how they feel about voting for an incumbent mayor. Their verbal responses are recorded as *attitudes*. Respondents are later asked whether they intend to vote for the mayor. These verbal responses become behavioral *intentions*. Their actual votes represent overt *behavior*. In this example, we can see the blurred boundaries between these operationalizations. Standard measures of attitudes, intentions, and behavior, are essentially very similar expressed preferences. It should come as no surprise that studies generally find a very high correspondence between these operationalizations of political attitudes, voting intention, and voting behavior (Montgomery, 1989).

In many cases, researchers are unable to observe overt behavior directly, and must rely on self-reports from subjects, often in the same format as the original attitude and intention questions. A substantial literature indicates that self-reports are not valid indicators of overt behavior, however, because subjects may misremember or deliberately deceive (Budd & Spencer, 1986; Calahan, 1968; Heberlein & Black, 1976; Tittle & Hill, 1967a; Wicker, 1969) in order to feel consistent with a self-image or with other survey responses, or to cater to social acceptability (Laljee et al., 1984). Particularly when

normative influences are a specific interest of the study, this source of potential measurement error represents a major threat which must be recognized. Nevertheless, many scholars continue to use self-reports of behavior, claiming that there is no reason to suspect them (Rokeach & Kliejunas, 1972) and that they ultimately correspond with observations of overt behavior (Liska, 1974a; Pomazal & Jaccard, 1976).

Many of the same dilemmas that accompany behavioral self-reports may apply as well to direct observation of overt behavior, whenever the subjects are aware that they are being monitored. Unless the observer is unobtrusive, or observes through vicarious sources such as attendance rosters or grocery receipts, the observation itself may cause the subject to act unnaturally.

In the “real world”, it seems unlikely that there is a logical pairing of every attitude and every corresponding behavior. Overt behaviors may derive from many different attitudes, each of which may effect many different behaviors. To fully capture the behavioral domain and reduce the effect of irrelevant variation, a few scholars (Abelson, 1982; Weigel & Newman, 1976; Weigel et a., 1974) suggest multi-item *behavioral* measures, as well as multi-item attitude and normative measures.

A major portion of attitude-behavior research does not address overt behavior at all, or looks at it only peripherally. Alternatively, these researchers study behavioral *intentions*. This relatively self-explanatory concept looks at the effect of determinants on the actor’s *plan* to act. By removing the criterion from overt behavior to behavioral intention, these researchers avoid some of the false predictions that result when unforeseen circumstances block a proattitudinal behavior. With overt behavior as the criterion, an obstruction of behavior will give the appearance of inconsistency. With intentions as the criterion, however, aspects of the situation which immediately block or facilitate the overt behavior may be comfortably irrelevant to the research question.

Ajzen and Fishbein (1969) describe the intention as an “immediate antecedent of behavior,” which is likely to cause overt behavior unless something intervenes to either

change intentions or to prevent the behavior. Their confidence that intentions are able to reliably predict overt behavior has formed one pole of an ongoing debate about the usefulness of this concept. Despite its seemingly straightforward definition, this concept has been no less a battlefield than attitudes.

Several studies demonstrate to varying degrees that measures of intentions do predict blood donating behavior (Pomazal & Jaccard, 1976), fertility behavior (Werner et al., 1975), infant feeding behavior (Manstead et al., 1983), voting behavior (Montgomery, 1989), and television viewing behavior (Loken, 1982). Other researchers (Ajzen and Fishbein, 1969, 1970; Schwartz & Tessler, 1972) find that while the relationship between intentions and immediate behavior is quite strong, it attenuates as the time lag between assessment of intention and observation of overt behavior increases or as the measure of intentions becomes less specific.

Another group of studies directly question the sufficiency of intentions as the immediate cause of behavior by demonstrating a significant effect of attitudes independent of intentions (Albrecht & Carpenter, 1976; Bentler & Speckart, 1979, 1981; Manstead et al., 1983). Zuckerman and Reis (1978) and Liska (1984) use this effect to explain why intentions become less important predictors of behavior as the time lag increases. They claim that because attitudes are more stable than intentions, intentions may change over the time lag and, as a result, attitudes may become more highly correlated with the behavior. Once again, there is an immediate counter-argument that finds no significant effect (Bagozzi, 1981b; Davis, 1985) or attributes a direct effect to measurement unreliability (Manstead et al., 1983) or interference in the formation of intentions (Bagozzi et al., 1989). Others find a direct effect of attitudes only when intentions are “ill-formed” or when conditions require little effort (Bagozzi & Baumgartner, 1990).

Additional studies show a significant direct effect of other variables on behavior independent of intentions: prior behavior (Bagozzi, 1981b, Bentler & Speckart, 1979, 1981; Feldman & Mayhew, 1984; Fredericks & Dossett, 1983; Landis et al., 1978;

Songer-Nocks, 1976a, 1976b), motivational set of a Prisoner's Dilemma game (Fishbein & Ajzen, 1976A, 1976B; Songer-Nocks, 1976a, 1976b), and social status (Davis, 1985). Fredericks and Dossett (1983) and Sapp, Harrod, and Zhao (1994) find that intentions may explain little or no variance in behavior, once the direct effects of attitudinal and normative variables are taken into account.

Accordingly, several theorists (Jorgensen & Sonstegard, 1984) suggest that we study behavior directly and not limit ourselves to intentions. Others further argue that intentions are useless as theoretical determinants of behavior, as they are merely "predictions" (Olshavsky, 1976) or "momentary antecedents" (Liska, 1984) of behavior.

Sherman (1980) points out that the correlation between intentions and behavior may be artificially enhanced by respondents' desire to feel consistent with their prior predictions. This matches Clausen's (1968) earlier theory that his pretest of voting intentions may have *caused* respondents to ultimately vote. Given Sherman's (1980) observation that respondents will systematically mispredict their own behavior in the direction of social desirability, we can expect that the actual measurement of intentions may very well *create* the intention-behavior consistency that some studies find, and this consistency may systematically differ from behavior that would otherwise have transpired. To combat this effect, he suggests that researchers must randomly divide the study population in half, measuring intentions for one half of the group, and observing behavior for the other half. Manstead et al. (1983) find no evidence to support Sherman's hypothesis.

I generally agree that there has been far too much blind faith in intentions as directly *causative* of behavior. When possible, overt behavior is probably preferable to intentions because it is somewhat more meaningful and seems less subject to measurement error. Nevertheless, I believe the intentions measure is itself an interesting variable, regardless of any questionable relationship to overt behavior. I note that intentions may be an important criterion or predictor in some cases, such as when the overt behavior is not

observable or when comparing intentions to overt behavior is an explicit goal of the research.

For instance, applied researchers who hope to encourage recycling are interested in promoting the behavior, not the intentions. However, diagnostic research may take advantage of *both* intention and overt behavior measures and use them to plan effective behavioral interventions. When a population is shown to be attitudinally disposed toward recycling and indicates a strong intention to recycle, but does not in fact recycle, applied researchers may focus interventions on providing *procedural* (“how-to”) knowledge or otherwise removing barriers to the behavior (see DeYoung, 1989). In another population, where intentions are highly correlated with overt behavior but the population is not attitudinally disposed toward recycling, applied researchers may focus on attitudinal interventions (e.g. providing information about the consequences of their behavior, publishing persuasive communications to change their evaluation of consequences, offering incentives/disincentives to provide *new* consequences, etc.).

B. Consistency vs. Independent Variation Arguments

By putting an end to the reification of measured attitudes, the interaktionskonzepte notion of attitudes accounts for the many contradictions in the attitude-behavior literature. Rather than asking whether attitudes are related to behavior, we begin to ask under what circumstances, for what kinds of actors and what kinds of behaviors, do we find *measured* attitudes to be correlated with overt behavior? This reconceptualization implies a new research agenda: we must now identify the *conditions* in which an attitude-behavior relationship is “found,” in order to better understand how verbal and overt behavior interact with attributes of the behavioral context.

With this in mind, a meta-analysis might view the attitude-behavior literature as a series of case studies, where the verbal and overt behavioral contexts are independent variables and the success of prediction is the dependent variable. This review provides only the first stage of such a meta-analysis. Perhaps it may serve as a map of the vast range of findings and research conditions, directing readers toward relevant material and suggesting avenues for further inquiry. Below, I provide a brief outline of the debate about whether attitudes *are* or *are not* related to behavior.

For most of this century, the connection between attitudes and behavior was considered self-evident. During this time, little attention was paid to the few social scientists who actually attempted to test this connection empirically and ultimately found little cross-situational correspondence between survey responses and overt behavior. For instance, LaPiere (1937) found very little concordance between hotel proprietors' stated intention to allow Chinese people as guests (he deemed this to represent attitudes towards Chinese people) and their actual behavior when confronted with prospective Chinese guests. LaPiere determined that situational demands (read: attributes of the verbal and overt behavioral context) were the primary factor in determining both the survey responses and the overt behavior. He concluded that a "verbalized reaction to a symbolic situation" can neither adequately represent a social attitude nor reliably predict overt behavior. In this thesis, I borrow some of LaPiere's skepticism, tempered with observations of research applications which *have* fruitfully used questionnaire data.

LaPiere's study failed to dissuade a generation of social scientists from uncritically using attitudinal survey data as indicators of behavioral tendencies. The connection between (measured) attitudes and behavior continued to be accepted as an article of faith. Accordingly, when Irwin Deutscher's (1966) review of the sporadic attitude-behavior literature concluded that there is "no reason to expect to find congruence between attitudes and actions and every reason to expect to find discrepancies between them" he

invoked an energetic debate. Although this debate has inspired hundreds of empirical studies, thirty years of research have produced little resolution to the fundamental question of whether attitudes and behavior covary.

In addition to the empirical disconfirmations of attitude-behavior consistency, there were also theoretical objections against the attitude construct. Blumer (1956) argued that attitude fails to qualify as a scientific concept because it lacks an empirical reference and defies verifiable measurement. He claimed that these deficiencies undermine our ability to predict behavior from attitudes. Furthermore, any internal predisposition to act will not determine behavior, but may only provide the initial “suggestion.” He ultimately proposed that attitude is, at most, only one of many determinants of behavior.

In a 1969 review, Wicker pointed out that empirical research had rarely, if ever, produced any direct correspondence between measured attitudes (in this case, measured as A_o) and overt behavior. In fact, he predicted that measured attitudes will rarely explain more than 10% of behavior. Two years later, Wicker (1971) again highlighted this lack of consistency and proposed major revision, and possible abandonment, of the attitude concept. Frey (1972) agreed that the large number of other variables which potentially moderate any relationship between attitudes and behavior raises serious questions about a theoretical relationship between the two constructs.

I will argue that while these studies provide an essential critique of attitude *measures*, they overstate the uselessness of the attitude *concept*. They generally address conceptualizations of attitude which were common in their day, but are rarely used now. As an alternative to abandonment, Wicker (1971) proposed that researchers change the operationalization of attitude from A_o to A_{act} , and to think of attitude as only one of a number of possible causal agents of behavior. Frey (1972) encouraged further study of normative and situational variables. Many of these proposed amendments have already fundamentally altered the study of attitudes and behavior. The “attitude” concept that

Wicker casually suggested that we abandon, was a different attitude, theoretically and operationally, from the attitudes that we generally discuss today.

Several theorists appropriately conclude that the inconsistency between measured attitudes and behavior may have been largely due to methodological inadequacies in the tests of consistency. Surprisingly, this rarely involves questioning whether measured attitudes adequately represent latent attitudes (this connection between latent and measured attitudes is once again assumed to be self-evident). By far, the most common methodological critique addresses the level of *specificity* at which attitudes and behaviors are assessed (Ajzen & Fishbein, 1969, 1970, 1973, 1977; Albrecht & Carpenter, 1976; Davidson & Jaccard, 1979; Ehrlich, 1969; Gill et al., 1986; Heberlein & Black, 1976; Miniard & Cohen, 1981; Schwartz, 1978; Weigel & Newman, 1976; Weigel et al., 1974; Wicker & Pomazal, 1971). For instance, comparing a girl's attitudes toward exercise and then trying to predict whether she will play tennis with her sister may violate some of the specificity-concordance assumptions and may produce an unimpressive relationship between the general attitude toward exercise and the specific behavior of playing tennis with her sister.

Ajzen and Fishbein (1977) elaborate on this concordance of specificity, explaining that many failures to predict behavior from attitudes may be attributable to this ecological fallacy. They posit that measures of attitudes and measures of behavior must correspond along four dimensions -- *action, target, context, and time* -- in order for measured attitudes to reliably predict behavior. In a limited sense, this anticipates my present critique. After they inductively determine that correspondence between these attributes of the verbal and overt behavioral situation tend to produce higher attitude-behavior correlations, Ajzen and Fishbein simply recommend that researchers continue to test the relationship only when these attributes correspond. Of course, by requiring this correspondence of attributes, they essentially hold constant many aspects of the behavioral context which could otherwise differentially influence verbal and overt behavior (and thus

cast doubt on their model). Similarly, their requirement regarding correspondence of *targets* controls for any influence of attitude-toward-object.

The interactional latent process conceptualization of attitude renders this consistency question irrelevant. Thus, we are free to study the relationship between measured attitudes and behavior *across* various differences in context. Both by looking at these differences across the literature and by manipulating these variables in our own research, we can obtain a broader view of human agency.

C. Contingent Consistency Arguments

A spate of studies responded to Wicker's initial challenge to the attitude concept. The new research trend incorporated numerous theoretical and methodological revisions. In addition to shifting from A_o to A_{act} , most students of the attitude-behavior relation adopted the "contingent consistency" approach, which changed the central question from *whether* attitudes and behavior are related to *when* and under what conditions they are related. This evolved into a discussion of "other variables" which affect attitude-behavior consistency, either through affecting behavior independently or by mediating or moderating the connection between attitudes and behavior; thus affecting the tendency toward consistency (Mervielde, 1977). Numerous empirical studies found significant improvement of behavior-prediction models once certain characteristics of attitudes, actor personalities, and situational characteristics were taken into account.

Again, these scholars anticipated my present critique, although they generally failed to question the equivalency of verbal behavior and latent attitudes. Where they see these "other variables" as moderating the effect of *attitudes* on *behavior*, I will reexamine these effects through the interactional latent process lens. I argue that these moderating variables generally affect the relationship between overt behavior (B_o) and verbal behavior

(B_v) only because they affect the relationship between latent attitudes (A) and verbal behavior (B_v) and/or the relationship between latent attitudes (A) and overt behavior (B_o). That is, these moderators influence the “construct validity” of the attitude measure by differentially affecting the paths from A to B_o and from A to B_v . In no longer assuming the equivalency of measured and latent attitudes, we must recognize that moderators may operate differently for these two kinds of behaviors.

An “other variable” should be considered for inclusion in a prediction model whenever there is a theoretical reason to assume that it may significantly influence the A/ B_o or the A/ B_v relationship and when a significant discrepancy between the two behaviors suggests a moderating influence. Most of the variables which have been discussed in the contingent consistency studies appear to moderate the A/ B_o relationship. Given that most researchers assume that there is a theoretically perfect correlation between A and B_v , it is not surprising that there has been little discussion of moderators of the A/ B_v relationship.

If we begin to look at attitude measures through a critical lens, these particular moderators become very relevant. I argue that whenever such measurement error (survey misinterpretations, misunderstandings, interviewer effects, confounding characteristics of the survey situation, etc.) may affect the A/ B_v relationship, this error should be painstakingly investigated. These moderators may prove a much more significant threat to the interpretation of measured attitude-behavior consistency than A/ B_o moderators.

When these moderating variables consist of characteristics of the attitude or personality of the actor or when they represent past events or behavior, I envision them as part of the latent attitude, as they ostensibly interact with other components to develop a potential for an overt or verbal response. If we suspect that these components may significantly affect behavioral responses, we may include an assessment of their effect as part of our measured attitudes to partial out this influence. For some moderators, such as past experience, a simple survey item may provide much useful information. For

measurement error due to misinterpretation or reactance to survey items, using multiple measures may provide both a better representation of the latent process and an additional opportunity for reliability and validity checks. Of course, if we assume that attitude measures perfectly represent latent attitudes, multiple measures would be redundant. Any discrepancies between measures would then be explained, as they should be identical in theory. I maintain, however, that these differences may tell us the most about the phenomena we aim to study.

Other possible moderators, such as complex personality traits, may be too unwieldy to include in attitude measurement. An in-depth qualitative analysis of the study population prior to analysis may help construct a survey in such a way as to minimize the confounding influence of unmeasured variables. If diagnostic efforts imply that some moderators may differentially influence overt and verbal behavior, and it is impossible to control for this differential effect, results will become very difficult to interpret. In this case, researchers would do best to either qualify their conclusions or disclaim the findings altogether.

When the “other variables” represent characteristics of the situation, it is especially relevant that they be applied only to the behavioral domain (i.e. overt or verbal) to which they apply. In most cases, characteristics of a situation will apply either to the verbal or overt behavioral context and not to the other. Social factors which appear to significantly affect either the A/B_v or A/B_o relationship are much more difficult to categorize as either attitudinal or situational variables. I will explain these after I address characteristics of the attitude, the actor, the behavior, and the situation.

1. Attitudinal Characteristics

Among several other factors, Ehrlich (1969) identifies characteristics of the attitude as possible moderators of the attitude-behavior relationship. For instance, he claims that in order for an attitude to be effectively conveyed to the researcher, it must be clear and expressible and the respondent must be willing and able to disclose her or his feelings. Also, differences between measured attitude and overt behavior may result from the difference of perspective or definition of consistency between the actor and observer. I would add that these particular variables seem to influence consistency by moderating the A/B_v relationship. As it would be quite difficult to explicitly model these sources of error, they probably cannot be used to adjust verbal behavior scores to restore construct validity. However, qualitative assessment of the extent of such confounding factors may allow for more valid interpretations of the findings.

Empirical tests have strengthened the idea that characteristics of an attitude may influence its effect on behavior. Liska et al. (1984) considers the intensity, certainty, extremity, salience, and consistency of attitudes as possible mediators of an attitude-behavior effect. Several researchers find that the level of confidence (Fazio and Zanna, 1978a, 1978b; Sample and Warland, 1973), accessibility (Fazio, 1986; Mielke, 1985; Sherman, et al., 1982), stability (Schwartz, 1978); centrality, certainty, and clarity (Budd and Spencer, 1984) of attitudes affect their role as determinants of behavior. These attitude characteristics may apparently moderate either or both the A/B_o and A/B_v effect, although not necessarily in the same way.

Using a multidimensional measure of attitude, Norman (1975) posits that inconsistency between affective and cognitive components may reduce attitude's ability to affect overt behavior. Others agree that the values of expectancy-value measures and affective measures (usually operationalized on a semantic differential) must coincide, in order for attitudes and behavior to be strongly related. In asserting that attitude is

multidimensional, Norman is taking a step in the right direction, but he reduces the interactional latent process to a *pair* of attitude dimensions.

It makes perfect sense that consistency between various components of the latent attitude would encourage similar verbal and overt behaviors. When the latent attitude is a jumble of very disparate beliefs and feelings, and dissimilarities between the overt and verbal behavioral context activate different components of the latent attitude, attitudes and behaviors may very well seem “inconsistent.” Conversely, when every belief and feeling is uniformly in agreement, we can expect that all intentional behavior will perfectly follow the latent attitude, no matter what the behavioral situation. While I am not sure that Norman’s neat division of attitudes into separate cognitive and affective halves adequately represents these issues, his two-dimensional approach to attitude is probably a major improvement over the unidimensional measure for many attitudes, behaviors, and situations. Perhaps we could take another step and consider the level of (dis)agreement between multiple items *within* the affective and cognitive components as another possible deleterious influence on the predictiveness of measured attitude.

Lastly, Regan and Fazio (1977) show that the manner of attitude formation may affect its predictiveness of overt behavior. They compare students who are forced to live on cots in temporary accommodations during a housing shortage with students who are able to find housing. Although they find that both groups have similar attitudes regarding the severity of the housing crisis, the former group prove more willing to actively protest the crisis. Regan and Fazio attribute this greater behavioral commitment to the fact that attitudes regarding the housing crisis were formed through “direct, behavioral experience,” which makes the attitudes themselves more accessible. This conclusion is later empirically supported by a number of studies (Fazio & Zanna, 1978a, 1978b, 1981; Sherman et al, 1982; Songer-Nocks, 1976).