THREE CONTRIBUTIONS OF SOCIAL PSYCHOLOGY TO THE ANALYSIS OF THE BEHAVIOR-CONSEQUENCE LINKAGE

JOHN H. KUNKEL
University of Western Ontario

This article describes major differences in research focus and methods between behavior analysis and social psychology, and it outlines some of the ways in which fruitful cooperation between the two fields can be established. Attribution, optimism, and time horizons are considered to be measures of past behavior-consequence linkages, which provide information about otherwise unknown aspects of people's learning histories. Experiments in these research areas of social psychology contribute to the improvement of the three-term contingency by (a) introducing past experiences and (b) providing explanations of behavior variability in the laboratory and in daily life.

A common theme in the recent behavior-analytic literature is the call for more interactions with psychologists and practitioners in other areas. For example, Glenn (1993) advocates the building of intellectual bridges to sympathetic researchers in other areas of psychology and neighboring disciplines, while Czubaroff (1993) urges behavior analysts to "develop strategies for interacting with nonbehaviorist scholars of whatever field . . . [such as] building cooperative relations with individuals and traditions . . . that share substantial research interests, even though they have differing terminologies and research traditions" (p. 3). She points out, however, that interactions will occur and cooperative relations will be established only "if behavior analysts can set aside the view that there is only one right way to do psychology or science" (p. 3). One cannot help but wonder: Is this crucial prerequisite likely to be met? It is one thing to advocate cooperative interactions with nonbehaviorists, but quite another to interact effectively, even when the topics under investigation are quite similar. Interestingly enough, there seems to be little doubt that it can be done and should be done (e.g., Slocum & Butterfield, 1994). Again one wonders: How is this to be done?

In this paper, I illustrate the utility of cooperation by examining three
areas in social psychology— attribution, optimism, and time horizons—which illustrate the kind of laboratory research that has interesting implications for behavior analysis. In particular, I focus on the activity-consequence linkage that is part of the three-term contingency (e.g., Lattal, 1995; Morris, 1992).

Another Country

When one assesses the utility of experiments in these three areas, one becomes aware of several significant differences between research in social psychology and in behavior analysis:

1. There are major differences in the experimental designs and procedures of the two fields. Behavior analysts tend to prefer single-subject studies, whereas social psychologists usually compare various sets of individuals by means of complex statistical measures. Research on the social determinants of a broad range of individuals' activities, for example, usually employs aggregate data sets and emphasizes the random assignment of subjects to control and experimental groups. Such differences in research foci persist even when behavior analysts replicate the work of their mainstream colleagues (e.g., Dickinson, 1989).

Thus it is quite possible that some differences in the empirical results of behavior analysts and social psychologists—and the data's theoretical ramifications—are at least in part the results of procedural divergence. Furthermore, an emphasis on group differences enables social psychologists to discover interesting variations in significant dimensions of individuals' activities. Three major examples are given below: variations among individuals' attribution styles, the implications of optimism and pessimism, and the effects of people's differing time scales.

2. Most social psychologists study topics that appear to differ greatly from those that fascinate behavior analysts. For example, much research focuses on such complex aspects of daily life as attitudes and their change, attribution, attraction and liking, social influence, reactance, and conformity, precisely the kind of "human concerns" which Bailey (1991) believes behavior analysts have neglected for too long.

3. An important aspect of social psychology, and one with far-reaching implications, is the severely limited nature of most laboratory experiments. About 85% of participants are anonymous college students who "volunteer" their time in a laboratory for an hour or so (Sears, 1986). The most significant restriction is social psychologists' inability to make direct long-term observations of the students' daily lives before the experiment begins. Thus, researchers have no extensive information about their subjects' relevant learning histories prior to the laboratory session. Most of the experimental evidence, therefore, is based on the short-term study of normal, intelligent, educated, young adults whose general experiences and specific learning histories are quite unknown. Besides gender, only broad characteristics such as middle-class background can be assumed, and even these are usually disregarded.
Furthermore, researchers typically have little if any control over significant situational variables, as one might expect when experiments are limited by ethical concerns and rarely last for more than an hour.

Social psychologists thus face a dilemma: *Either* they can study relatively simple activities for which the reinforcement histories are part of the experiment itself, are otherwise known, or can be safely assumed—or they can study complex behaviors and make educated guesses about the relevant learning histories based on broad characteristics such as gender, age, class membership, and so forth. For obvious reasons, experimenters do not wish to make unwarranted assumptions about their subjects’ histories. A related problem arises from the fact that the complex activities studied by social psychologists normally have several consequences that occur over time and vary in magnitude, significance, and probability. It is highly unlikely that all of these dimensions can be manageable components of an experimental design within the typical laboratory setting.

**The Solution**

Today, most social psychologists solve the problem of their subjects’ elusive learning history by gathering information about past behavior-consequence links indirectly, primarily through the use of various questionnaires and other pencil-and-paper tests. In this article I discuss three aspects of that history. The most significant of these is an individual’s attribution, that is, verbal statements regarding the relationship, if any, between one’s own (and other people’s) specific past activities and various consequences. Some people describe strong linkages between particular activities and subsequent events, whereas others describe weak relations or none (in which case one cannot even speak of a “consequence”). Summaries of such descriptions are referred to as a person’s “attribution style.” Other questionnaires tap an individual’s reinforcement history more directly, for example, by asking about the proportion and probability of positive and negative consequences, and the person’s ability to produce or avoid one or the other by performing the appropriate activity. Typically, the summary of responses places an individual somewhere along the optimism-pessimism dimension. A third facet of a person’s learning history is the individual’s time horizon. Some people are used to looking far into the future, and therefore relate their activities to many consequences spread over considerable time. Others have shorter time horizons and therefore describe far fewer subsequent events as being related to their actions.

Social psychologists have few if any alternatives for gathering information about the relevant past behavior-consequence linkages that are part of a person’s largely unknown learning history. Consider how different many experiments would be, at least in terms of measurement, if the relevant reinforcement histories of subjects were as well known to the researcher as those of his children or even better, her spouse (disregarding other complications that would thereby arise).
When social psychologists analyze the implications of past events for present activities, they sometimes find it useful to speak of "expected behavior-consequence links," or simply of an individual's "expectations." In actual research, "expectations" are not considered to be private events or internal processes with a life of their own that operate independent of the present situation or past events. Neither are they considered to be initiating causes of behavior. Rather, "expectations" are essentially the summaries of laboratory subjects' descriptions of their learning histories, and they reflect the common human assumption that in similar circumstances similar consequences are likely to recur in the present and future.

As the research mentioned below indicates, social psychology focuses on behavior; investigators want to discover the major determinants of people's daily activities. For quite some time, psychologists have been intrigued by behavioral variability, both within groups and for any one individual over time (e.g., Mischel, 1984). Hence many laboratory experiments are designed to discover why people in the same situation frequently exhibit different behavior patterns, and why individuals behave inconsistently over time (e.g., Ross & Nisbett, 1991, pp. 90-119). As indicated below, sometimes it looks as if a researcher is analyzing an internal process, such as "optimism," but on closer examination the experiment turns out to be concerned with the way "optimistic" persons behave in various situations, compared with the behavior of "pessimistic" individuals.

When modern social psychologists talk about attribution or optimism, they focus not on a cognitive process but rather on the many relevant past behavior-consequence linkages that are now summarized as a person's "attributional style" or "degree of optimism." Researchers would much prefer to have direct information about behavior-outcome links that a person actually experienced, but when such observations are not available, experimenters have little choice but to rely on the individual's verbal statements or paper-and-pencil tests that summarize the essential features of those past events.

In short, several important variables, which at first glance may appear to be cognitive, are in fact procedural substitutes for the lack of direct information about relevant experiences distributed throughout a person's history. The most common of these substitutes are statements of anticipation, in particular the consequences of a behavior that individuals expect to occur, on the basis of their own or other people's previous experiences.

Models of Human Behavior

Like other researchers, social psychologists make some basic assumptions about human beings and their activities. These assumptions reflect a field's conventional wisdom, and practitioners may not even be aware of what they take for granted. Most social
CONTRIBUTIONS OF SOCIAL PSYCHOLOGY TO BEHAVIOR ANALYSIS

psychological experiments implicitly postulate the following model of human behavior, and most textbook writers appear to be comfortable with it as well: Contextual signal → behavior → (expected) consequences. Here the last term refers to an individual's prediction based on earlier experiences. In this way, a person's learning history becomes part of the analysis of present and future activities. During the last several years, social psychologists have increasingly focused on the analysis of the two linkages (indicated by arrows); the three research areas discussed in this paper elaborate the behavior-consequence linkage.

The model used by social psychologists appears to be a close relative of the operant model used by behavior analysts, in particular the three-term contingency: \( S^D \rightarrow R \rightarrow S' \). Hence the question arises whether research based on one model is relevant and can be useful for work based on the other. The following sections show that this is frequently the case.

In his presidential address, Lattal (1995) describes several interesting problems which behavior analysts encounter in their analysis and use of contingencies. For example, it is often difficult to separate contingency from the effects of temporal contiguity, and to determine the time frames over which contingencies are effective. Furthermore, the debate regarding molar and molecular accounts of contingencies continues. Finally, Lattal points out that "behavior analysts have only begun to explore the role of past contingencies on present behavior" (p. 221). The difficulties that are likely to be encountered here are suggested by the data sources mentioned in the article: primarily studies of animals and a few that deal with simple human actions. What if anything can social psychologists with their research focus on the complex activities of human beings in social settings contribute to the analysis of contingencies?

In his description of the history of behavior analysis, Morris (1992) indicates that the three-term contingency in its present form is rather problematic. It is inadequate primarily because, in a "temporal ordering such as this \([S^D \rightarrow R \rightarrow S']\), contextual variables cannot affect the stream of behavior without intervening between S and R, except as hypothetical constructs" (p. 14). The three-term contingency is also inadequate because of "the social invalidity of certain economical terms of expression" (p. 6). That is, when technical terms are used without sufficiently detailed linkages to the real world, and important variables remain implicit, the wider general audience tends to reject behavior analysts' discoveries about human activities. In order for the three-term contingency to remain a useful tool for behavior analysis, therefore, it needs to be greatly strengthened, and Skinner's contributions need to be "unpacked," for example, by being elucidated in greater detail and expressed in the natural language of daily life. In particular, Morris believes that behavior analysts must discover ways to conceptualize within the three-term contingency (a) the nature and origins of individual differences in behavior within groups and over time and (b) the significant roles of past and present contexts in accounting for such behavioral
variability. In part, this can be done by exploring what Skinner "referred to as 'third variables,' that is, [the] conditions that change the relationships between stimuli and responses" (Morris, 1992, p. 13). What if anything can social psychological research contribute to these areas of concern?

The three areas in social psychology that I describe below make significant contributions toward understanding the operation of contingencies in daily life by elaborating the role of past events in producing behavioral variability. They describe, in preliminary fashion, some of the "third variables" that Morris (1992) considers essential features of the three-term contingency. These contributions are possible because behavior analysts and social psychologists alike postulate that past experiences, especially the linkages between a person's activities and their consequences, are extremely significant for present and future behavior. However, social psychological research indicates that these influences of past consequences on present and future activities involve several interrelated dimensions. These dimensions are especially relevant in the analysis of the complicated activities of daily life that are enmeshed in the complex social and physical context of dynamic urban-industrial societies.

In particular, recent social-psychological research (some of it described below) strongly suggests that individuals are likely to describe their present and likely future contextual events in a variety of ways, which reflect their different past experiences and present situations. Moreover, these several descriptions may not be congruent with an omniscient observer's description of reality. Social psychologists summarize major differences in descriptions of past experiences by such terms as one individual's optimism and another's pessimism, but there is no implication or evidence that either is the initiating cause of any behavior. Researchers would readily agree with behaviorists (e.g., Flora & Kestner, 1995; Moore, 1990) that the initiating determinants of an individual's activities are contextual events. For example, the opportunity to win a prize in the face of high odds are aspects of a person's context; without such an opportunity, the prize-related behaviors of some people and the deliberate avoidance of such actions by other individuals would not occur. Such behaviors or their avoidance, in turn, are discovered to be partly reflections of different earlier experiences with environmental contingencies, commonly summarized as "optimism" or "pessimism." As shown below, such variables are essentially reinforcement histories that begin to operate only when they become relevant in specific contextual situations.

In the remainder of this paper I outline three dimensions of past experiences and their behavioral implications: (a) the existence of a linkage between present activities and later events, (b) the nature of these later events and the probability of their occurrence, and (c) the number of these later events and their temporal distance from the present. The three relevant research areas in social psychology are, respectively, attribution, optimism, and time horizons.
Lattal (1995) points out that the analysis of contingencies, especially the behavior-consequence relation, is fraught with numerous difficulties, even in experimental settings with their manageable variables. One of these, "empirically disentangling the effects of temporal contiguity from those of contingency" (p. 218), has received the attention of social psychologists as well. Research suggests, however, that experimenters are not alone in facing this problem; their subjects confront the same difficulties. For example, even in the controlled setting of a laboratory and when they perform very simple actions, humans frequently make errors in distinguishing "cause-and-effect" relations from randomly occurring events, especially when there is a time lag. The longer the interval between an individual's behavior (e.g., pressing the space bar on a keyboard) and the consequence (e.g., certain images on the screen), the greater is the probability that errors will occur, that is, contingencies will be described when there are none, and none will be described when there is one (e.g., Shanks, Pearson, & Dickinson, 1989).

Social psychologists would hypothesize that the task of learning life's major contingencies is likely to be much more difficult, even with instructions, because individuals are enmeshed in the dynamics of daily life where many contingencies are apt to be considerably more complex and time scales are much longer. If we follow Lattal (1995) and define contingency as "a description of the relation between responses and other events" (p. 210), it becomes apparent that social psychologists have been studying various aspects of contingencies for quite some time. During the last three decades, in particular, experimenters have discovered that linkages between the complex activities of daily life and future events are not nearly as simple as initially assumed. All too often, people are not aware of the linkages that actually exist, or they describe linkages that do not exist.

The major variable that reflects these linkages and subsequent actions is attribution. This process refers to the ways in which individuals select and describe the controlling factors of events that happen to them and other people. The selection is often problematic, especially in ambiguous situations, and always significant, because behavior frequently is a function of the factors that an individual selects rather than of those which an observer might describe. During the last quarter century, social psychologists have paid increasing attention to attribution processes, viewed as (a) the way people select and describe the causes of their own and other people's activities, in particular past behavior-consequence links; and (b) the ways in which individuals explain events that befall themselves and others. Indeed, today attribution processes are the foci of considerable laboratory and field research (e.g., Fiske & Taylor, 1991, pp. 22-95; Little, Oettingen, Stetsenko, & Baltes, 1995; Morris & Peng, 1994); much of it suggests that some people find it difficult to state correctly the comprehensive determinants of their actions (e.g., Street, 1994).
Behavior analysts will be especially interested in three major aspects of attribution research: (a) people's descriptions of the linkage, if any, between their own past and present activities and various subsequent events; (b) the great variability of these descriptions of contingencies within a population; and (c) the behavioral implications of these attributions and their variations. Unfortunately, social psychologists all too often talk all too loosely about "attribution" as if it were a phenomenon in its own right, and this leads to problems in analysis (e.g., Hineline, 1992). As indicated below, however, their research indicates that attribution is essentially the process of selecting one controlling factor from among several possibilities, which then helps determine a person's subsequent behavior. This is especially true in ambiguous and/or unfamiliar situations. In short, the work of social psychologists suggests that individuals sometimes select their own contingencies and behave accordingly.

For example, if I receive a poor grade on an essay which I deem to be quite good, I cannot help but wonder: Why did I get a poor grade on a "good" essay? In this ambiguous situation I have a choice of several possible explanations. Indeed, I can relate (attribute) the poor grade to any of at least four plausible factors: (a) my own behavior, for example, insufficient research or hurried writing; (b) the prejudice of my professor who I believe dislikes me and thus gives me unfair marks; (c) my teacher's inability to appreciate my neopostdeconstructuralistic writing style; (d) my being plain rather than beautiful, if I remember last semester's social psychology course correctly. There is no implication here that my attribution has any causal status; rather, attribution refers to the selection of one possible determinant of the low grade (e.g., "insufficient work"), instead of other possible determinants (such as, "unfair professor," or "being ugly"). Does it matter which controlling factor I select, which contingency I describe, that is, how I explain the poor grade?

One might be tempted to say that attributions are simply verbal statements under the control of the community within which they are expressed, and that they have little further significance. Clearly, when the context and events are ambiguous or open to various interpretations, individuals learn to make one or the other attribution through long-term differential reinforcement from family and peers. However, once an attribution is made, regardless of whether or not it is stated verbally, there will be significantly different behavioral effects. In the example above, if I make the first attribution (or select the first possible "cause"), I am likely to devote more time and effort to the next essay, because my low grade is the result of my inadequate work. But if I make any of the other three attributions (or select one of the other possible "causes"), I will not change my writing methods, because the low grade is determined by factors over which I have no control.

During the last few years, social psychologists have analyzed many facets of attribution, its several major dimensions and implications, and various problems such as the systematic errors which people tend to make (e.g., Fiske & Taylor, 1991, pp. 66-86). On the basis of this
experimental work, researchers have come to view the contingencies enmeshed in daily life as extremely complex and often problematic. At the very least, the contingencies described by normally functioning citizens frequently differ from those an observer would describe, and both may differ from what actually occurs. Social psychologists might suggest that perhaps behavior analysts have taken contingencies too much for granted, by assuming that individuals always behave in terms of the actual relations among actual events, much as in a laboratory setting. In short-term experiments with relatively simple behaviors, and in rather structured field situations under considerable experimental control (such as patients in a hospital), the assumption that the subjects operate in terms of the actual contingencies is no doubt justified; hence it makes sense to disregard the attribution variable.

Complex behaviors that occur in daily life, however, raise questions about problematic attributions, especially in ambiguous situations. For example, considerable social psychological research has shown repeatedly that individuals with different ways of explaining events that happen to them behave differently in similar situations (e.g., Strickland, 1989). Furthermore, social psychologists have discovered that there are significant systematic variations in the attributions that normal individuals tend to make in their daily lives, regarding both their own behaviors and other people's actions. Indeed, several variations in attribution are so pervasive and stable that researchers now speak of individuals' "attribution styles," that is, systematic ways of selecting and describing the determinants of one's own and other people's activities, from among several possibilities (e.g., Peterson, Seligman, & Vaillant, 1988). These styles include systematic errors and biases, both of which have implications for subsequent activities. I outline two examples of particular interest to behavior analysts.

Locus-of-Control

Although social psychologists typically do not speak of contingencies, they do study especially one aspect of the behavior-consequence linkage: an individual's description of the degree of control one has over events. Here "control" refers to the existence of contingencies and one's ability to produce or avoid consequences by appropriate behavior, and "lack of control" implies the absence of contingencies and/or the inability to perform the appropriate activities. Many events that happen in daily life are the results of obvious, clear-cut causal factors: Rain falls from clouds, and if one works with metal tools on live wires one is likely to be shocked. In such instances, attributions are easily made and usually correct; that is, the actual causal factor is quickly selected. In the parlance of social psychologists, rain is attributed to external factors (beyond my control), whereas shock is attributed to internal (or better: personal) factors: I forgot to disconnect the cord. As behavior analysts would say, in the first instance there is no contingency, in the second there is one.
Frequently, however, people are in ambiguous situations or face unknown or unfamiliar events whose determinants can be interpreted in several ways. For example, if I get wet, I can attribute that event to my forgetting my umbrella, or to “bad luck that it rains.” Both explanations are equally plausible. Or consider the paradigmatic choice of an individual who slips on a banana peel: “I should walk more carefully,” or “who dropped this peel on the sidewalk?” Does it matter which controlling factor one selects for explaining one’s fall?

The choice reflects one of several important dimensions of a person’s attributional style: In ambiguous situations, some people tend to emphasize factors that exemplify external control and the absence of contingencies: “Who dropped this banana peel?” Others tend to stress elements that correspond to personal (internal) control and the existence of contingencies: “I should be more careful.” Nowadays, these individuals are considered to be near the extremes of the control dimension and are called “externals” and “internals” (e.g., Lefcourt, 1981). Their “beliefs are generalized expectancies that reflect the consistent individual differences among individuals in the degree to which they perceive contingencies or independence between their behavior and subsequent events” (Strickland, 1989, p. 1). Behavior analysts should feel quite as comfortable in this research area as do social psychologists. The three components of “having control” are (a) the existence of a link between behavior and later events, and (b) the ability to behave appropriately, so that (c) a person can produce some (positive) events and avoid other (negative) events. In the complicated situations typical of daily life, many events that happen to citizens are determined by several factors, some of which are likely to be independent of the person; furthermore, individuals are likely to have different behavioral repertoires and amounts of expertise. Hence it makes sense for social psychologists to consider control as a matter of degree.

Attribution styles (or consistently selecting and describing various contingencies) are learned in childhood, encouraged by one’s social context, and later are maintained by one’s experiences (or one’s interpretations of them). Consider a personal example: One afternoon a colleague’s young daughter fell with her bicycle on a side street with new tar and gravel, and tore her dress. The father was proud that she wanted to sue the city for damages because workers had not put up any warning signs. When I mentioned this to my daughter (of the same age), she was shocked and said she would have told the girl to be more careful on an obviously newly resurfaced road. Inadvertently, perhaps, my colleague and I had taught our children to describe and use quite different contingencies. However, it is not enough to say that a child learns verbal statements about contingencies or their absence from parents, primarily because such statements are correlated with differences in subsequent activities (e.g., suing the city or bicycling more carefully). During the last few years, investigators have discovered a considerable number of concomitants of various attribution styles. For
example, physical health, mental well-being, depression, and optimism are related to a person's position on the control dimension; and what matters is not the actual control one has, but rather one's perceived control (e.g., Strickland, 1989; Thompson, Nanni, & Levine, 1994). As behavior analysts might put it, what seems to matter are the contingencies (or their absence) a person describes, rather than those an observer sees.

**Self-Serving Biases**

Numerous studies in North America and elsewhere have demonstrated the existence of a “self-serving bias” (e.g., Fletcher & Ward, 1988). This fascinating aspect of many people's habitual way of selecting and describing controlling factors (their attributional style) means that individuals tend to take credit (i.e., describe contingencies) for the positive effects of their actions: “I studied hard for this A,” and to deny responsibility for their behaviors' negative consequences (i.e., do not see a contingency): “This D- is due to an unfair test.”

Behavior analysts would again suggest that these biases are primarily verbal reports of activity-consequence linkages, which are learned within a community that reinforces them, and they are of little significance beyond their expression. Yet there is considerable research which indicates that such biases in people's selection of controlling factors are associated with differences in behavior (e.g., Fiske & Taylor, 1991). Why should this be? In terms of the operant paradigm, a self-serving bias effectively increases the frequency of reinforcers a person predicts and reduces the frequency of aversive effects a person predicts, beyond those inherent in the reality of particular situations. Researchers would therefore expect a considerable impact on the variety and frequency of later activities, and this has indeed been observed (e.g., Burger & Burns, 1988).

To illustrate the complexity of self-serving biases, consider people's tendencies to attribute responsibility to the individual (i.e., to describe a link between an activity and later events) when damage is severe: “Only careless drivers have collisions.” However, external factors tend to be blamed (i.e., contingencies are denied) when damage is light: “Sooner or later everyone has a little bad luck, like a fender bender” (e.g., Fiske & Taylor, 1991). Social psychologists suggest that such a systematic selection of causal factors (usually called a *defensive attribution*), makes it possible for people to continue driving their cars without undue worries; after all “I'm a careful driver, hence I won't be in a serious collision.” Interestingly, another variable that has been shown to affect the attribution of blame is the similarity of the observer and the person in the predicament (e.g., Burger, 1981). The greater the similarity between observer and victim, the more likely one is to attribute the event to a personal factor (i.e., to describe contingencies): “The old man who died in the collision was my age, but I have much better physical coordination than most seniors, hence I need not worry about dying in an accident.”
The last thirty years have witnessed a great amount of research on attribution; yet numerous questions remain: How are attributions learned and maintained? How can attributions be changed? And finally, to complicate matters still further, research suggests that in our culture, at least, some attributions are "more effective" than others, some are "healthier" than others, but these implications depend on circumstance, and they are not necessarily the same (e.g., Fiske & Taylor, 1991, pp. 22-95). Clinical psychologists employ similar propositions in their study of "locus of control" aspects of health (e.g., Strickland, 1989).

**Optimists and Pessimists**

Social psychologists do more than simply assume that the activity-consequence linkages an individual experienced in the past affect present behavior. Because these consequences can be positive or negative to varying degrees and occur with various probabilities, researchers have become interested in the ways in which individuals assess the nature of future events and their frequencies. In particular, social psychologists discovered long ago that some people expect many good things to happen to them, and others expect that many bad events are likely to occur. Such individual differences in descriptions of future events are significant because so many present activities are affected by such predictions, for example, the taking or avoiding of risks.

For several years, social psychological research has shown that people differ in their descriptions of the valences and probabilities of various past and future events in their lives. Moreover, these descriptions may differ greatly from objective measures of past and future events, such as statistics or rigorous extrapolations from present affairs (e.g., Shepperd, Ouellette, & Fernandez, 1996). Researchers assume that people's differential descriptions of their behaviors' likely outcomes, usually summarized as "optimism" and "pessimism," reflect the various past experiences which members of a population have had, in terms of the proportion and probability of positive and negative consequences.

These crucial aspects of past experiences and their present implications are usually measured by questionnaires. Scheier, Carver, and Bridges (1994), for example, used the Life Orientation Test, which includes items such as these (p. 1073):

- "In uncertain times, I usually expect the best."
- "If something can go wrong for me, it will."
- "I hardly ever expect things to go my way."
- "Overall, I expect more good things to happen to me than bad."

Subjects are asked to indicate their agreement with each statement, ranging from "strongly disagree" to "strongly agree." Responses are summarized as degrees of optimism and pessimism. Note that each of these statements summarizes numerous external events that have happened to an individual. Thus neither term refers to a disposition, nor to some internal processes which operate on their own. Rather,
optimism and pessimism are essentially individuals’ summaries of their past experiences with numerous contingencies in various situations, and their predictions of present activities’ likely consequences. For example, Scheier et al. (1994) conclude that “optimists are people who hold positive expectancies for their future; pessimists are people who tend to hold more negative expectations for the future” (p. 1063). Although some researchers have placed optimists and pessimists at opposite ends of a single scale, recent work suggests that optimism and pessimism are more properly viewed as two different but related dimensions (Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992).

Considerable research indicates not only that people have rather different views of past and future events in general, but that optimists and pessimists behave quite differently as well, even in similar situations. For example, optimists adjust more favorably to traumatic life events, cope more effectively with serious illness and specific health threats, and are more successful in meeting life’s major and minor challenges (e.g., Scheier et al., 1994). Indeed, the ways in which optimists confront problems and attempt to solve them (i.e., their coping styles) are significantly different from those of pessimists and produce more effective outcomes.

In one typical experiment, the researchers defined optimism as generalized expectancies for good outcomes of appropriate activities, and assumed “that expectations of successful outcomes cause people to renew their efforts to attain set goals, if and when a disruption of goal-directed activities occurs... [while] unfavorable expectancies lead to disengagement and withdrawal” (Scheier, Weintraub, & Carver, 1986, pp. 1257, 1260). Hence they tested the hypothesis that optimists will “actively attempt to deal with stressors in problem-focused ways” (p. 1258). Behavior analysts might rephrase the above argument by saying: (a) Optimists are individuals who, on the basis of their past experiences, ascribe high probabilities to positive consequences of relevant activities, and who predict that many positive events will happen to them; (b) pessimists are individuals who, on the basis of their past experiences, ascribe high probabilities to negative events befalling them; and (c) optimists are more likely than pessimists to perform problem-solving actions even in the face of difficulties.

The experimenters discovered that undergraduates who are optimists or pessimists (based on questionnaire responses) behave rather differently when they confront the same problems. Optimists not only engaged in problem-focused coping [i.e., problem-solving behavior], but they also tended to produce elaborate plans for coping and they reported an attempt to suppress competing activities in dealing with stressors [i.e., problem events]. Independent of these effects, pessimists tended to focus on and ventilate their feelings... [and they] also displayed a tendency to adopt coping strategies that implied disengagement from the goal with which the stressor was interfering. (Scheier et al., 1986, p. 1262)
It is not surprising that as a result of such differences in behavior, the optimistic subjects were considerably more successful than pessimists in solving problems and overcoming aversive events. Furthermore, as one would expect, these differential success rates tend to reinforce a person’s original descriptions of past and future events. Optimists see their positive views reinforced (good things happen to them) and are likely to remain optimists; whereas pessimists see their negative predictions fulfilled (aversive events happen) and are likely to remain pessimists. Conversely, when optimists experience relevant negative events, they tend to become more realistic, at least temporarily (e.g., Shepperd et al., 1996).

Optimism, as a summary of past experiences and prediction of future events, is associated with other aspects of the three-term contingency as well. For example, an individual’s sense of control, discussed in the previous section, is related to optimism. People who tell us that there are links between their activities and positive outcomes, and that they can perform the relevant activities, are more likely to be optimists than individuals who tell us that there is no contingency, or who indicate that they cannot perform the necessary behaviors well enough if at all. The nature of that relationship and the details of its operation, however, are still being debated and remain to be fully investigated (e.g., Marshall & Lang, 1990).

Time Horizons

The three-term contingency implies a sequence of events but does not explicitly include a time dimension. Furthermore, discussions of the behavior-consequence linkage typically are mute on the subject of variations in people’s time horizons, that is, how far ahead people look when they assess their actions’ consequences. This neglect makes eminent sense when a behavior’s consequences are small in number and occur in quick succession, as in the typical laboratory experiment. In the real world, however, time horizons are an important variable, because some reinforcers occur over a long time span, and a few consequences may lie years in the future. Indeed, for religious individuals, the most important reinforcers of daily activities may not occur until after death.

Behavior analysts have recognized the problem of time, of course, and there is a considerable literature on the need for and nature of intermediate reinforcers and adequate schedules of reinforcement. Social psychologists, however, are primarily interested in individual differences and their implications; people have different time horizons and therefore behave differently, even in similar situations.

For behavior analysts and social psychologists alike, the significance of time horizons lies in the number and nature of future events that come to be defined as an activity’s consequences, and thus the composition of the total outcome that affects present behavior. Individuals who look far ahead are likely to see more and different consequences than do those who restrict their focus to immediate events. Hence the total outcomes of
behaviors, in terms of which people select their activities, will be different as well. Because of these different outcomes, we would expect individuals with different time horizons to behave rather differently, even in objectively similar situations.

Social psychologists have been interested in the nature and implications of people's time horizons for quite a while, but systematic research is relatively recent. In the latest study, Strathman, Gleich, Boninger and Edwards (1994) examined the hypothesis that there are significant differences in the time horizons that people employ in assessing an activity's consequences: Some individuals focus on a behavior's immediate consequences, while others are more concerned with events that lie far in the future.

Here as elsewhere, responses to numerous questionnaire items indicated that people use different time horizons when they consider the several consequences of their actions. Students were asked to indicate on a 5-point scale which of a dozen statements were characteristic of them (ranging from "extremely uncharacteristic" to "extremely characteristic"). For example (p. 752):

"I consider how things might be in the future, and try to influence those things with my day to day behavior."

"I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes."

"I think it is more important to perform a behavior with important distant consequences than a behavior with less important immediate consequences."

"I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date."

On the basis their subjects' responses the researchers developed a "Consideration of Future Consequences" (CFC) scale, which was validated against other measures and with different subject populations.

At one end of the continuum are those [high CFC] individuals who consider [distant] future outcomes as a matter of course. These individuals believe [that] certain behaviors are worthwhile because of future benefits, even if immediate outcomes are relatively undesirable, or even if there are immediate costs. They are willing to sacrifice immediate benefits like pleasure or convenience to achieve more desirable future states.

At the other end of the continuum are [low CFC] individuals who are not interested in considering possible [distant] future consequences. These individuals are more concerned with maximizing immediate benefits at the expense of costs or benefits that will not occur for some time, and they place a high priority on such immediate benefits. (Strathman et al., 1994, p. 742)

The researchers discovered that an individual's position on the CFC scale tends to be quite stable over time, and that a person's CFC score
is associated with various activities related to personal health and environmental issues. In southern California, for example, high-CFC students are considerably more opposed to offshore oil drilling than are low-CFC students.

The study also indicated that time horizons are associated with locus of control, as described earlier. As one might expect, individuals with long time horizons also describe a link between their actions and various consequences, whereas short time horizons are associated with lack of control. Here again, however, considerable work on the nature and detail of this association remains to be done. Furthermore, a person’s time horizon appears to be related to willingness to delay gratification. This is eminently logical: It makes sense to select behaviors that have distant reinforcers only if one looks far enough to see them. Finally, the study suggested that individuals with a long time horizon have a general preoccupation with the future, and people with short time horizons are more present-oriented.

Studies such as this raise new questions for further research: How does a person’s “concern for future consequences” develop, and under what conditions does it change? Furthermore, what is the role of consequences’ differential abstractness and probabilities? Compared to immediate consequences, distant events are usually more abstract and less certain. Does this matter, and why?

Conclusion

The several research areas discussed in this paper indicate that many experiments in mainstream social psychology have interesting implications for improving the three-term contingency along the lines suggested by Morris (1992), by introducing individuals’ past experiences and by explaining behavioral variability in terms of them. Indeed, these research areas make important contribution to our understanding of the “third variables” that affect the relationships between past and present situational factors and behavior.

Social psychologists agree with behavior analysts that the outcomes of previous activities are major determinants of present behavior. The experiments discussed above, however, suggest that the pattern of consequences, as described by individuals prior to their selection of various activities, is quite significant as well. In this paper I have considered research on only three dimensions of such patterns: (a) the number and kind of behavior-consequence linkages (i.e., attribution); (b) the nature of consequences and the probabilities of their occurrence (i.e., optimism-pessimism); and (c) the temporal distribution of consequences and therefore their number and kind (i.e., time scales). All of these dimensions are based on individuals’ summary descriptions of their past experiences and are not the primary determinants of behavior. Various aspects of an individual’s present context in conjunction with past experiences (“third variables” expressed as optimism, short time
horizon, etc.) control present behavior. Thus, social psychologists in the 
above three research areas, at least, would probably agree with Morris 
(1992) that people's descriptions of what they predict will happen "is a 
consequence of the historical and current contexts of behavior, not a 
cause . . . [and that] most cognitive and motivational terms refer to the 
consequences of behaving in context, not to the causes" (p. 17).

Social psychologists' long-standing interest in individual differences 
within a population leads them to focus their experiments on the discovery 
and elaboration of such differences and their implications for behavioral 
variability. Thus, research indicates that some people see a strong 
connection between their behavior and later events, others see a weak one; 
some individuals see positive consequences as likely and negative ones as 
unlikely, others see the opposite; finally, some people see many 
consequences spread over time, and others see only a few immediate 
one. Social psychologists assume that such individual variations—in 
attribution, optimism, and time scales—reflect differences in learning 
histories, (perhaps indirect) verbal instructions, and other information.

The several dimensions of consequence patterns can also be viewed 
as sets of rules which people have abstracted from their experiences, and 
which they apply in relevant present situations. Rules are usually defined as 
verbal descriptions of contingencies that frequently affect an individual's 
behavior, for example, the admonition: "If you touch a hot stove you'll get 
burned." Most research on rule-governed behavior focuses on verbal 
interactions and on various forms of instruction (e.g., Hayes, 1989). The 
three research areas discussed in this article illustrate the operation of 
rather different rules: descriptions of contingencies which individuals derive 
from their own or other people's experiences, or from other sources, and 
which then affect their activities in relevant situations.

The questionnaires that social psychologists typically use to measure 
the pattern of consequences mentioned above (e.g., optimism, or a 
person's time horizon) thus may be said to serve two purposes: (a) to 
describe the distinguishing features of a person's past experiences and (b) 
to discover the rules which people now employ as they select one behavior 
rather than another. For example, if an individual agrees that the following is 
characteristic of him/her: "I am willing to sacrifice my immediate happiness 
in order to achieve future outcomes," the statement does more than 
contribute to that person's position on the "Consideration of Future 
Consequences" scale mentioned in the preceding section. The statement is 
also a manifestation of the set of rules that constitute a long time horizon. A 
person who uses that set of rules in daily life will behave in ways that differ 
markedly from the activities of an individual who uses other rules, for 
example, those summarized as a short time horizon. However, the 
application of any one rule, for example, "distant consequences are more 
important than immediate effects," depends on the particular situation and 
is not likely to be applied across the board. Thus we would expect a person 
with a long time horizon to save money when there is an opportunity to do 
so, but not to regularly postpone eating lunch.
Most questionnaires developed by social psychologists over the years measure people’s rule sets about behavior consequences (e.g., optimism) by using several questions phrased in various ways. The above statement regarding time horizons, for example, is one of eight, not counting fillers. Multiple questions are necessary to capture the broad range of people’s relevant experiences and to include the several aspects of any one consequence pattern (e.g., time horizons).

Laboratory experiments such as those discussed earlier do not diminish in any way the significance of behavioral principles, nor is work in the three areas I mentioned part of an alternative explanation of complex human activities in a free environment. However, social psychological research does more than simply add important variables to the three-term contingency, and especially the behavior-consequence linkage. Many studies also raise the possibility that the consequences which an objective observer sees in a particular situation are not necessarily the events that a person takes into account when selecting an activity.

This possibility is quite remote, to say the least, in the carefully designed laboratory experiments so typical in behavior analysis, especially when researchers know their subjects’ relevant learning histories, focus on relatively simple behaviors, and effectively manage the significant contingencies within a short time frame. But circumstances are quite different when individuals with various reinforcement histories have to choose among several complex activities with their multifaceted consequences, all of which are enmeshed in the dynamics of past and present daily life and are likely to occur over weeks and perhaps years. The research I have described above suggests that in these circumstances additional variables (e.g., time scales) are quite likely to operate. Indeed, the operation of such variables would explain why people so often behave differently in ostensibly similar situations.

The experiments in these three areas raise some interesting questions. Social psychologists would readily agree that most measures of their subjects’ past experiences consist of verbal statements, for example, an optimist’s description of high probabilities that positive events are likely to occur in her life. Although most dependent variables consist of instrumental behavior, such as an optimist’s actual performance in the face of high odds, some are measured by words as well (e.g., when a pessimist is asked what he would do in several specific situations). Researchers may have rather different opinions, however, on what such verbal statements actually mean (e.g., Moore, 1995). Do individuals’ descriptions of causal relations permit inferences about something beyond the words or not, do verbal statements tell us something about the person’s learning history or not, do they allow us to make predictions about future actions or not, and if so what processes are involved? Are optimists or individuals who usually make external attributions, for example, people who simply tend to make certain classes of verbal statements and then behave in congruent ways? Or are a person’s verbal statements indicative of some processes which
result in certain activities? The great number and variety of social psychological experiments that are published every year provide a rapidly expanding set of relevant data. Behavior analysts' recent concern with rule-governed behavior (e.g., Hayes, 1989) may well provide a mutually acceptable foundation for cooperative interaction between behavior analysts and social psychologists.

References


