Psychological Inquiry
1995, Vol. 6, No. 4, 286–321

COMMENTARIES

Implicit Theories in Broad Perspective

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Dweck, Chiu, and Hong's target article is an excellent presentation. Two main sections compose this commentary. The first highlights the major contributions made by the target article. The second illustrates several ways in which the current analysis of implicit theories can be integrated with other research on knowledge structures.

Major Contributions

In my view, the target article and the reviewed research can be summarized by four postulates. The first is that people have two main types of implicit theories: entity and incremental. The entity theorists view the world in dispositional terms, believing that stable traits exist, that these traits influence how people behave, and that behaviors reveal the presence or absence of such traits. The incremental theorists view the world in more fluid or dynamic terms, believing less in fixed traits and more in the power of current psychological states—such as needs, goals, and intentions—as the proper way to understand behavior. Obvious parallels exist between entity theorists and the trait theories in personality psychology attacked by Mischel (1968) over 25 years ago and between incremental theorists and social learning theories of Mischel (1968, 1973) and other personality psychologists (e.g., Bandura, 1977).

The second postulate is that these implicit theories influence both self- and social perception processes and sequela that flow from these perceptions, such as affective reactions and behavioral choices. The authors present an impressive array of empirical evidence that entity and incremental theorists make judgments of self and of others that maps nicely onto their particular implicit theories of human behavior. The data presented in support of implicit theory effects on affect and behavior are equally impressive.

The third postulate concerns the generality–specificity issue. The authors correctly note that implicit theories may be quite general in some individuals and more narrow in others. That is, some people seem to hold entity (or incremental) theories across achievement and moral domains, whereas others hold to one theory in one domain of human activity and the other theory in a different domain.

The fourth postulate is that these implicit theories should relate to other individual difference variables in meaningful ways. This postulate awaits further research, but the suggestions provided by the authors seem right on target. The potential link to attributional style is especially intriguing. The possible links to constructs from Kruglanski's (1989) work on judgment, such as need for closure or for structure, and other individual difference constructs, such as need for cognition, also seem to be fruitful avenues for future research.

Broadening the Perspective

In my view, the authors are a bit too modest in portraying their work on implicit theories. A consequence is that a number of interesting links to other work have not received the attention they deserve. In this section, I briefly discuss some of these links and how the work presented in the target article enhances and is enhanced by establishing these links. An additional goal of mentioning these links here is to provide the authors with an excuse and an opportunity to further discuss how their ideas and work advance more general theoretical understandings in this domain.

Knowledge Structures

Dweck et al. make brief reference to works that illuminate the role played by knowledge structures in perception, emotion, and action (e.g., Kelly, 1955; Murphy & Medin, 1985; Ross, 1989). However, a more detailed discussion of knowledge structures and how the current implicit theories fit with knowledge structure approaches would likely be useful. Of particular relevance to knowledge structure approaches in social judgment are the classic works by Schank and Abelson (1977) and Nisbett and Ross (1980). In addition, Wegner's (1977) book, *Implicit Psychology: An Introduction to Social Cognition,* illuminates a number of important issues. Of course, many of the knowledge

structure notions were originally used in conceptual and empirical work on how people perceive objects.

Knowledge structures are packets of related information that people "know" about the world around them. They range from simple perceptual schemata used in object perception to complex social, religious, and philosophical theories about the nature of humans and their place in the universe. For example, the set of features that are used to identify a particular object as a *chair* may be thought of as a knowledge structure (or schema) for chair. Similarly, the features used for identifying another person as an *extravert* also constitute a type of knowledge structure. Work on basic object perception shows that identifying an object depends (in part) on how well the features of the object match the knowledge structure representation, especially the "basic" features of the category (e.g., Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976).

From this perspective, the entity and increment theorists differ in their knowledge structures concerning underlying causes of achievement behavior, just as liberals and conservatives differ in their beliefs about underlying causes of poverty (e.g., Skitka & Tetlock, 1993; Sniderman, Hagen, Tetlock, & Brady, 1986). Furthermore, the same person may very well have different theories about behavior in different domains (such as achievement vs. morality), just as a person can have different implicit theories about impoverished Americans versus impoverished Haitians.

Knowledge structures include information about the relations among the features. For instance, one identifies an *assault* by noting the presence of an aggressive act carried out by one person against another person with the intent to harm. Indeed, one can usefully define these dynamic relations as just another type of feature than may be present in certain kinds of knowledge structures. Similarly, the entity theorist has a knowledge structure about the causes of achievement in which traits are related to behaviors and outcomes. Specifically, Dweck et al. demonstrate that entity theorists link stable high ability to effective achievement behaviors and successful outcomes and link stable low ability to ineffective achievement behaviors and poor outcomes.

Knowledge structures guide and (sometimes) distort judgmental processes, ranging from the perceptual (e.g., what one sees) to the inferential. For instance, one's knowledge structures about Russian and American society determine the attributions made about defectors (Sedikides & Anderson, 1992). That same study also revealed memory distortions in line with the underlying knowledge structures. Lord, Ross, and Lepper (1979) similarly showed that knowledge structures about capital punishment produced systematic distortions in judgments of the methodological quality of studies on capital punishment, depending on whether the study supported or contradicted the proposition that capital punishment laws deter crime.

The entity and incremental implicit theories uncovered by Dweck et al. already provide new evidence on processes underlying knowledge structure effects on judgment. Both the priming results and the categorization results not only are important for this particular implicit theory domain, but are relevant to broader theories of knowledge structures. Additional studies could provide further evidence on judgment processes. For instance, one could design studies to see if entity and incremental theorists display distortions in judgments about or recall of information that is ambiguously related to trait judgments.

Knowledge structures develop from direct and indirect experience. In our culture, for example, we all develop a knowledge structure for *chair* primarily from direct experience with chairs. However, any stereotypes we may have about Bosnian Serbs develop from indirect experience via television, radio, and newspapers. Many knowledge structures, such as knowledge about tigers, develop from both types of experience. Most of us have seen tigers at the zoo or circus, and so we have direct experience with visual and auditory features of tigers. However, we also have as part of our knowledge structure of tigers the fact that they are dangerous to humans. But, because we have most likely never seen a tiger attack and eat a human, we have learned this "fact" from indirect experience.

Entity and incremental theories about achievement and morality almost certainly develop from both direct and indirect experience. Many of the features of these two knowledge structures are probably learned indirectly from parental and societal instruction. Developmental and cross-cultural studies designed to uncover the sources of these implicit theories could be very useful in advancing our general understanding of knowledge structures as well as opening up possibilities for intervention and change of maladaptive theories.

It is important to note that the "facts" and features of knowledge structures need not be true. At one time, tomatoes were thought to be poisonous. That incorrect feature was just as valid a part of the knowledge structure of *tomato* as the correct feature "red when ripe." Similarly, stereotypes of different races, nationalities, or age groups often contain incorrect facts, but these facts are still a part of the knowledge structure, influencing people's perceptions, judgments, and behaviors toward others who are classified in the target group. In other words, stereotypes are just another kind of knowledge structure—one which is applied to groups of

people. Thus, the insights gained from the authors' works on entity and incremental theorists can be applied to more general works on how stereotypes influence judgments, affect, and behavior. Similarly, past work on stereotypes becomes relevant to understanding the present implicit theories.

Finally, knowledge structures often contain or are linked to specific affective reactions and behavioral options. My mother's conception of snakes (i.e., her knowledge structure for them) includes an automatic fear reaction, an intention to avoid or destroy any that come in her way, and a strong "plan" for running over them with the lawn mower. Work on scripts (e.g., Abelson, 1981; Anderson, 1983; Gregory, Cialdini, & Carpenter, 1982) provides more scientific (though less graphic) evidence of intentions and action tendencies as parts of knowledge structures. The implicit theory studies reviewed by the authors adds to this literature and certainly should be of interest to the broad range of scholars working in the script/schema/knowledge structure areas.

Other Linkages

In the preceding paragraphs, I discussed several research areas that seem, from a knowledge structure perspective, importantly related to the implicit theories presented in the target article. In this final section, I present several additional areas that may be profitably linked to the implicit theory work of Dweck et al.

In the cognitive area, much attention has been focused on similarities and differences between experts and novices as well as on the development processes involved in becoming an expert (see Anderson, 1990, chap. 9). In a sense, the entity theorists are experts at ferreting out trait-related information. Although it is less clear, the expertise of the incremental theorists may be their ability to find alternative strategies or other situational causes of behavior. I wonder what the expert and novice literature can tell us about implicit theories and what the entity versus incremental work can tell us about expert versus novice distinctions. There would appear to be developmental issues as well as interesting questions regarding speed, efficiency, and accuracy of judgment. For example, in a complex personnel hiring task, would entity theorists be better able to handle a work overload? Would they make more accurate judgments, assuming that at least some of the job credential information was validly related to job performance? Similarly, would incremental theorists make more accurate predictions in a judgment context where situational factors play a role in determining behaviors?

Recent work in cross-cultural psychology has demonstrated a number of differences between individualist cultures (such as ours) and collectivist cultures (such as China's). Individualist cultures emphasize the role of the individual as an agent of action and responsibility, whereas collectivist cultures emphasize the group. (Obviously, this one sentence summary is an oversimplification. The interested reader is referred to works by Triandis, e.g., 1989, and Bond, 1986.) What impact does culture have on the development of entity and incremental implicit theories? At first glance, the most straightforward prediction is that collectivist cultures will produce relatively few entity theorists and relatively many incrementalists. Are there more complex issues to consider? What other knowledge structure and implicit theory differences might we expect as a result of these cultural differences?

Dweck et al. address to some extent the possible linkages between attributional style and their implicit theory work. My own work in this area leads me to highlight a few other issues that may warrant additional comment and additional research attention. First, the similarity between the entity versus incremental theorists' attributional patterns and Janoff-Bulman's (1979) distinction between behavioral versus characterological attributions is striking (see also Anderson, Miller, Riger, Dill, & Sedikides, 1994). Behavioral attributions are internal, unstable, and controllable, and they include such factors as insufficient effort and use of a poor strategy. Characterological attributions are internal, stable, and uncontrollable, and they include factors such as personality traits and abilities. There is now clear evidence that behavioral attributions for bad outcomes are generally adaptive, whereas characterological attributions for bad outcomes are maladaptive (Anderson et al., 1994). How do these attributional styles relate to implicit theories that people hold?

Similarly, the importance of strategy attributions was demonstrated some time ago (Anderson & Jennings, 1980) but has not inspired much research into motivational and performance consequences of various attributions. Clifford (1986a, 1986b) examined various consequences of strategy attributions from the perspective of observer attributors. She found, for instance, that teachers have higher hopes for the future success of struggling students if their difficulties are attributed to strategy errors rather than lack of effort. Other researchers have found positive effects of strategy attributions on motivation and performance (Anderson, Jennings, & Arnoult, 1988; Singer, Grove, Cauraugh, & Rudisill, 1985; Sujan, 1986). The fact that incremental theorists often focus on the strategies they are using provides yet another justification for research interest in strategy attributions, for both theoretical and applied reasons. What are the affective, motivational, and behavioral implications of the strategy attributions made by incre-

mental theorists? Are such attributions uniformly adaptive, or are there circumstances in which they produce maladaptive reactions? Although both experimental and correlational work suggests a number of benefits to making strategy attributions for bad events, there are likely to be boundary conditions to this adaptiveness. For instance, if the incremental theorist (i.e., the strategy attributor) is in a truly uncontrollable situation, and if the situation is one that can be abandoned, then it may be more adaptive for the person to make an entity (i.e., trait) attribution and to abandon the task.

My final set of questions concerns both structure and process issues. Specifically, within a given domain do people really "have" one implicit theory or the other, or do most people actually have both types? By "have" what I mean is, is there only one knowledge structure (i.e., entity or incremental) available for application by a given person for a given domain? Alternatively, are both types of knowledge structures available for most people? If so, then the difference between entity and incremental theorists may be one of preference or cognitive accessibility. The fact that relatively simple experimental manipulations can influence which implicit theory is used (Bergen, 1991, as described in the target article) strongly suggests that people do have both knowledge structures available for use and that which one is used in a particular situation depends (in part) on salience or other environmental cues.

In sum, the discovery and elucidation of entity and incremental world perspectives are important contributions. They mesh nicely with many social and cognitive domains that share the knowledge structure umbrella. Further work in all of these areas will benefit by recognition of their many similarities.

Note

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Mutable Theories That Organize the World

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Dweck, Chiu, and Hong distinguish between two general perspectives that ordinary people apply when analyzing the behavior of others or, for that matter, themselves. From the perspective of the entity theorist, behaviors quite unequivocally reveal the underlying traits of the performer. Further, the traits and attributes so revealed are fixed and unchangeable in character. In sum, a person's attributes are revealed by his or her behavior, and those attributes are an unchangeable part of that person. The entity theorists hold this to be true in both the ability dimension and moral dimension. A person who steals once is dishonest, a person who fails once is stupid. Those who do not subscribe to these general views the authors label as *incremental theorists*—persons whose views suggest that an individual's attributes are changeable and have improvable qualities. These two perspectives are viewed as opposite ends of a single continuum.

The authors then review an impressive body of evidence that they and others have amassed about these general issues—evidence that provides support for their central contentions and documents that developmental stability of the dimension they identify. A person is seen to hold one of these two perspectives, to hold it consistently over time, and to apply it with great generality when analyzing human actions, whether the actions are committed by self or others. Dweck et al. go further, demonstrating that entity theorists are more likely to recommend punishment for moral transgressions, whereas incremental theorists recommend reeducation. They suggest that moral entity theorists react to imagined transgressions with a heightened desire to punish the transgressor in a retaliatory fashion. The ramifications of their discovered difference seem far-reaching.

All of this is impressive work about an important topic. I make three points about the research project to mark what I take to be issues in need of future exploration. It should be clear that to mark further issues is in no way a criticism of the research strategy of the authors, who have done, what seems to me to be, the necessary studies to make the case for the importance of the distinction that they bring to our attention. That task being essentially completed, we can now consider further ramifications of the unfolding story.

First, a speculation. As we write our commentaries, the media is paying a good deal of attention to *The Bell Curve: The reshaping of American life by differences in intelligence* by Herrnstein and Murray (1994). The claims of the book, in a somewhat oversimplified fashion, are that IQ is, to all intents and purposes, invariant in each person and that fixed upper limits on the cognitive capacities of each individual are set. The authors go on to suggest that attempts to intervene in order to raise the cognitive capabilities of the disadvantaged are largely wasted and that steps need to be taken to reduce the reproductive rates of those lower in cognitive capacity.

Dweck, Chiu, and Hong's entity intelligence theorists seem to me to hold at least the beginnings of this ideology. They report a belief that IQ is fixed in each person and a pessimism about its alteration. They seem to hold the beliefs that Herrnstein and Murray espouse.

Is this so? I would be fascinated to know the answer to this. Suppose for a moment that we drew an inventory of the core components of the Herrnstein–Murray arguments from the book and discovered that those who agreed with them were, disproportionately, those who scored high on Dweck et al.'s implicit theory measure about an entity cause of intelligence. Two possibilities emerge—ones that strike me as equally intriguing, depending on the direction of causality that one assigns. First, that becoming a believer in the fixed nature of IQ, at least in the present-day world of America, leads to the adoption of the set of beliefs concerning schooling and welfare policies that Herrnstein and Murray advocate—beliefs that we might characterize as radical–conservative. Second, causality could run in the other direction; beliefs that programs to help the disadvantaged are unnecessary or undesirable would lead one to perceive intelligence, or other aspects of what would be conceived of as "natural abilities," as fixed and discoverable from simple and direct operations. I suppose this observation ends in the invite for Dweck and her col-