On the Interface of Cognition and Personality

Beyond the Person–Situation Debate

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ABSTRACT: This article discusses three aspects of the interface between cognition and personality. First, recent findings from the study of cognitive social psychology, judgmental heuristics, and person prototypes help to clarify some of the “cognitive economics” that influence how people (including psychologists) categorize each other naturally. The author shows that categorizations of people at different levels of inclusiveness have distinctive advantages and disadvantages and are therefore useful for different purposes. The evaluation of the uses and limitations of trait categorizations by professional psychologists likewise requires close attention to their particular goals. The second topic discussed is the development of children’s understanding of psychological principles about social behavior generally, and the growth of their knowledge of effective rules for self-regulation in particular. Finally, studies showing surprising realism in depressed people raise questions about the nature and mechanisms of normal affect. These diverse lines of research share and represent a common theme: the increasing integration of cognitive and personological constructs in the study of persons.

A decade ago I published a book that was widely taken as a broadside attack on personality. Many also saw it as an attempt to replace dispositions and indeed people with situations and environments as our units of study. These effects of Personality and Assessment (Mischel, 1968), these widespread perceptions of it as a situationist’s manifesto aimed at undoing the role of dispositions, were far from my intentions.

The Categorization of People

My intentions in writing that book were not to undo personality but to defend individuality and the uniqueness of each person against what I saw as the then prevalent form of clinical hostility: the tendency to use a few behavioral signs to categorize people enduringly into fixed slots on the assessor’s favorite nomothetic trait dimensions and to assume that these slot positions were sufficiently informative to predict specific behavior and to make extensive decisions about a person’s whole life. My intention in Personality and Assessment was to document the potential hazards of such attributions, of such categorizations often made on the basis of flimsy evidence. My aim was to call attention to the specific reciprocal interactions between person and context and hence to the need to examine those interactions in fine-grained detail. My concern was that clinicians, like other scientists and indeed like the ordinary lay person, easily tend to infer, generalize, and predict too much while observing too little. Moreover the judgments of clinicians—like everyone else’s judgments—are subject to certain systematic biases that can produce serious distortions and oversimplifications in inferences and predictions.

THE FALLIBLE PSYCHOLOGIST

In the decade since Personality and Assessment was published, research in cognitive and social psychology and particularly investigations of how people categorize, simplify, and process information when making social judgments has helped greatly to illuminate the cognitive bases for many of the paradoxes and clinical dilemmas I described (e.g., Nisbett & Ross, in press; Ross, 1977). For example, Tversky and Kahneman (1974, in press; Kahneman & Tversky, 1973) have elegantly shown

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740 • AMERICAN PSYCHOLOGIST • SEPTEMBER 1979

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how certain everyday heuristics of inference may bias the judge (whether lay person or clinician) to ignore base rates (unless they are causally relevant) and the reliability of evidence. The representation heuristic, for instance, leads one to predict incorrectly extreme values and low-probability events when they happen to resemble what one is trying to predict. The same heuristic also helps to account for other common judgmental embarrassments, which are found in the literature on clinical inference (e.g., Mischel, 1968, chap. 5). Indeed the "illusion of validity" (Kahneman & Tversky, 1972, p. 249) arises and persists because the very factors that enhance the judge's subjective confidence—such as the consistency and extremity of the data—often are in fact correlated negatively with the accuracy of predictions, creating the paradox of confident predictors who persist in practices that are objectively unjustifiable. Moreover, the lay person, like the clinician, eagerly seeks causal explanations of events (Tversky & Kahneman, in press) and in these explanations tends most readily and naturally to attribute causality to the enduring dispositions of actors rather than to the particular circumstances in which they act.

An extensive analysis of the intuitive psychologist by Ross (1977, pp. 193–194), for example, suggests a pervasive shortcoming, a fundamental attribution error: "a tendency to underestimate the importance of situational determinants and overestimate the degree to which actions and outcomes reflect the actor's dispositions." And, defying the dictates of logic, the intuitive psychologist is reluctant to deduce the particular from the general but is remarkably ready to infer the general from the particular (Nisbett & Borgida, 1975). He or she thus takes little account of statistical and abstract information that logically ought to be compelling and relies instead on objectively less reliable but subjectively more vivid, concrete, compelling information, rapidly forming general conclusions from a few memorable instances of the sort that characterize personality descriptions and vignettes. All the statistical reports about the good repair records of Volvos, for example, may be readily forgotten when one hears about a friend's personal traumas with one Volvo clunker (as Borgida & Nisbett, 1977, noted), just as all the research-based cautions emerging from our scholarly journals may easily be ignored when one meets one "really" prototypical personality type in clinical practice.

We all know that our students may ignore the weighty evidence we painstakingly convey in our lectures while to our dismay they remember for years one dramatic case example or personal anecdote. Not only do we naturally favor vivid but unreliable data over more complete but palid information, in our drive to confirm our causal models we easily twist data to make them fit poor models and are reluctant and slow to revise the models themselves (Tversky & Kahneman, in press). Incidentally, these judgmental frailties, and particularly tendencies to be overly influenced by the representativeness heuristic and underinfluenced by such considerations as sample size and base rates, are not limited to wild-eyed "gut" clinicians and naive lay persons: Tversky and Kahneman (1971) demonstrated similar tendencies among sophisticated mathematical psychologists. With that background it becomes easier to understand the survey in the American Psychologist (Wade & Baker, 1977) showing that the popularity of projective assessment instruments has persisted in everyday clinical practice, undaunted by the data. Many clinicians apparently still feel more comfortable basing their predictions of such outcomes as rehospitalization on Rorschach protocols, ignoring both the Rorschach data and such 20-year-old findings as the .61 correlation of rehospitalization not with the client's inkblot responses but with the weight of his or her clinical file folder (Lasky et al., 1959).

These insights into the cognitive processes of the intuitive psychologist are an important part of the general recognition of what might be called cognitive economics: the recognition that people are flooded by information which must somehow be reduced and simplified to allow efficient processing and to avoid an otherwise overwhelming overload (a bit like trying to read all the APA journals all at once with no system for ordering, reducing, or altogether avoiding the flood of data).

TEMPORAL STABILITY AND COHERENCE, BUT WITH SITUATIONAL DISCRIMINATIVENESS

Neither you nor I am exempt from these cognitive economics. They have also plagued the enduring person-situation debate and may help to account for the progressive hypothesis-driven oversimplification of the issues and evidence that bear on the nature of the consistency of personality. I will not try to restate what I do and do not mean on these questions (see, e.g., Mischel, 1968, 1973,
1977), but I do want to underline the need to distinguish carefully among several lines of relevant evidence that seem to become easily jumbled in current discussion.

First, it is important to discriminate clearly between demonstrations of impressive temporal stability and cross-situational generality or consistency. More than a decade ago the available research, in my view, provided evidence for significant temporal stability but also—and far more surprising at the time—for discriminativeness or "specificity," and idiographic organization in how behavior is generalized and patterned across situations. Summarizing those findings, I concluded, "Although behavior patterns often may be stable, they usually are not highly generalized across situations" (Mischel, 1968, p. 282).  

No one seriously questions that lives have continuity and that we perceive ourselves and others as relatively stable individuals who have substantial identity and stability over time, even when our specific actions change across situations (Mischel, 1968, 1973, 1977). But although temporal stability in the patterning of individual lives, in self-perceptions, and in how others view us is not in dispute, there is serious disagreement about the nature, degree, and meaning of the cross-situational breadth of behaviors assessed by objective measures of the behaviors as they unfold.

It remains to be seen to what degree the erratic and uneven relationships typically found when cross-situational consistency is studied with objective measures of behavior as it occurs reflects measurement problems (as Block, 1977, suggested) or the actual discriminativeness of social behavior across psychologically (subjectively) nonequivalent situations (Mischel, 1973, 1977). In my view, better measures will surely provide better support for the existence of meaningfully organized behavior patterns. (Discriminative behavior and idiographic organization imply neither chaos nor unpredictability.) But better measures and more fine-grained analyses should also make it even more plain that individuals organize and pattern their behavioral consistencies and discriminativeness in terms of them subjectively perceived equivalences and their personal meanings, not those of the trait psychologist who categorizes them. Sometimes the subject's equivalences will coincide with the nomothetic trait categories of the assessor, but often they will not.

From a cognitive social learning perspective, temporal stability would be expected to the degree that such qualities as the person's competencies, encodings, expectancies, values, and goals-plans endure (Mischel, 1973). The pursuit of durable values and goals with stable skills and expectations for long periods of time would surely involve coherent and meaningful patternings among the individual's efforts and enterprises, but the degree of cross-situational consistency might be high, low, or intermediate, depending on a host of considerations, including the type of data one examines, the structure of the perceived cross-situational contingencies, and the subjective equivalences among the diverse situations sampled.

Moreover, though the typical "personality coefficient" may average something like a statistically significant but modest .30, higher coefficients can be, have been, and will be obtained in personality research. Consider, for example, the phenomenon of selective attention to self-relevant information. Over five years ago my associates and I assessed the correlations between scores on a self-report trait measure (the R–S Scale based on the Minnesota Multiphasic Personality Inventory; see Byrne, 1964) and attention to one's personal assets and liabilities as objectively measured (Mischel, Ebbesen, & Zeiss, 1973). We found that people who presented themselves in a positive ("pressing") rather than in a self-critical ("sensitizing") fashion on this 127-item scale also tended actually to spend more time attending to positive

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1 Renewed attention has recently been devoted to empirical demonstrations that reliability increases when the number of items in a test sample is increased and aggregated. It is a truism, but too often forgotten, that we cannot have either validity or utility without reliability and that "there is nothing magical about a correlation coefficient, and its interpretation depends on many considerations. The accuracy or reliability of measurement increases with the length of the test. Since no single item is a perfect measure, adding items increases the chance that the test will elect a more accurate sample and yield a better estimate of the person's behavior." (Mischel, 1968, p. 37). In this vein, challenging "the claim that personality traits do not exist," Epstein (1979, p. 1098) recently demonstrated that coefficients of temporal stability (e.g., of self-reported emotions and experiences recorded daily, and observer judgments) become much larger when based on averages over many days than when based on only single items or single instances on single days. Such demonstrations make a point well worth making, but most of the data provided so far again speak to the issue of temporal stability, not broad cross-situational consistency in social behavior.

2 This term refers to the typical correlation found among noncognitive personality measures, which is based on dissimilar methods, for example, correlations between ratings and relevant behavior, not ratings and ratings.
(.51) and less time to negative (-.61) information about themselves on the behavioral measure of selective attention. This clearly illustrates a respectable (and hardly unique) link between a self-report and a relevant behavior. But to me the discovery of the discriminative conditions under which correlations like these do not hold is at least as theoretically interesting as the demonstration that sometimes self-reports are significantly related to conceptually relevant behavior. Thus, we found that, as expected on the basis of a cognitive social learning analysis (Mischel, 1973), although the correlations were highly significant when there was no significant situational manipulation (i.e., in the control condition), the behavioral differences in selective attention between subjects who differed on the self-report scale were completely eliminated when the subjects experienced success in the situation. Similarly, note that the patterns of Q-sort trait rating correlations found with a behavioral measure such as delay of gratification may be drastically changed by even seemingly minor situational variations. When, for example, a child waits for a delayed reward in the presence of the experimenter, delay time is negatively correlated with rated intelligence (Bem & Funder, 1978), but this relationship is reversed when the child waits alone (Mischel & Peake, Note 2). Findings of this sort may be taken to support either the sensitivity of trait ratings or the sensitivity and discriminativeness of behavior when the psychological situation changes. To the degree that such findings are predictable and replicable, they will, I hope, increasingly illuminate theoretically interesting or clinically important interactions, thus going beyond demonstrations that both persons and situations make a difference.

GOALS AND THE FOCUS OF CONVENIENCE

Perhaps most important, assessments of the utility of trait inferences and of whether a particular disposition is "broad enough" or "predictive enough" simply cannot reasonably be made without specifying, "Enough for what?" My 1968 assessment of the status of traits was oriented primarily to the goals of clinicians interested in assessing the problems of the individual. It was oriented to the efforts to design treatments to help cope with those individual problems and to the efforts of assessors faced with decisions and predictions about the individual's probable behavior in specific situations. It was in that context and for those goals that I cautioned that even though the statistically significant relationships found in personality research are sufficient to justify personality research on individual and group differences . . . . their value for making statements about an individual are severely limited. Even when statistically significant behavioral consistencies are found, and even when they replicate reliably, the relationships usually are not large enough to warrant individual assessment and treatment decisions except for certain screening and selection purposes. (Mischel, 1968, p. 38)

With the goal of individually oriented assessment and treatment in mind, I emphasized the discriminativeness and situational sensitivity in behavior because I felt that traditional trait approaches to personality had persistently neglected this discriminativeness with some unfortunate theoretical and practical consequences. A careful reading of our wiser personologists in earlier decades certainly reveals some acknowledgment of the role of specific contexts in the determination of behavior. Unfortunately, in both research and clinical applications such qualifiers tended to be lost. The thrust of the traditional trait approach, in my view, was to stimulate the search for the central tendencies in people while losing sight of the within-person variances. The thrust was to seek (and assume) cross-situational generality while ignoring the reciprocal interaction of person and situation in the stream of behavior. And while lone voices (most notably Gordon Allport's) had spoken up for the idiographic and unique in the organization of each individual, comparisons among groups on the assessor's favorite nomothetic dimensions became the preferred (virtually the exclusive) modes of assessing people and assigning them into broad categories, too often forever.

With that nomothetic trait orientation (coupled with psychodynamic theory) as the zeitgeist, the advent of the behavioral approach to clinical problems in the 1960s seemed especially refreshing. Indeed, the original excitement of the behavioral approach for me lay in its promise to focus on the client-defined problematic behavior in its context rather than on the clinician's inferences about the symptomatic meaning of that behavior as a sign of generalized dispositions or psychodynamics. At last a client who complained, for example, of sexual performance problems or of fears of going outdoors might achieve help with the behaviors of concern rather than be given insights of dubious validity into their hypothetical origins or symptomatic significance. Oddly, in spite of all the ugly
stereotypes so often associated with it, the behavioral approach, at its best, promised to pay more than lip service to each individual's uniqueness and to deal with behavior at the level at which the person categorized and lived it.

Five years later I was guided by a different purpose: to outline the kinds of person variables that might serve a useful explanatory function in an interactional psychology that tries to conceptualize the attributes of individuals in a language linked to psychological processes rather than to trait labels. It was with that goal in mind that I analyzed such constructs as competencies, encoding strategies, expectancies, subjective values, and goals—plans/self-regulatory systems for conceptualizing people (Mischel, 1973). Some of my colleagues seem to have seen this statement (and its elaborations, e.g., Mischel, 1977) as inconsistent with my 1968 book (e.g., Olweus, Note 1). But from my perspective the principal differences between my 1968 and 1973 statements are differences due to the goals at which they were aimed, with neither one preempting or contradicting the other.

In the last five years much of my research has been guided by yet another goal: to understand the natural categories people attribute to each other, and that in turn requires a different (but, I hope, alternative rather than inconsistent) focus and vantage point.

PERSON CATEGORIES AT DIFFERENT LEVELS

The events in nature unfold, "minding their own business," as my teacher George Kelly (1955) used to put it; people generate behavior and those raw acts, those events, must be categorized to become meaningful. But they can be categorized in many alternative ways (as sophisticated modern philosophy has come to recognize; see Goodman, 1978) depending on our inventiveness. The value of those alternative categorizations or constructions may be gauged most wisely, not by seeking to confirm or reject their truth or reality in absolute terms, but by assessing their usefulness. And usefulness can only be judged in light of particular purposes. A category that greatly helps one to see the fine-grained nuances of someone's behavior as it shifts with changes in life conditions may actually make it more difficult to see the overall gist of what that person is doing on the whole. Conversely, a category that helps one to contrast someone in general with other people will obscure the subtle interactions of the particular behavior with particular contexts. Categorizations about people at a fairly molar or global level, as in broad trait ratings, can provide widely shared characterizations of what individuals are like in general, and these characterizations of gist or central tendency may be stable and reliable over long periods of time. Categorizations at a more molecular, context-bound, behavioral level, on the other hand, tend to highlight the discriminativeness of behavior in relation to changes in the specific psychological situation, focusing on the within-person variance in behavior rather than on the mean (Mischel, 1968, 1973). Much confusion in theorizing about personality may reflect a failure to recognize that categorizations are an inevitable, fundamental, and pervasive aspect of information processing, one that is built into our cognitive economics. Such categorizations can be made at different levels, with distinctive gains and losses.

In one recent program of research, Nancy Cantor and I have been exploring the basic nature and function of person classification schemes. In our view, these schemes include an impure mix of categories based on trait terms combined with other everyday knowledge packages about types of people found in common speech. These are the stereotypes, or (less value-laden) schemas, we use when we refer to people as typical absentminded professors or academic operators or devoted scholars or male chauvinist pigs or "laid-back" southern California types or ideal-graduate-student-headed-for-distinguished-academic-career types or crashing bores to be avoided at all costs. Popular person schemas are also illustrated by Jung's archetypes: the earth mother, the wise old man, the prodigal son. Specifically, in what ways are the natural classifications of persons fundamentally similar—and different—from the classifications applied to objects? What are the rules that guide the categorization of people? What are the consequences—the potential gains and losses—of applying such categorizations to people for various purposes at various levels of abstraction or inclusiveness? These are the kinds of questions that motivated our recent theorizing and research (Cantor & Mischel, in press-a).

We were guided in this work by the pioneering studies of common object taxonomies conducted by Eleanor Rosch and her colleagues (Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). They asked people to describe the attributes (physical appearance, shape, function, movements) common to the objects subsumed under different category labels (such as furniture or birds) in three-level taxonomies (e.g., furniture, chair, kitchen chair). They found that certain levels of abstraction in
a three-level taxonomy maximized such desirable qualities as the richness (number) of attributes commonly associated with most category members. Rosch and her colleagues concluded that the optimal level of abstraction in the three-level object taxonomies was the middle one. At that level, broad, inclusive, but still rich and distinctive categories are formed. These basic-level categories are inclusive enough to cover many different kinds of objects within one category but are detailed and vivid enough to allow one to describe in great detail the typical appearance, shape, and function of a typical category member. Categorizing at this middle level of abstraction maximizes both parsimony—a few broad categories are formed—and richness—there are many features common to members of each particular category—making for an ideal communicative and cognitive system.

We have been trying to extend the Rosch et al. approach to learning about the uses and limits of person categories at different levels of abstraction to help clarify the enduring and perplexing problem of selecting the most appropriate units for the study of social behavior.

As a first step, to construct some representative person taxonomies, Cantor and I began at the most abstract superordinate level with the major common factors from peer-rating studies of personality (e.g., Norman, 1963)—for example, emotionally unstable person was one superordinate category; extravert was another. The middle levels were constructed to contain person categories at lower, less inclusive levels of abstraction such as phobic in the unstable-person hierarchy or PR type and comic joker in the extravert hierarchy. The lowest or subordinate level included such subtypes as claustrophobic and hydropobic (in the unstable-person hierarchy) or door-to-door salesman and press agent (in the extravert hierarchy). After cluster analyses to confirm these hierarchical structures, subjects generated lists of common attributes, and we then assessed the consensual agreement for these person classifications to determine the number and type of shared attributes at each level of inclusiveness in each hierarchy (Cantor & Mischel, in press-a).

GAINS AND LOSSES AT DIFFERENT LEVELS

Our pursuit of the analogy between the categorization of common everyday objects—pants and chairs and cars—and that of people—extraverts and psychotics and social activists and PR types—has so far yielded considerable convergence. The lists of consensually rated attributes associated with person types at the middle level in these taxonomies were richer in our data (i.e., had more shared attributes) than those judged to be true of members of the superordinate categories, and there was less overlap between the attributes lists for neighboring categories at this middle level of abstraction than at the more finely tuned and detailed level of subordinate categorizations. The subordinate categories maximized richness and vivid imageability, but at the cost of overlap (differentiation) such that categories at this lower level would not be ideal for highlighting the differences between the types of persons in neighboring categories. The person categories sampled by the middle level in our taxonomies (such as PR types or comic jokers or phobics) appeared to maximize richness, differentiation, and vividness while reducing the cognitive load entailed in making too many category cuts. Categorization at this middle level of inclusiveness may allow one to use just a few basic categories to capture the gist of another person in a rich and vivid way while still being able to contrast that person with other discriminable general types. This middle level may be optimal to describe what X is like in general, to distinguish how X and Y differ from each other, and to bring to bear one's conceptual knowledge about person types in general in order to flesh out the description of a particular person. In contrast, to predict what specific molecular behaviors X will engage in when observed under particular, well-defined circumstances, the more finely tuned, specific, narrow categories of the subordinate level may be more useful. This is the level likely to be the more relevant to the interests of the behavior therapists and analysts. But to reduce the whole domain to two or three major categories or dimensions, as in a grand theory of personality (cf. Eysenck, 1957; Jung, 1923), one may want to use the highest, most inclusive, or superordinate level (the level of extraverts, for example). While consistent, coherent descriptions, which capture the gist of another's behavior, are achieved by moving to more abstract levels of person categorization, more vivid, salient person images require less inclusive slots. The choice of level must surely depend on one's purpose (Mischel, 1973).\footnote{We have also started to explore the utility both for imagery and for behavioral predictions of making social categorizations at varying levels of inclusiveness. I hope that the results of such investigations will provide us with a fuller picture of the relative merits of categorizing the social world in different ways, with different-size categories, and for different purposes.}

\footnotetext{American Psychologist * September 1979 * 745}
Goals and purposes not only guide the evaluation of information but even influence how the same information will be categorized and recalled. For example, the strategy perceivers use to process information about a person is affected importantly by their particular purposes. When their purpose is optimal recall, perceivers take account both of unifying traits and of unifying contexts to the degree that they are built in (intrinsic) to the actual structure of the information (Jeffery & Mischel, in press; Mischel, Jeffery, & Patterson, 1974; Jeffery & Mischel, Note 3). But when their purpose is either to form an impression or to make specific predictions, they tend to focus primarily on unifying traits, on the attributes of the person, glossing over common context themes even when they are part of the structure of the information. The cost of this strategy may be reduced recall of information about contexts or situations; the gain may be greater cognitive economy in the formation of a coherent impression of the person.

RULES FOR PROTOTYPICALITY JUDGMENTS: FAMILY RESEMBLANCE

In closely related work, Cantor and I have been trying to understand the rules people use in making judgments about who belongs in what category. Studies of concept identification have traditionally assumed well-defined, distinct, nonoverlapping categories in which each member of a category has all the defining features of that category. Such neatness and equality may be built into artificial, logical systems of the sort used in laboratory studies of concept learning, but they do not seem to characterize the natural world. When one turns from the abstract world of logic and formal, artificial systems to common, everyday categories—to songbirds and bedroom furniture and extraverted people—those criteria cannot be met. As Wittgenstein (1953) first argued, the members of common, everyday categories do not all share all of a set of singly necessary and jointly sufficient features critical for category membership. When one examines a set of natural objects all labeled by one general term, one will not find a single set of features shared by all members of the category but a pattern of overlapping similarities, a structure of family resemblance.

Following Wittgenstein, many linguists, philosophers, and psychologists (cf. Labov, 1973; Lakoff, 1972; Lehrer, 1970; Rosch et al., 1976; Smith, 1970; Tversky, 1977) now suggest that natural semantic categories are “fuzzy sets” that violate the expectations of the classical all-true-none position (cf. Lakoff, 1972; Wittgenstein, 1953; Zadeh, 1965): Natural categories are organized around prototypical examples of focal stimuli (the best examples of a concept), with less prototypical or less good members forming a continuum away from the central prototypical exemplars (Rosch, 1973). Guided by this prototypicality view, and recognizing that person categories are fuzzy sets, Cantor and I have been exploring the rules people use in making judgments about the clearest or most prototypical exemplars of such person categories as extraverts. For example, in her recent doctoral dissertation Cantor (1978) found high agreement between judges and a relatively simple set of rules that predict prototypicality judgments with substantial success (Cantor, 1978; also see Cantor & Mischel, in press-a). For the most part, these rules seem similar to the ones that underlie judgments about the prototypicality of such everyday natural categories as birds, for example, the judgment that a robin, compared with a chicken, is a better (more prototypical) bird because it has more of the crucial features. In the same vein, certain characteristic rule-guided configurations are widely seen as prototypical for person categories such as extraverts. Thus the prototypical extravert is most often outgoing and sociable with few incompatible characteristics. But note that when judging prototypicality, the intuitive psychologist, like the professional personologist, takes into account more than the frequency or cross-situational consistency of behavior. Judged prototypicality is influenced, for example, by such considerations as the normativeness of the behavior for the particular context, its intensity, and the total information available.

I hope that the study of prototypicality rules and family-resemblance principles will ultimately allow a better understanding of the nature of consistency and coherence extracted from variations in behavior. For example, someone who really knows Picasso’s work, who has seen a thousand Picassos (each one of which is unique), can identify (usually quite easily) whether a previously unseen work is a true Picasso, an imitation, or the work of someone else altogether. The same processes that allow this kind of pattern recognition—this extraction of a central distinctive gist or unity from great diversity—must surely be basic for our
recognition of identity and coherence in the face of behavioral variability.

These research examples should make it plain that my associates and I have been trying to understand the processes underlying the categorization of people and the uses and abuses of such categorizations, not as illusions or fictions, but as basic features of our cognitive economics. These cognitive economics are a mixed blessing. On the one hand, categorizations are the foundation of efficient information processing and thought, the units essential for any kind of generalizing. But a reliance on preconceived typologies to structure one's perceptions of people has its costs as well as its value, potentially encouraging attributions of the characteristics associated with a category to each member, even when those characteristics may not fit the individual. Such gratuitous attributions may constrain the subsequent behavior of the perceived as well as biasing the perceptions and actions of the perceiver (see, e.g., Snyder, Tanke, & Berscheid, 1977). A focus on the gist and coherence underlying diverse behavior may undermine attention to the details and nuances of specific behavior. A tendency to exaggerate and overgeneralize the structure that actually exists in the individual's behavior may lead us to underestimate the incompleteness and flexibility in that structure. By searching for good fits to our categories of general types, we may misjudge—and mistreat—people who poorly fit our preconceptions.

The advantage of categorizing is that it allows thought and prevents us from being overwhelmed by a flood of stimuli. The disadvantage is that it allows stereotyping and may lead us to view and treat people on the basis of the types or categories into which we squeeze them rather than on the basis of each individual's uniqueness. That, again, was a main message of Personality and Assessment, and it is one reason why the behavior assessor wisely avoids generalizing about people or categorizing them and focuses instead on sampling and analyzing the individual's particular problematic behaviors as they occur in their particular contexts. A focus on specific behaviors in specific contexts as samples in their own right rather than as signs of category membership makes excellent sense for some purposes—such as the development of a treatment program or the prediction of specific behavior (Mische, 1978).

As Ajzen and Fishbein (1977) have nicely demonstrated, to predict specific behaviors it may be best to use specific indicators tailored to those behaviors. But as their work also suggests, to predict an aggregate or pooled set of data (i.e., an average reflecting an array of behaviors) it helps to have a parallel degree of inclusiveness and breadth in the predictor data. Such breadth, of course, is a key ingredient in global trait ratings. If the assessor's purpose is to summarize how the person is categorized on the whole by perceivers (again, the gist, or central tendency) it makes good sense to use broadly inclusive data and to aggregate and pool extensively. But the assessor's interest does not have to be the mean of the behaviors in a given domain. The assessor may focus on their variance instead of on their central tendency in order to isolate the conditions under which the particular behaviors of interest increase, decrease, and change. It then makes sense to attend to the discriminativeness of the person's behavior rather than to its gist or perceived mean values. Such a focus does not preempt the fact that we also think about each other with person categories. The lay perceiver has a well-structured system of expectations about what behavioral signs go with what dispositional qualities and about how these qualities, in turn, tend to cluster and co-occur in different kinds of people (see, e.g., Schneider, 1973).

STRUCTURE IN THE PERCEIVER AND IN THE PERCEIVED

Are these configurations merely illusions in the head of the perceiver? In my view, there certainly are significant, meaningful correlations among person attributes in the real world. For example, there probably is a tendency for sociable behavior to co-occur with talkative and active behavior in certain types of persons (e.g., extraverts), just as sweet songs, feathers, and wings tend to co-occur in certain kinds of common objects (e.g., canaries). Structure, I believe, exists neither all in the head of the perceiver nor all in the person perceived; it is instead a function of an interaction between the beliefs of the observers and the characteristics of the observed, in the person domain as well as in the common object domain. Although I have tried to make this point repeatedly, I continue to find that my name is put in parentheses to support the illusionary nature of traits. I certainly doubt the utility of trait inferences for many purposes and I certainly do not regard traits as adequate units for the psychologi-
cal explanation of behavior, but I do not doubt their roots in the behavior of the persons perceived as well as in the cognitive structures of those who perceive them. Perceivers certainly go beyond the information they are given, but it seems unlikely that they regularly invent the information itself. Information in the head of the perceiver and in the world of the perceived interacts in the course of person perception. Thus perceivers expect that certain behaviors go together, that to some significant extent these co-occurrences do occur more often than by chance; in the search for the gist of another person's qualities, perceivers can discount molecular inconsistencies and exaggerate observed invariances to build meaningful coherences about the individual's distinguishing characteristics (Cantor & Mischel, 1977, in press-b). Rather than argue about the existence or reality of such coherences, we need to continue to clarify with increasing depth their nature and organization and the rules through which we recognize them.

The Development of Self-Knowledge and Knowledge of Psychology

At the same time that we have been pursuing the uses and abuses of various types of person categorizations, my associates and I have also been continuing to explore such cognitive social learning person variables as the individual's developing competencies, encoding strategies, expectancies, goals-plans, and self-regulatory rules (Mischel, 1973). Let me give you a few examples that further illustrate what we see as some of the many promising research problems at the personality-cognition interface.

COGNITIVE COMPETENCIES

In one direction, we have been studying the development of children's cognitive competencies and, more generally, their growing understanding of psychological principles underlying social behavior. Many of us have quipped at cocktail parties about how our grandmothers knew most of the things we psychologists labor so heavily to discover empirically. Being more interested in the potential wisdom of young children than of grandmothers, we decided to see which findings, if any, from the bedrock principles of our field would become known to youngsters early in the course of development (Mischel & Mischel, Note 4). We constructed objective multiple-choice tests that confronted children (from preschool through the sixth grade) with highly specific questions that required them to predict the probable outcome of classical experiments in psychology which we carefully described in detail, stripped of jargon and phrased in age-appropriate ways. These experiments ranged from Asch's study on conformity through Bandura's work on modeling, Pavlov's classical conditioning, and Skinner's studies of reinforcement schedules. To our perhaps naive surprise, by the time the children reached the age of about 10 years they knew an impressive amount. They knew, for example, about the aggression-facilitating effects of watching aggressive models; they knew that live modeling with guided participation is a more effective treatment for phobias than either systematic desensitization or symbolic (film-based) modeling; they knew that Harlow's frightened monkeys would cling to the milkless terrycloth mother more than to the wire one with milk. And although fourth graders did not know a bystander will be more likely to help when alone than when in a group, this ostensibly nonobvious insight into social psychology was possessed by children by the time they reached the sixth grade. Moreover, the children knew most of these psychological principles at \( p < .001 \).

Lest we decide to rely exclusively on our children's psychological knowledge, let me emphasize that their knowledge was not limitless: They were systematically wrong, for example, about conformity in the Asch situation and about the effects of cognitive dissonance, and they did not know Pavlov's discovery about classical conditioning. They did, however, know that intermittent reinforcement made Skinner's pigeons peck longer after the food stopped (at \( p < .002 \)). The fact that by sixth grade we get correlations as high as .93 (in a small sample, \( N = 10 \)) with intelligence test scores, makes us believe that spontaneous knowledge of psychological principles about social behavior may indeed be an important ingredient of personal and cognitive competence and that its developmental course may be worth pursuing systematically.

PLANS FOR SELF-REGULATION

In fact, stimulated by the pioneering work of John Flavell and his associates on metacognition (e.g., Flavell & Wellman, 1977), we have been investigating children's understanding of psychological
principles for self-regulation, using a two-pronged strategy. First, we are trying to identify the objective conditions that make self-regulation (and particularly delay of gratification and resistance to temptation) either difficult or easy (e.g., Mischel, 1974; Mischel & Patterson, 1978; Moore, Mischel, & Zeiss, 1976). Second, we are exploring the individual’s own developing understanding of effective strategies for self-regulation—a core aspect of adaptive human functioning, basic to virtually all conceptions of personality and the coping process. In this work we are guided by the belief that it is worth observing closely what people know about themselves and their own psychological processes. Hence we should spend our time listening to what they say and looking at what they do (and not just for signs of how they fit our preconceived categories and nomothetic dimensions). Part of our research in this vein has been to develop methods for observing and organizing such plans. For example, in one direction, by means of structured interview techniques, we have started to inquire into what plans mean to young children, how they define them, and how they say they use them. These interviews inquire about plans for increasing control over the environment in general, as well as for enhancing self-control. The data, though still tentative, promise to be extremely rich. Children as young as eight years of age seem able to discuss plans articulately and to give good examples of when and how they use them to structure and organize their behavior, for example: “Tomorrow I’ll clean up my room... Next week I’m gonna have a birthday party—if Mommy helps me.”

By age 10, some children in our interviews seem to have well-developed ideas about the nature, organization, and function of plans in their own lives. They may distinguish, for example, between the intentional aspect of a plan (“I’m planning to clean up my room tomorrow because I’m planning to have a friend over”), its informative function (“a plan tells you what to do and when and where and how to do it”), and its execution (“you have to make yourself do it when the time comes: planning is the part you do beforehand, but then doing it is the actual right there part”). At older ages, children seem aware of many strategies for forming and implementing effective plans (e.g., elaborate mental rehearsal, public commitment, externalizing the plan by sharing it with others, rearranging and “marking” the environment, using mnemonics). With greater age there also may be increasing reliance on a kind of cognitive shorthand in which the formation and implementation of many complex plans may become more automatic, abbreviated, and rapid without requiring extensive or explicit self-instructions for each step in an increasingly complex organizational hierarchy. As one 11-year-old put it:

If I had to teach a plan to someone who grew up in the jungle—like a plan to work on a project at 10 a.m. tomorrow—I’d tell him what to say to himself to make it easier at the start for him. Like “If I do this plan on time I’ll get a reward and the teacher will like me and I’ll be proud.” But for myself, I know all that already, so I don’t have to say it to myself—Besides, it would take too long to say, and my mind doesn’t have the time for all that, so I just remember that stuff about why I should do it real quick without saying it—It’s like a method that I know already in math: once you have the method you don’t have to say every little step.

Comments of this type suggest that even young children may be remarkably aware of some of their own information-processing strategies and other features of cognition. Note also that, unsurprisingly but reassuringly, the gist of natural plans to increase control generally seems congruent with findings from behavior modification efforts. Those findings show, for example, the value of giving clients controlling responses that are incompatible with the to-be-avoided behavior and of providing a focus on the negative consequences of transgressions plus the positive consequences of self-control (Kanfer, in press; Mahoney, 1974).

**FACILITATING AND DEBILITATING SELF-CONTROL STRATEGIES**

The neglect by researchers of children’s developing awareness of self-control strategies may reflect the fact that until recently there were few objective criteria against which one could assess the relative efficacy of various strategies for self-control. Studies of the conditions that enhance or impede successful delay of gratification in children (e.g., Miller & Karniol, 1976a, 1976b; Mischel, 1974; Mischel & Moore, in press; Toner & Smith, 1977) now provide a basis for assessing the child’s developing understanding against objective criteria of efficacy.

Previous research has shown, for example, the dramatic role of attention to the rewards in self-imposed delay of gratification. Specifically, initial theorizing (reviewed by Mischel, 1974) suggested that during delay of gratification, attention to the rewards should serve a “time-binding” function
and should facilitate the child's ability to wait for them. Empirically, these expectations proved to be exactly wrong: Preschool children were able to wait 10 times longer when the rewards in the contingency were not available for attention during the delay period than when they were in view (Mischel & Ebbesen, 1970). In contrast, attention to symbolic representations (pictures) of the rewards in the contingency ("relevant rewards") made it much easier for preschool children to delay gratification (Mischel & Moore, 1973). Moreover, we found that the effects of the actual rewards physically present or absent in the situation would be completely overcome and even totally reversed by changing how the child represented those rewards mentally during the delay period. For example, when preschoolers ideate about the rewards for which they are waiting in consummatory, or "hot" ways (for example, focusing on their taste) they can hardly delay at all (Mischel & Baker, 1975); but if they focus on the nonconsummatory, or "cool," qualities of the rewards (on their abstract or nonconsummatory qualities) they can wait for them easily and even longer than if they distract themselves from the rewards altogether (Mischel, 1974). Thus hot, reward-oriented ideation decreases delay by making it more aversively frustrating and arousing. In contrast, delay is facilitated by ideation about the task contingency, and by cool ideation focusing on the abstract (rather than consummatory) features of the rewards. In sum, just as greater cognitive availability makes an outcome seem more likely (Tversky & Kahneman, 1974), so does it seem to make a blocked (delayed) outcome seem more frustrating (Mischel, 1974). Making the blocked outcome more available, by attending to it or by thinking about it in consummatory (goal-directed) ways, increases the arousal and makes delay more difficult.

Are these findings evidence for the power of situational variables in self-control? Yes, in the sense that they show how specific changes in what one does can make delay either very difficult or very easy; but no, in the sense that these findings show how people can and do increase their own power to control what stimuli do to them by changing how they think about those stimuli. Once people recognize how their own ideation makes self-control either hard or easy, the option to delay or not to delay becomes truly their own: They know how to delay effectively and must merely choose whether or not they want to. So-called situational variables can thus become important ingredients of each person's power over situations and can enhance the individual's ability to control stimuli purposefully rather than being controlled by them. Given the power and reliability of these effects, an exploration of the development of the child's knowledge and use of the principles or rules required for successful goal-directed waiting seems especially important, and we are in the midst of such an exploration.

THE DEVELOPMENT OF SELF-CONTROL COMPETENCIES

We have been finding that younger children spontaneously prefer to view the real stimuli during delay of gratification, a finding that seems to be congruent with Freud's (1911; 1929) classical theory of wish-fulfilling ideation during delay: When the desired object is blocked, the frustrated child tries to self-present it, to "have it." But in so doing, the young child is making self-imposed delay even more difficult by increasing his or her desire and hence enhancing the frustrativeness of the delay (see, e.g., Mischel, 1974)—especially if this ideation is consummatory ("hot") rather than more abstract ("cool"; Mischel & Baker, 1975; Moore, Mischel, & Zeiss, 1976). The youngster is then trapped in a delay-defeating cycle, attending to the consummatory qualities of what he or she really wants and becoming increasingly frustratively aroused, thereby making it even harder to wait successfully. This happens because attention to the real stimuli increases the frustrativeness of the delay and reduces the length of voluntary waiting (Mischel, 1974; Schack & Massari, 1973; Toner & Smith, 1977). With greater cognitive development, the child comes to recognize and prefer attentional strategies that avoid frustrative arousal. As children increase their ability to deal with stimuli more abstractly, they can transform them and the delay situation in delay-facilitating ways (Mischel, 1974; Moore, Mischel, & Zeiss, 1976; Mischel & Moore, in press).

Children's spontaneous delay strategies show a clear developmental progression in knowledge of effective delay rules (Mischel & Mischel, Note 5). A few preschoolers suggest a self-distractio strategy or even rehearsal of the task contingency. Most preschoolers, however, do not seem to generate clear or viable strategies for effective delay; instead they make waiting more difficult for themselves by focusing on what they want but can't
have. By third grade, in contrast, children spontaneously generate and reasonably justify a number of potentially viable strategies and clearly understand the principles of resistance to temptation. For example, avoid looking at the rewards because: "If she's looking at them all the time, it will make her hungry . . . and she'd want to ring the bell" (age 7 years 11 months). Most often they focus on the task and contingency, reminding themselves of the task requirement and outcomes associated with each choice: "If you wait you get _______; if you don't you only get _______." They also often indicate the value of distraction from the rewards or of negative ideas designed to make the rewards less tempting: "Think about gum stuck all over them." A small minority still suggest that positive ideation about the rewards ("the marshmallow looks good and fluffy") will help, and one wonders if these are the very youngsters for whom delay is likely to be most difficult. By the time they reach sixth grade, the children's spontaneous strategies (just like their formal preferences) show considerable sophistication. Most of these youngsters seem clearly to recognize the advantage of delay of cool rather than hot ideation about the rewards.

In sum, a comprehensive, coherent account of the genesis of knowledge about delay of gratification seems to be emerging. In the course of development, children show increasing awareness of effective delay systems. They progress from a systematic preference for seeing and thinking about the real blocked rewards, and hence the worst delay strategies (Vates & Mischel, 1979), to randomness, to a clear avoidance of attention to the rewards and particularly of hot reward ideation (Mischel & Mischel, Note 5). They systematically come to prefer, instead of hot ideation, distraction from the temptation, self-instructions about the task contingency, and cool ideation about the rewards themselves. These developmental shifts seem to reflect a growing recognition by the child of the principle that the more cognitively available and hot a temptation, the more one will want it and the more difficult it will be to resist. Armed with this basic insight into the nature of motivation, the child can generate a diverse array of strategies for effectively managing otherwise formidable tasks and for overcoming "stimulus control" with self-control. It will be important to trace further not only the development of this cognitive competence but also the timetable of its spontaneous application to relevant tasks, as well as the conditions that might imperil or enhance the developmental progression.

Self-Encoding

As part of my larger interest in person variables, and particularly in the person variable that I call encoding strategies (Mischel, 1973), I have become increasingly involved in the interplay between a person's actual competencies and the self-encoding or self-perception of those competencies. To illustrate, in a recent study, Peter Lewinsohn of the University of Oregon, his students, and I tried to untangle the roles of social competence and the self-perception or self-encoding of social competence in clinical depression (Lewinsohn, Mischel, Chaplin, & Barton, in press). Specifically, the depressed person may be deficient in particular competencies, skills, or social attributes and/or may be misperceiving them. Thus, Beck (1967) postulated an "unrealistically negative view of self" as part of the cause of depression. On the other hand, it is also possible that a negative self-image partly reflects a realistic recognition of one's own lack of positive interpersonal characteristics and competence. To disentangle unrealistically negative self-perceptions from actual social deficits (as perceived by others), it is necessary to obtain both self-ratings and behavior ratings by observers and to examine their degree of congruence in depressed and nondepressed persons.

We attempted to obtain such data, studying three groups: the clinically depressed, a group of nondepressed psychiatric control clients, and a group of normal nonclients. A finding that the depressed perceive themselves more negatively than do control subjects might imply that the former in fact possess more negative social characteristics and that their negative self-perception simply reflects this reality. On the other hand, the depressed might suffer from negative self-perceptions unjustified by their actual social characteristics as perceived by others. To distinguish these two possibilities, it was important that the self-ratings of depressed people and appropriate control groups be compared with ratings of the same individuals by independent observers.

Both self-ratings and ratings from observers were obtained for depressed, psychiatric control, and normal control individuals following a group interaction at two times in the course of treatment. As expected, the depressed individuals rated themselves and were rated by others as less socially
competent than the two control groups, and their self-perceptions improved with treatment and time. Surprisingly, the depressed were initially more realistic in their self-perceptions than were the controls. Specifically, the controls perceived themselves more positively than others saw them, whereas the depressed saw themselves as they were seen. Nondepressed people may thus be characterized as having a halo, or illusory glow, that involves an unrealistic self-enhancement in which one sees oneself more positively and less negatively than others see one. Clearly if social reality is defined by the extent of agreement with objective observers, the depressed were the most realistic in their self-perceptions, and the controls were engaged in self-enhancing distortions.

This finding may at first seem startling, but on closer analysis it is congruent with independent work revealing surprising realism (accuracy) by depressed people in their recall of feedback (e.g., Nelson & Craighead, 1977) and in their judgments of degree of contingency between their own responses and the outcomes obtained (Alloy & Abramson, in press). It is also congruent with findings that positive experiences and especially positive expectations for future success may greatly increase people's attention to (and memory for) their personal strengths and assets relative to their personal weaknesses and liabilities (Mischel, Ebbesen, & Zeiss, 1973, 1976).\footnote{\textbf{Note} also that feeling good may make one generally more benign, not just toward oneself but also toward others (see, e.g., Iden, Shakfer, Clark, & Karp, 1978; Rosenhan, Underwood, & Moore, 1974).}

As expected, in the Lewinsohn et al. (in press) study, in the course of treatment we found that the depressed became more similar to the controls in their self-perceptions, improving their own perception of their positive social competence and evaluating themselves more benignly. Most interesting, again, were the comparisons between self-ratings and observer ratings at the terminal assessment, which showed that with time and treatment the depressed had become increasingly less realistic, and the control subjects continued to judge their own positive qualities more benignly and their negative qualities much less harshly than those who observed them, showing little change over time. It is tempting to conjecture that a key to avoiding depression is to see oneself less stringently and more favorably than others see one. If so, the beliefs that unrealistic self-appraisals are a basic ingredient of depression and that realism is the crux of appropriate affect may have to be seriously questioned. To feel good about ourselves we may have to judge ourselves more kindly than we are judged. Self-enhancing information processing and biased self-encoding may be both a requirement for positive affect and the price for achieving it.

The Prospect

In the previous decade many of us realized the incompleteness of a personality psychology that failed to include and consider seriously the role of specific situations in the analysis of behavior. In the decade now ending, many of us have come to recognize increasingly that an adequate analysis of behavior cannot proceed without serious attention to the cognitive processes of both the actors and the observers, the subjects and the scientists, of our field.

Looking toward the next decade, I hope my appraisal is not too optimistically biased in sensing exciting prospects and a genuine revitalization emerging in the field of personality. Not only is the area becoming more "cognitivist," our neighbors in experimental psychology seem to realize increasingly that even the comprehension of a simple story requires attention to such personological considerations as the specific context, the inferred motives and goals of the characters, and the scripts or schemata that readers bring with them (see, e.g., Bower & Gilligan, in press; Bower, Monteiro, & Gilligan, 1978). Hopefully, increasing proximity between the goals, constructs, and methods of our subdisciplines in the personality-clinical and cognitive-experimental domains will help the next decade move beyond the personal-situation debate to the study of persons in a way that allows the "two disciplines of scientific psychology" (Cronbach, 1957) at last to become one.

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REFERENCE NOTES
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