Because of the relative paucity of published work concerned with either theoretical issues or empirical data directly relevant to the cognitive aspects of our process model of performance rating, Chapters 4 and 5 included little discussion of the cognitive components. In this chapter, we examine theory and data from other areas of psychology that may be useful for our purposes. We believe that a better understanding of the rating process and improvement in the use of ratings can occur if more attention is paid to the fundamental cognitive processes involved when one individual evaluates another. Thus, we think it is important to acquaint those interested in performance rating with recent concepts in cognitive and social psychology that are germane to the rating process.

We first present a brief review of the cognitive components of our process model of performance rating, followed by a discussion of recent findings and theory relevant to each cognitive component of the model. Finally, we suggest some potential applications of cognitive research results to the better understanding of the performance rating process.
8. Cognitive Aspects of the Process Model of Performance Rating

COGNITIVE COMPONENTS OF THE PROCESS MODEL: A BRIEF REVIEW

The process model of performance rating, presented in detail in Chapter 4, contains two basic cognitive components that are shown in Figure 8.1. The two components are presented in their temporal sequence. The first component is labeled as observation–storage and the second as retrieval–judgment. Obviously, the “black-box” approach of Figure 8.1 is not very informative regarding the cognitive operations of performance rating.

In Chapter 4 we attempted to describe more specifically the cognitive processes of relevance to performance rating. That attempt is shown again in Figure 8.2. As Figure 8.2 indicates, the cognitive operations involved in performance rating begin with some type of information input. We have labeled this input as observation since often the work performer is directly observed or watched by the rater. Input can come from sources other than the direct observation of the work performer, of course. These other sources can include production records, product examination, or discussions with other individuals in the work setting. The observation is not random; it is directed by what we have labeled as stimulus preprocessing. Rating instructions and training, as well as the nature of the rating form itself, focus the rater on certain aspects of the work performer’s behavior and output. Also, the rater may have a personal “theory” of performance for the job in question and, thus, is directed to look for certain information that he or she believes is diagnostic about the level of job performance demonstrated by the individual. These various factors tend to bias the rater toward attending to certain aspects of job performance rather than others. These biases may be relatively common across raters, in the case of the efforts of rater training and instructions, or they may be relatively unique, in the case of personal theories of performance.

Performance observations are likely to be quite numerous, and the rater must quickly process the information in some fashion to avoid a condition of information overload. We propose that the initial processing of observa-

Figure 8.1. Basic cognitive components of the process model of performance rating.
Cognitive Components of the Process Model: A Brief Review

![Diagram of the cognitive components of the process model]

Figure 8.2. A more detailed view of the cognitive component in the rating process.

tion data is essentially an act of categorization. The performance information could be categorized according to a number of category systems. For example, new performance information could be classified according to dimensions of work performance, such as quantity of performance or quality of performance, or to general evaluative categories such as good or bad, or to whether the new performance was consistent or inconsistent with the previous performance of the individual. Later, we will examine in more detail the nature of category systems that are likely to be used by raters. Important here is the idea that performance information has been reduced in complexity and amount by categorization so that the rater can more efficiently deal with it.

After performance information has been categorized, it enters short-term memory from which it may enter long-term memory. Although cognitive theorists may argue over the exact nature of memory structure and process, for our purposes there is at least heuristic value in considering there to be two major components of memory, short term and long term. Not all information in short-term memory enters long-term memory. Some type of mechanism acts to select a limited amount of information from short-term memory for entrance into long-term memory. Once in long-term storage, information may exist there indefinitely, although its retrieval may not always be possible. Even if information is stored indefinitely in long-term memory, it is important to note that what is stored in the long-term memory of the rater is not a one-to-one representation of the original job performance of the work performer due to processes of observation, categorization, and selection.

At the time of performance evaluation, stored information about the performance of the ratee must be recalled or retrieved from memory. The probability of recall of stored performance information is not invariant. Factors such as the relative recency of the information, the perceived
relevance of the information for the judgment at hand, the consistency of the information, and the structure and content of the rating instrument are likely to have some impact on the likelihood of recalling a specific bit of information about the job performance of the ratee. A question of interest in recent research in memory functions is whether people generally recall a series of specific facts about a past event or person or whether they recall more general "traits" or aggregations of facts and then infer specific details from the more general.

Finally, once the rater has remembered "something" about the ratee, the actual judgment or evaluation must be made. Typically, the rater must assess any information in terms of its general diagnosticity for the judgment required. It is likely here that a rater's personal "theory" of work performance is quite influential in the weighting of information. There may also be general judgmental biases that tend to influence the evaluation judgments of most raters. Of particular interest are likely to be information-seeking strategies used by raters to accumulate sufficient (at least in a perceived sense) information to make an adequate judgment.

The application of the research and theory in cognitive psychology to performance judgments is quite recent. The development and transfer of cognitive concepts are, thus, exploratory and may at first seem fragmented. It may therefore be helpful to consider a few ideas central to much of the relevant cognitive literature before looking in more detail at various selected parts of that literature.

An overriding concept that pervades recent theory and research in cognitive psychology is the cognitive simplification of the environment. There is simply too much information in our environment to attempt to process it in an all-inclusive, one-to-one fashion. However, we cannot function well by simply focusing only on that small portion of environmental information that we could process detail by detail. That strategy misses too much important information. Rather, it appears that we use strategies that allow us to process more of the total information with less attention to each detail. These strategies include the use of categories for pooling objects and people and the development of sets of typical characteristics for objects in a category. A more important concept is that the use of these simplification strategies is typically automatic in the sense that no conscious effort is needed to call these strategies into use. We use them without thinking and, thus, may not always be aware of biases that these strategies can induce. There is a price for being able to process more information. The price is the likelihood that we will frequently err in matters of detail and make major errors at times. However, we are sufficiently correct on enough occasions.

With this brief review of the process, we can turn our attention to a consideration of recent theory and data that have relevance for performance evaluation. The major components of cognitive systems have traditionally been influenced by basic physiological and psychological processes, and recent research suggest that both object and social and conscious (or controlled) components are involved. Langer, 1978; Nisbett, 1977; Shiffrin & Schneider, 1977. For the individual thinking about what to do in these processes, a person may rely on his or her environment or other people who are present to help structure the response.

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at hand, the consistency of the rating instrument are of recalling a specific bit of trie. A question of interest ther people generally recall on or whether they recall d then infer specific details something" about the ratee, ade. Typically, the rater nal diagnosticity for the ter's personal "theory" of weighting of information. That tend to influence the lar interest are likely to be o accumulate sufficient (at he an adequate judgment. in cognitive psychology to development and transfer of I may at first seem fragm a few ideas central to looking in more detail at theory and research in ation of the environment. environment to attempt to on. However, we cannot small portion of environmen by detail. That strategy er, it appears that we use al information with less e the use of categories for t of sets of typical chara tant concept is that the use omatic in the sense that no es into use. We use them aware of biases that these ing able to process more we will frequently err in s. However, we are suffi ciently correct on enough occasions to be rewarded for using these strategies. It is important, however, that we remain sensitive to the possibility of error.

With this brief review of the cognitive components of the rating process, we can turn our attention to a more detailed but still selected examination of recent theory and data in cognitive psychology that appear to have relevance for performance rating. The discussion is organized around the major components of cognition.

The observation component in performance appraisal is importantly influenced by basic psychological processes such as perception, attention, and recognition. Feldman (1981) has reviewed current research and theory related to these processes, and research results from several lines of inquiry suggest that both object and social perception may be affected by automatic and conscious (or controlled) cognitive and sensory processes (e.g., Abelson, 1981; Langer, 1978; Nisbett & Wilson, 1977; Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). Automatic processes occur without the individual thinking about what he or she is doing at the time. As a result of these processes, a person may respond to or be affected by features of the environment or of other people without awareness of the cues at the time of the response.

Feldman (1981) suggests that we automatically code other people in terms of certain common characteristics, such as race, gender, height, or style of dress, and that we categorize individuals in terms of those characteristics in a nonthinking or unintentional way. However, those categorizations may have important consequences for how we evaluate and interpret the behavior of the individuals.

Taylor and Fiske (1978), McArthur (1980), and Hamilton (1979) have noted that the salience or prominence of a particular type of information may be affected by various situational circumstances. It appears that a most important factor in determining salience may be the distinctiveness of a person or object vis-à-vis other individuals or objects in the situation. Studies by Langer, Taylor, Fiske, and Chanowitz (1976) have found that subjects stared longer at (paid more attention to) individuals with a novel, distinctive feature than at individuals without such a feature, except when normative pressure from another person precluded such staring. Additional research by Taylor, Fiske, Close, Anderson, and Ruderman (1977)
examined the perceptual and attributional consequences of this differential attention to a distinctive person. They investigated the impact on observers' judgments about an individual when that individual was the sole minority group member (e.g., the only black in an otherwise white group, or the only female in an otherwise male group) or was part of a fully integrated group (e.g., three blacks and three whites or three females and three males). Taylor et al. (1977) found that the sole minority group member was perceived as having been prominent in a group discussion, received more extreme ratings or evaluative trait ratings, and was more likely to be perceived as having played a special role within the group than the same individual saying the same lines in the discussion within an integrated group.

Given that in many work situations blacks and women are truly minority group members (often there may be only a single black or woman in a work group), performance evaluators (most typically white and male) are likely to attend more to the behavior of the black or female employee, at least partially because of what appear to be automatic attentional processes. This increased attention, per se, is not likely to have a consistent impact on the direction of performance ratings (cf. Taylor et al., 1977). The directionality of any shift in the mean ratings for minority group members may be affected by expectations and predispositions of the rater.

Feldman (1981) hypothesizes that, to the degree that the behavior of an individual's work performance is consistent with the rater's expectations, the behavior is noted and stored automatically. Attentional processes are controlled or directed only when some type of “problem” arises, such as when an individual's behavior is not consistent with expectations, when the inferential task for which the observation is being made is changed, when errors of inference are noted, or when a new individual enters the work situation.

The existence of automatic attentional processes has important implications for the understanding of performance ratings. Most, if not all, attempts to improve ratings through observational training have assumed that observation was only a controlled process. The preceding discussion suggests that an automatic process is the norm and that the controlled process is abnormal for the observer. Thus, it is likely to be difficult to make substantial changes in the ways that most raters observe work behavior or in what they attend to. These automatic processes also highlight the importance of rater expectations about performance. It may be that an approach to improving rater performance lies in altering their expectations to a more common ground based on the nature of the task to be performed.

Categorization and Storage

Some research has shown the effect on the information that is observed. Ebbsen, 1979; Hoffman, Mischel, & Ebbesen, 1979). These data suggest that information observed and further controlled strategies or by eliciting consistent with the purpose of the

Because of the large amount of information process, an individual must process the information in the most efficient manner if it is to be effective. Recent research on human performance has noted the initial processing of information and the role of categorization.

The traditional view of categorization is that we use a set of categories, each with its own set of attributes that define the category. These figures with four sides of equal length are a concept of a category is comprised of attributes. For example, Goodnow, Austin, 1956). The significance of the categories is that the categories are defined in terms of the properties of the category. For example, a cat has been defined as stimuli with greater than 0.5. In retrospect, we see that those studies were based on a specific number of necessary attributes of the subjects by the experimental procedures in the real world outside the study.

Rosen (1973) and her associates Gray, Johnson, & Boyes-Braem, 1975) found that concepts are not defined by attributes. For example, the category of “furniture,” which includes a table, a lamp, a filing cabinet, and a chair, is an attribute that is possessed by all. A table, lamps, and ashtrays...
Consequences of this differentiation investigated the impact on when that individual was the black in an otherwise white male group or was part of a three whites or three females that the sole minority group prominent in a group discussion, trait ratings, and was more social role within the group than in the discussion within an.

As and women are truly minority a single black or woman in a typically white and male are black or female employee, at the automatic attentional process not likely to have a consistent things (cf. Taylor et al., 1977). in ratings for minority group and predispositions of the rater. degree that the behavior of an with the rater's expectations, ally. Attentional processes are of "problem" arises, such as tent with expectations, when on is being made is changed, non a new individual enters the processes has important implications. Most, if not all, at training have assumed that the preceding discussion suggested that the controlled process is to be difficult to make substantive serve work behavior or in what iso highlight the importance of may be that an approach to their expectations to a more task to be performed.

Some research has shown that observational purpose does have an effect on the information that is encoded by an observer (e.g., Cohen & Ebbsen, 1979; Hoffman, Mischel, & Mazze, 1981; Jeffery & Mischel, 1979). These data suggest that instructions or training might modify the information observed and further processed by a rater either by conscious, controlled strategies or by eliciting an automatic attentional process consistent with the purpose of the observation.

CATEGORIZATION AND STORAGE

Because of the large amount of information available from the observation process, an individual must initially deal with this information in a most efficient manner if it is to be maintained in a useful fashion. Much recent research on human perception and cognition suggests that this initial processing of information (from any and all sensory modes) involves categorization.

The traditional view of categorization processes was that we develop and use a set of categories, each of which has a number of necessary properties. That is, each member of a particular category possesses all of a set of attributes that define the category. Thus, all squares are closed figures with four sides of equal length and with four right angles. This concept of a category is compatible with research results from laboratory studies of the learning of "artificial" categories or concepts (e.g., Bruner, Goodnow, & Austin, 1956). The term artificial is used here to indicate that the categories were defined by the experimenters and were not natural objects. For example, a category in Bruner et al. (1956) might have been defined as stimuli with green squares surrounded by a single border. In retrospect, we see that those artificial categories were, indeed, defined by a specific number of necessary attributes, but that this was forced on the subjects by the experimental methodology. What occurs with categories in the real world outside the constraints of experimental methods?

Rosch (1973) and her associates (Rosch & Mervis, 1975; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976) have argued that natural categories or concepts are not defined by a restricted set of features. If we consider the category of "furniture," what physical attributes are shared by a chair, a table, a lamp, a filing cabinet, and an ashtray? Is it difficult to think of an attribute that is possessed by all of these category members and that is not trivial (e.g., they are solid or made up of atoms and molecules)? We might argue that lamps and ashtrays are not really furniture, but subjects do
often place these in this category if they are required to list as many examples of furniture as they can. This raises another point. Some objects are better examples of a category than are others. This is another distinction between the traditional and current views of categories. In the traditional view, all category members were equally good examples of the category.

Rosch and Mervis (1975) suggest that members of a category share a family resemblance to one another, much as members of a family tend to resemble each other to a greater extent than unrelated individuals. Thus, each category member possesses some attributes belonging to some, but not all, of the other category members. (This view of a category has also been labeled as a "fuzzy set," indicating that the category does not have firm or fixed boundaries, but rather variable ones.) The number of attributes that a category member shares with other members affects the family resemblance or typicality of that member. Members with a stronger family resemblance or greater typicality are judged as “better” examples of the category than those members with weaker resemblance or less typicality (Rosch & Mervis, 1975).

Rosch’s (1973) views about object categories mesh well with research and theory about "person" categories (Cantor & Mischel, 1977, 1979). Cantor and Mischel have proposed that we develop prototypes, an abstract analogue summarizing family resemblances among category members, as a means of typing persons. These prototypes constitute a type of knowledge structure that can influence judgments and behaviors concerning individual or classes of persons. Once an evaluation has categorized an individual (or group) as belonging to a particular prototype, subsequent responses to and expectations about that individual (or group) are likely to be biased by the attributes comprising the prototype. (A prototype, used in this way, is not very different from a stereotype. However, as noted by Nisbett and Ross [1980], the term stereotype carries excess baggage in its usual meaning of denoting bigotry and unfair bias. The use of stereotype also often connotes impressions commonly held by majority group members about ethnic, racial, or religious minority groups. This may cause one to lose sight of the facts that prototypes may be based on other types of characteristics and that different individuals may have relatively unique conceptions of what characteristics constitute those of the prototype and of who is a member of a given prototype.) Person prototypes allow an individual to structure and organize one’s knowledge about the probable behavior, attitudes, and other attributes of individuals and groups; this structuring undoubtedly simplifies and reduces what one needs to learn, store, and recall about specific individuals (Cantor & Mischel, 1979).

Categorization and Storage

Much of the research on person categories is concerned with two questions: (a) what are the characteristics of specific exemplars of a category; and (b) what are the typical exemplars of a category? (c) What are the possible categories exist.) It is helpful to categorize people, because useful depending on the purpose of the information available from the same.

Specific and relatively subordinate levels (such as Absentee in Figure 8.3) are molecular behavioral predictions concerning, whereas the relatively general level of Organization X in Figure 8.3 conceptions about the configuration of (likely) central characteristics of a person may differ from other general levels.

Cantor and Mischel (1979) extended the use of prototypes to describe prototypes at the superordinate (or "perordinate") or a hierarchy of prototypes were used. They were (1) the committed employee prototype taxonomy.

Figure 8.3. A hypothetical example of a simple hierarchical employee prototype taxonomy.
Much of the research on person prototypes has focused on two questions: (a) what are the characteristics of person categories at different levels of abstraction; and (b) what are the rules used to identify prototypical exemplars of person categories? Cantor and Mischel (1979) have provided a review of relevant past research and have reported on some of their own work in these areas. We will summarize their conclusions here.

**Characteristics of Person Categories**

It is obvious that people can be classified into categories of varying levels of inclusiveness or abstraction. These levels could be thought of as steps in a hierarchical taxonomy of persons. Figure 8.3 presents a hypothetical hierarchical prototype taxonomy that could represent several ways of categorizing organizational members. (Obviously, many other possible categories exist. It is likely that several levels of abstraction are used to categorize people, because the various levels can be differentially useful depending on the purpose of the categorization and on how the information available from the category is to be used by the categorizer. Specific and relatively subordinate (within the hierarchy of the taxonomy) levels (such as Absentee in Figure 8.3) may be useful for making rather molecular behavioral predictions about an individual in a particular situation, whereas the relatively general and superordinate levels (e.g., Member of Organization X in Figure 8.3) may be better suited for broad conceptions about the configuration of attributes that would describe the (likely) central characteristics of an individual and indicate how this person may differ from other general types of people (Cantor & Mischel, 1979).

Cantor and Mischel (1979) examined the number and type of attributes used to describe prototypes at three levels (subordinate, middle, and superordinate) or a hierarchy of person categories. Four superordinate categories were used. They were (with some subordinate level examples in parentheses): (a) the committed person (antiwar protester, nun); (b) the
extraverted person (circus clown, press agent for a movie star); (c) the cultured person (donor to an art museum, gourmet); and (d) the emotionally unstable person (acrophobic, torturer). Subjects were asked to list within 2.5 minutes the attributes that they believed to be characteristic of and common to the members of a person category. Each subject did this for four categories from a single level in the hierarchy. A comprehensive list of attributes for each category at each level that had been given by at least 20% of the subjects was compiled. Independent subjects then estimated the percentage of members of each person category for which each attribute on the comprehensive list would be true. Final attribute lists were compiled for each category. These final lists contained those attributes that received mean category member accuracy estimates of at least 50%.

The final attribute lists were examined for the number of attributes occurring (remembering that all had been judged to be true of at least 50% of the members of the category) for each level in the hierarchy. The data revealed that the subordinate-level categories were each represented by the most attributes, followed by the middle-level categories, and then by the superordinate-level categories. Thus, the categories lower in the hierarchy were richer than those higher in the sense that the larger number of attributes associated with these categories allowed one to know and predict more about members of the category. Categories can also differ in the degree to which their associated attributes overlap with, or are independent of, the associated attributes of other categories at the same hierarchical level. To the extent that category attributes overlap, the categories are less distinct and serve less well as a means of contrasting the members of different categories. Categories at the superordinate level were most distinct, as assessed by the degree of overlap on the attribute lists, followed by the middle-level categories, and then by the subordinate-level categories.

Cantor and Mischel (1979) did a content analysis of the final attribute lists at the three hierarchical levels to see if the levels differed in terms of the types of attributes characterizing category members. The attributes were classified into one of four categories: (a) physical appearance or possessions; (b) socioeconomic status; (c) traits; and (d) behavioral attributes. The most frequently occurring type of attribute at all three hierarchy levels was the traits class. Approximately 75% or more of the total attributes were traits. Socioeconomic and physical attributes were relatively rare, and behavioral attributes comprised 15–20% of the total. Behavioral and physical attributes were more pronounced at the subordinate and middle hierarchy levels than at the superordinate level.

Cantor and Mischel (1979) defined person prototypes as mental models or mental pictures of object or person. However, because categories are often “fuzzy,” and people often share a common set of attributes, there is no unique person prototype best matches the characteristics of a person. Given two prototypes that includes both a judgment of the common attributes and those of the difference between the people’s shared attributes and those of the common characteristics of the categories.

When the decision maker is faced with the task of categorizing a person, Cantor and Mischel hypothesized the common elements (or attributes) to be used in the decision-making process. If the person prototype best matches the characteristics of the category, then the focus of the decision-making process is on the highly typical category attributes that are exhibited by the person under similar situations. When little information is available, less attention is paid to whether the person is a member of related categories or to whether the common elements of related categories are important attributes of the decision-making process.

Implications

The importance of the existence of person prototypes (or a categorial system) lies in how the categorial system can be used to make inferences about other persons. We now turn to the implications and discuss the retrieval of such prototypes.

The use of person prototypes is an important step in the mental processing of information about people, situations, and objects (directly or indirectly). Indeed, people appear to allocate at least somewhat accurate mental images of persons with whom they are familiar to the specific prototypes. By storing an as
agent for a movie star); (c) the
an, gourmet); and (d) the emo-
lar). Subjects were asked to list
y believed to be characteristic of
category. Each subject did this
he hierarchy. A comprehensive
level that had been given by at
Independent subjects then esti-
person category for which each
ld be true. Final attribute lists
al lists contained those at-
ember accuracy estimation of at-
d for the number of attributes
judged to be true of at least 50%
level in the hierarchy. The data-
ries were each represented by
level categories, and then by
the categories lower in the hier-
se that the larger number of
allowed one to know and pre-
Categories can also differ in the
overlap with, or are independ-
categories at the same hierarchi-
ates overlap, the categories are
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ordinate level were most dis-
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hen by the subordinate-level
it analysis of the final attribute
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gory members. The attributes
es: (a) physical appearance or
traits; and (d) behavioral at-
type of attribute at all three
omately 75% or more of the
ical and physical attributes were
prised 15–20% of the total.
are pronounced at the subordi-
he superordinate level.

Identification of Category Prototypes and
Category Membership

Cantor and Mischel (1979) suggest that it is often easy to categorize an
object or person. However, because the nature of the boundaries of cate-
gories are often “fuzzy,” and because category members need not share a
common set of attributes, these decisions are often difficult. Cantor and
Mischel hypothesize that we classify people according to a prototype
matching process (e.g., a person is assigned to that person category whose
prototype best matches the characteristics of the person). Following Rosch
(1978) and Tversky (1977), they suggest that the categorization process
includes both a judgment of the degree of association between the person’s
attributes and those of the category prototype and a judgment of the
number of the person’s shared attributes with other conceptually related
categories.

When the decision maker has considerable knowledge about the “tar-
t” person, Cantor and Mischel suggest that the decision maker abstracts
common elements (or attributes) from the large existing store of specific
behavior and may ignore surface inconsistencies. When one must make a
categorical judgment based on only limited knowledge of the target per-
son, then the focus of the decision making may be a search for particular,
highly typical category attributes and for the extent that these attributes
are exhibited by the person consistently and in unusual or nonnormative
situations. When little information is known about the target person, then
less attention is paid to whether the person’s attributes overlap with those
of related categories or to whether how well they match the central or
most important attributes of the particular category in question.

Implications of Category Prototypes for Storage of
Information about Persons

The importance of the existence of person prototypes (or, indeed, any
categorical system) lies in how they are used to store and retrieve infor-
mation about other persons. We will address issues relevant to storage here
and discuss the retrieval of such information in a later section.

The use of person prototypes allows us to forego having to store “laun-
dry lists” of information about each and every person we know (either
directly or indirectly). Indeed, through prototypes we may be able to
make at least somewhat accurate predictions about the characteristics of
people whom we do not know, if we can assign the unknown persons to
prototypes. By storing an association between a person and a prototype
that is already associated with a set of attributes, we also link the person to this set of attributes at the “cost” of only a single learned link or association.

This does not imply that we do not store information about a person that may be inconsistent with the prototype or category to which we have assigned the person. Obviously, we do. Note that inconsistency can occur in two ways. A piece of information can be inconsistent if it is not a typical attribute of the prototype. Another piece of information may be inconsistent because it is contradictory with a typical attribute. Inconsistent information of the first type may become a part of the prototype if it is a stable characteristic of the person and present (or at least not contradicted) in other specific persons assigned to the category. If inconsistent, contradictory information is perceived as a stable attribute of the person; then it is likely that we would reassign the person to another category or attempt to discount the information in some way (e.g., perceiving that an external factor “forces” the person to have that characteristic).

As noted in Feldman (1981), research evidence suggests that consistent information (and people) will be processed in an automatic way (i.e., without conscious, directed effort). Since our tendency to abstract categories exists, it is most likely that the bulk of our encounters with other people are consistent and, thus, are subject to automatic processing and storing of information. Only inconsistent information may demand controlled processing.

Of importance are the findings of Hoffman et al. (1981), Jeffery and Mischel (1979), and Cohen and Ebbeson (1979), which suggest that the purpose for which information will later be used affects the manner in which the information is organized. An event can be encoded in different ways or according to different schemata, depending on how the observer plans to use the information in the future. Apparently, some schemata provide more relevant information for certain judgments. For example, Hoffman et al. found that subjects reading and categorizing a number of behavioral episodes with the purpose of recalling the episodes later or of empathizing with the principal character in the episodes tended to organize the material primarily in terms of the character’s goals (the disposition to act toward a specific end). However, those subjects whose purpose was to form a general personality impression of the principal character or to predict the future behavior of the character tended to organize the episodes in terms of the character’s traits (the disposition to behave in a particular style or manner). Most of the research on category prototypes has focused on traits and on other attributes of the target person, not

including goals. Whether goals and traits are organized into separate categories is not certain and requires further research.

Feldman (1981) has described a functional approach to self-augmentation and storage strategies using person categories. Additional information is expected to be consistent with the existing category or to augment the category. This information facilitates the retrieval process of that category. This information is itself more accessible and salient at a later date (Feldman, 1980). Thus, the category is modified, and the self-feeding system can result in self-augmentation without necessarily any directed effort or processor of the information.

It is quite probable that raters have different personal categories that they use to rate people. It is also likely that different people rate the same person because of cultural factors and other differences in the ratings. Note that the ratings are made by different raters and not by the person being rated.
Categorization and Storage

including goals. Whether goals can be consistently linked to trait-oriented categories is not certain and represents an area for future research.

Implications for Performance Appraisal

Feldman (1981) has described several of the implications that information storage strategies using person prototypes have for performance appraisal. Additional information about an individual that is reasonably consistent with the existing category is assimilated automatically in terms of that category. This information processing, in turn, makes the category itself more accessible and salient to the individual (e.g., Wyer & Srull, 1980). Thus, the category is more likely to be activated in the future. This self-feeding system can result in the more pronounced use of a category without necessarily any directed control or intent on the part of the receiver or processor of the information.

It is quite probable that raters will differ in the number and nature of person categories that they use (cf. Hastorf, Schneider, & Polefka, 1970). It is also likely that different person categories will be salient for different raters because of cultural factors (Triandis, 1964) and individual difference variables such as degree of prejudice and cognitive complexity (Feldman & Hilterman, 1975). These differences in the type and salience

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure8.4.png}
\caption{A hypothetical example of impact of salient person category on performance ratings. Note that the ratings are made on a 7-point scale with 7 = excellent.}
\end{figure}
of categories available to raters are likely to have an important role in the determination of subsequent evaluations. Some raters will attend to certain aspects of the behavior of the work performance because those aspects are the attributes most typifying a particular person category of high salience to those raters. Other raters may ignore these attributes and focus on other characteristics more typical for their salient person category. Figure 8.4 is a hypothetical example of the possible effects these categorization processes might have on performance ratings.

**INFORMATION RECALL AND SEARCH**

After information about an individual work performer has been stored, the rater must recall such information at the actual time of performance rating. The particular judgment specified by the rating instrument focuses an information search and recall process in which the rater recalls pertinent (as defined by an interaction of task, situation, rater, and person category factors) information available in memory and decides whether it is sufficient for the rater to make the required judgment.

There is considerable research evidence to suggest that recall of information about a person is not done simply in terms of specific instances of the behavior of the person. The assignment of a person to a category, as described in the previous section, influences the recall of information about that person (Feldman, 1981). Wyer and Srull (1980) have incorporated the notion of category prototypes into a model of memory and information processing.

Wyer and Srull hypothesize that behavioral information about a person may be held for some period of time in what they term a “work space.” During this period of time, one has direct access both to the category the target person is assigned to and to the behavioral information. After some period of time, the categorical information only is retained in one or more “storage bins.” Recall after some duration is limited to the target person’s category; behavioral details are not stored. When recall of information about the target person occurs, the prototype of the category is remembered and its attributes are described as being true of the target person whether or not relevant behavioral information has been observed by the recaller.

Data consistent with the Wyer and Srull model have been presented by a number of researchers. Cantor and Mischel (1977) found that subjects “recalled” traits that were consistent with a given prototype when these traits had not been previously observed. Hoffman et al. (1980) and Hastie and Kunda (1980) found that specific behaviors congruent with prototypes made about the target person were more salient than specific behaviors incongruent with prototypes. Higgins, Soll, and Jones (1980) showed that subjects’ reproductions of stimulus words were more congruent with the prototype (and that subjects tended to reproduce the prototype) than incongruent with the prototype (and that subjects tended to reproduce the prototype). The results of Hoffman et al. (1980) and Hastie and Kunda (1980) are consistent with the model of Wyer and Srull (1980) in that it may be better to view prototypes as more than just traits and physical attributes, but rather that prototypical goals and standards are involved as well.

Related to Wyer and Srull (1980), Abelson (1981; Schank & Abelson, 1977) has proposed a script as an internal representation of stereotyped events that includes a body of inferences about how events have occurred or are likely to occur based on those events. For our purpose, a script is a kind of script concept, namely, a heuristic for recognizing events.

Abelson (1981) has noted that whether our memory for incomplete scripts (or for the script) is recalled in terms of the events that are inferred or the events that are not inferred, that is, whether or not relevant behavioral information has been observed by the recaller.

Abelson’s (1981) script view has been influential in the study of important issue. How do we interpret the information consistent with the script or category?
traits had not been previously observed in the target persons. Carlston (1980) and Hastie and Kumar (1979) reported that their subjects recalled specific behaviors congruent with trait inferences they had previously made about the target persons. Similarly, Hamilton, Katz, and Leirer (1980) and Hastie (1980) obtained results indicating that general impressions about the personality of target persons facilitated the recall of trait-congruent behaviors. Higgins, Rhules, and Jones (1977) found that subjects’ reproductions of stimulus information became polarized over time and that subjects tended to recall selectively trait categories (and not specific information items) that reflected a reduced category accessibility. The results of Hoffman et al. (1981) that subjects may use organizing schemes other than traits (e.g., the goals of the target person) is not inconsistent with the model of Wyer and Srull. Rather, these data suggest that it may be better to view categorization processes as involving more than just traits and physical attributes of category members and to remember that prototypical goals are a possible addition.

Related to Wyer and Srull’s (1980) model is the concept of script (Abelson, 1981; Schank & Abelson, 1977). A script is defined as a conceptual representation of stereotyped event sequences (Abelson, 1981). A script includes a body of inferences that the person can make about what events have occurred or are likely to occur and the probable consequences of those events. For our purposes, we will just focus on one implication of the script concept, namely, the impact of scripts on the recall of past events.

Abelson (1981) has noted that a major test of the script concept is whether our memory for incompletely presented events (or an incomplete script) is recalled in terms of the complete script or in terms of the experientially correct but incomplete set of events. Studies by Bower, Black, and Turner (1979) and Graesser, Woll, Kowalski, and Smith (1980) have found a strong tendency for the false recognition of script events that had not been presented. Abelson has called this gap filling, and it is consistent with the view that our long-term memory of a scripted situation is of a generic script, modified by explicit memories of unusual events.

Inconsistent versus Consistent Category Information

Abelson’s (1981) script view of our memory for past events raises an important issue. How do we remember events or attributes that are inconsistent with the script or category prototype? Much of what has been
presented in this chapter suggests that we tend to recall consistent information, but may not encode and/or recall inconsistent information and may even distort it in some fashion to make it consistent with the category or script. It is clear, however, that we do remember, at least some of the time, the unusual, the unexpected, and the inconsistent. How can this phenomenon be reconciled with the category or script view of how we encode and recall the past?

Feldman (1981), drawing on the work of Schneider and Shiffrin (1977), Shiffrin and Schneider (1977), Langer (1978), Nisbett and Wilson (1977), and Schank and Abelson (1977), has suggested that inconsistent information results in a controlled processing of the information, whereas the consistent information is processed automatically (without conscious decision making) via categories and scripts. In Feldman’s view, even controlled processing involves categories and scripts, but the individual must actively make judgments and inferences about the information and target person. By actively processing the inconsistent information, we may make it more salient and, thus, more available for recall.

Cohen (1981) has recently reported that subjects explicitly given the occupation of a target person (as a type of category) were better able to recall both category-consistent and category-inconsistent behaviors of the target person than subjects not given the occupational information. It may be that two processes are at work here. While the category availability ought to help automatically organize the consistent information about the category prototype, it may also help to highlight the inconsistent information that is then processed in a controlled fashion. Subjects without the occupational category must spend time and cognitive effort on making a categorization decision and are, therefore, more likely to fail to encode behavior, both consistent and inconsistent, of the target person.

Cohen (1981) has suggested that category-consistent information is more likely to be recalled than category-inconsistent information when the subject is faced with a potential information overload and when there is a relative balance of consistent and inconsistent information. A script or category may reduce the information load on the subject by minimizing the need to process consistent information consciously in either encoding or retrieval. Hastie and Kumar (1979) found that category-inconsistent attributes of a target person were less likely to be recalled selectively as the proportion of category-consistent and category-inconsistent features of the target became approximately equal. The relative salience of the inconsistent information may be reduced in the equal proportion condition.

When faced with a decision in a performance evaluation task, available information or data that is relevant for the given decision or judgment, an initial impression or evaluation automatically by the category or script view of the evaluator. Even when the evaluative decision, the process of testing the hypothesis (i.e., the prior information) may be biased. Einhorn & Hogarth, 1978a, 1978b) have found that individuals who have already formed an impression are biased to provide information that supports that impression (i.e., the evaluator seeks information that supports the prior judgment).

It is inevitable, however, and in the presence of evidence, that information inferences.
Information Recall and Search

Information Search

When faced with a decision or judgment task (in our most relevant case, a performance evaluation task), the evaluator must in some fashion assemble information or data that he or she believes to be relevant to or diagnostic for the given decision or judgment. As argued previously in this chapter, an initial impression of the target person may often be elicited automatically by the category to which the target has been assigned by the evaluator. Even when the evaluator tests the validity of this initial impression, the process of testing the impression (and, hence, the resulting additional information) may be biased (Feldman, 1981). Several studies (e.g., Einhorn & Hogarth, 1978; Snyder & Cantor, 1979; Snyder & Swann, 1978a, 1978b) have found that processes used to obtain additional information are biased to provide evidence confirming the initial impression (i.e., the evaluator seeks information that will support and not contradict the prior judgment).

It is inevitable, however, despite the bias toward obtaining confirming evidence, that information inconsistent with the initial impression or judg-

![Diagram](image)

Figure 8.5. Proposed model of the appraisal process. (From Meglino et al., 1981.)
ment is encountered in at least some evaluation or decision situations. How do we handle these discrepancies? There is evidence (cf. Ross, 1977) that a single item of inconsistent information tends to be discounted and that the more discrepant or inconsistent the single item is the greater the tendency is discount it. However, additional information inconsistent with the initial categorization or impression is likely to trigger the controlled processing strategy (Feldman, 1981). The controlled process operates until the evaluator has resolved the information inconsistency through an attributional or recategorization process.

Meglino, Cafferty, DeNisi, and Youngblood (1981) have proposed a performance appraisal model, focusing on cognitive factors, that incorporates many of the previously discussed concepts about information search and recategorization. Their model is shown in Figure 8.5. The two principal bases for their model are Wyer and Srull's (1980) information-processing model and attribution theory (cf. Feldman, 1981; Kelley, 1967).

The model of Meglino et al. is also consistent with the category prototype concepts discussed earlier in this chapter. These are labeled as *preconceived notions* in their model and are seen as interacting with long-term memory and influencing the observation of the ratee's behavior. Like Wyer and Srull (1980), Meglino et al. hypothesize that the encoded information about behavior has been transformed several times from the actual behavior of the ratee via cognitive processing. Inferences about new information and the determination of the adequacy of the existing information are based on the attributions of the rater. The rater judges whether the observed behavior of the ratee is attributable to a factor external to the ratee (e.g., a rule, a machine, or another person) or to an internal factor (e.g., the ratee's ability or effort). If the attribution is to an external factor, then the observed behavior is not diagnostic about the ratee and the rater seeks other behavioral information. If the attribution is to an internal factor, then an additional attribution about the stability of the observed behavior is made by the rater. If the behavior is attributable to a stable internal characteristic (e.g., the ability level of the ratee), then the behavior is encoded into memory from which it can be recalled for purposes of making a final performance rating and also for purposes of making future attributions about the ratee's behavior. If the behavior is attributable to an unstable internal factor (e.g., the effort level of the ratee), then the search for information is continued and the behavior is not encoded. (This later point represents a weakness of the Meglino et al. model, as information about the consistency and level of work-related effort is stored by raters and often serves as an input to the final rating. The model must be modified to allow attributions of rater.)

Information search continues to be constrained by time and cost factors because he or she believes that the performance of the ratee is sufficiently important for the rater to determine whether the performance needs to be explicated in future.

After information has been collected in the previous sections, the rater must now make a judgment that represents an integration of the information available to the rater to be relevant to the situation. (Judgments about very specific events, such as actual appraisal ratings or the performance of the ratee in the future, can be considered in greater detail in Chapter 10.) It is important to consider the context of this chapter. Here we will address the development of information processing and judgments.

It should also be noted that the performance may not necessarily contain information relevant to judgment process. There may be decisions of what to record other than actual performance (e.g., whether to record actual appraisal ratings or what the future performance of the ratee). For ease of handling, contextual factors in this discussion are only on the final recorded rating.

It is impossible, given the human nature, to systematically the abundance of human judgment and decision making. Instead, we refer to the study of human judgment and decision making in performance ratings. For more details on the judgment literature, refer to Tversky and Simon (1973); Tversky and Kahneman (1980); Fishbein and Ajzen (1980); Fishbein and Ajzen (1980); and Einhorn and Hogarth (1980).


... the controlled process operation in such situations, as indicated by evidence (cf. Ross, 1977), a tendency to be discounted and a single item is the greater the more inconsistent, is likely to trigger the controlled process. The controlled process operation inconsistency through

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...ood (1981) have proposed a cognitive factors, that incorporates about information search (Figure 8.3). The two principle's (1980) information-processing, Kellogg, 1967).

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...nt with the category promptly. These are labeled as seen as interacting with longs of the ratee's behavior. Like resi size that the encoded information several times from the actual. Inferences about new infor for the existing information the ratee judges whether the e to a factor external to the person or to an internal factor ution is to an external factor, about the ratee and the rater attribution is to an internal the stability of the observed or is attributable to a stable of the ratee), then the behavior be recalled for purposes of or purposes of making future behavior is attributable to an of the ratee), then the search for is not encoded. (This later et al. model, as information judgments are made by raters’ rating. The model must be

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... judgment processes

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... judgment processes

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...d to allow attributions about effort to become encoded by the ratee.) Information search continues in the Meglino et al. model until constrained by time and cost factors or until the rater ceases the search because he or she believes that the information stored about the performance of the ratee is sufficient to make the final rating. The process whereby the rater determines sufficiency is not specified in any detail and needs to be explicated in future theory and research.

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...Judgment Processes

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...After information has been gathered and stored as described in the previous sections, the rater must make a final judgment. This judgment represents an integration of the various pieces of information considered by the rater to be relevant to the particular decision that is to be made. (Judgments about very specific aspects or dimensions of work performance obviously should require integration of less information than do judgments about global or overall performance.) Clearly, cognitive activities that might be considered as judgments or decisions take place earlier in the rating process and have been discussed in previous sections of this chapter. Here we will attend principally to the integrative aspects of information processing and to the final judgment processes.

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...It should also be noted that the final evaluation recorded on an appraisal form may not necessarily conform to the outcome of the performance judgment process. There may be contextual variables that bear on the decision of what to record other than the judge’s evaluation of the ratee’s work performance (e.g., whether the judge must allow the ratee to see the actual appraisal ratings or whether the judge must work closely in the future with the ratee). For ease of presentation, we will often ignore these contextual factors in this discussion, but these factors may still bear heavily on the final recorded rating.

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...It is impossible, given the scope of this chapter, to review in any systematic fashion the abundant literature dealing with human judgement and decision making. Instead, we will focus on several selected approaches to the study of human judgment that appear to have particular relevance to performance ratings. For more comprehensive and detailed coverage of the judgment literature, refer to Hammond, McClelland, and Mumpower (1980); Slovic, Fischhoff, and Lichtenstein (1977); Nisbett and Ross (1980); and Einhorn and Hogarth (1981), among others.
Approaches Based on Decision Theory

A number of more specific approaches for studying human judgment are based on economic decision theory and have as their basic parameters concepts of the probability of the occurrence of a decision alternative and the utility of the alternative to the decision maker. Edwards (1954) noted the congruence of economists' and psychologists' interests in human decision making and stimulated an extensive research effort by many psychologists aimed at the description of the actual decision behavior of individuals and how that behavior departs from the optimal or rational behavior predicted by use of Bayes' theorem.

Bayes' theorem is a normative model that specifies certain internally consistent relationships among judgments. The basic tenets of the Bayesian approach are that judgments should be expressed in terms of subjective or personal probabilities and that the optimal revision of such judgments, in the light of new information, should be made via the following equation (Slovic & Lichtenstein, 1971):

\[ p(H_i|D) = \frac{p(D|H_i)p(H_i)}{\sum_i p(D|H_i)p(H_i)} \]  

(8.1)

In Eq. (8.1), \( H_i \) are several mutually exclusive and exhaustive hypotheses and \( D \) is a new datum; \( p(H_i|D) \) is the posterior probability that \( H_i \) is true (taking into account the new datum, \( D \), as well as previous data); \( p(D|H_i) \) is the conditional probability that the datum \( D \) would be observed if hypothesis \( H_i \) were true; and \( p(H_i) \) is the prior probability of hypothesis \( H_i \), conditional on the information available before the new datum \( D \) (Slovic & Lichtenstein, 1971).

Research has found that individuals tend to violate the normative decision behavior prescribed by decision theory. For example, Slovic and Lichtenstein (1971), reviewing Bayesian research on judgment, noted that in single-stage inference or judgment tasks conservatism is usually found (i.e., subjects when integrating probabilistic information tend to produce posterior probabilities of the likelihood of an event or alternative that lie closer to the prior probabilities than to those specified by Bayes' theorem). Thus, individuals do not modify previously held beliefs as much on the basis of newly learned information as Bayes' theorem suggests would be optimal in single-stage decisions. However in cascaded inference Slovic et al. (1977) note that the opposite occurs. Cascaded inference refers to problems with several stages, with inference at each subsequent stage dependent on data that are themselves inferences on judgments made about unreliable observations or other posterior probabilities are more extensive (cf. Peterson, 1973). In fact, Kahneman and Tversky (1973) have since demonstrated Bayes' theorem in their study of judgment tasks.

Judgment by Heuristics

Bayesian has spurred much research on judgmental heuristics. Seminal articles (Kahneman & Tversky, 1974) and work (Kahneman & Tversky, 1977) on judgmental heuristics suggest that different tasks. They have labeled these heuristics probability, and anchoring.

Representativeness refers to the use of fit criteria to problems of judgment. In making a judged of a given random number table, but (b) is not. Actually, either sequence is as likely to have come from a random number table, but (b) is more representative of our conception of what a random number sequence should be like.

Availability refers to how readily we are able to retrieve information, memory, or concepts when we need them. We judge the frequency of particular events (Nisbett & Ross, 1980). Kahneman and Tversky (1973) asked subjects to determine the frequency of a letter in a word. Subjects overestimated the frequency of a letter in a word than have it as the third letter in a word. This bias is easy to generate many words in which the third letter is (a) and words in which the third letter is (b). Both kinds of words are very common in our language.

Anchoring refers to the use of an initial value as an approximation to the judgment.
Based on Decision Theory

For studying human judgment have as their basic parameters of a decision alternative and maker. Edwards (1954) noted decisionists' interests in human decision effort by many psychological decision behavior of individual from the optimal or rational.

It specifies certain internally. The basic tenets of the Bayes, expressed in terms of subjective revision of such judgments be made via the following

\[
\frac{p(H_i)}{p(H_j)}
\]  

(8.1)


dimensional and exhaustive hypotheses for probability that \( H_i \) is true as previous data; \( p(D/H_i) \) is what would be observed if hypothesis \( H_i \), \( D \) is the new datum (Slovic & Tversky, 1977) to violate the normative decision.

For example, Slovic & Tversky (1977) on judgment, noted that conservatism is usually found in information tend to produce an event or alternative that lie specified by Bayes' theorem.

Hold beliefs as much on the third letter in the word. Subjects generally judge that more words start with \( r \) than have it as the third letter. Actually, the reverse is true. However, it is easy to generate many words beginning with \( r \), but much harder to do so with words in which the third letter is \( r \). Our storage and retrieval of words may be much like a dictionary and, thus, the availability of the two kinds of words are vastly different and our judgment is so swayed.

Judgment Processes

Unreliable observations or other data. In these problems, subjects' posterior probabilities are more extreme than those prescribed by Bayes' theorem (cf. Peterson, 1973). In fact, the data on human decision making have led Kahneman and Tversky (1972) to conclude that humans do not closely follow Bayes' theorem in the evaluation and integration of information in judgment tasks.

Judgment by Heuristics. The growing evidence that people are not Bayesian has spurred much research interest in how people do process information. Seminal articles by Tversky and Kahneman (1971, 1973, 1974, Kahneman & Tversky, 1972, 1973) have demonstrated that three judgmental heuristics affect probabilistic judgments in a number of different tasks. They have labeled these heuristics as representativeness, availability, and anchoring.

Representativeness refers to the application of resemblance or "goodness of fit" criteria to problems of judgment or categorization (Nisbett & Ross, 1980). In making a judgment, an individual assesses how similar, or representative, the important features of an object, person, or concept are to the typical features or attributes of members of a category. For example, consider the following two sequences of digits: (a) 1114112222; and (b) 74163627. If asked to judge how likely it is that each of these sequences was drawn from a table of random numbers, most people would be confident that (b) came from such a table, but also confident that (a) did not. Actually, either sequence is equally likely to have been taken from a random number table, but (b) conforms more to (is more representative of) our conception of what a random series should look like.

Availability refers to how accessible objects are in the processes of perception, memory, or construction from imagination. Availability influences judgments of frequency of particular objects or the likelihood of particular events (Nisbett & Ross, 1980). For example, Kahneman and Tversky (1973) asked subjects to judge whether there are more words in the English language that start with the letter \( r \) or that have \( r \) as the third letter in the word. Subjects generally judge that more words start with \( r \) than have it as the third letter. Actually, the reverse is true. However, it is easy to generate many words beginning with \( r \), but much harder to do so with words in which the third letter is \( r \). Our storage and retrieval of words may be much like a dictionary and, thus, the availabilities of the two kinds of words are vastly different and our judgment is so swayed.

Anchoring refers to the use of a natural starting point or anchor as a first approximation to the judgment. Subsequent information results in an
adjustment to the initial anchor, but typically the adjustment is imprecise and insufficient (Slovic et al., 1977). For example, we might be asked to estimate the IQ of an outstanding collegiate athlete. We might think of a "dumb jock" and estimate initially 80. Later, when we are told that he has a 3.5 grade-point average, we would, no doubt, upgrade our estimate of his IQ. However, it is likely that we would not raise our estimate to as high a value as we might have given based on the grade-point average information only (and not knowing that he was a star athlete).

It should be noted that the heuristics of representativeness, availability, and anchoring are involitional (Naylor, Pritchard, & Ilgen, 1980) or automatic (Feldman, 1981) (i.e., they are not deliberately selected by the individual). They are simplifying strategies that can be attributed to organismic characteristics or tendencies of a nonmotivational or nonintentional kind (Naylor et al., 1980). Indeed, Nisbett and Ross (1980) have noted that most individuals are not aware of their use of such heuristics even following judgments that clearly reveal such use. They note further that a considerable amount of conscious effort is required to avoid using these heuristics when they are not appropriate, even by subjects quite cognizant of the definitions of and judgmental errors caused by the inappropriate use of these three decision strategies.

Naylor et al. (1980) have also described some volitional heuristics that are voluntary strategies used by individuals principally to minimize cognitive effort. These include judgment by habit (i.e., making judgments similar to those we have made in the past) and judgment by rules (i.e., making judgments based on instructions or rules given to us by others, social groups, or by our culture). Volitional heuristics have not been researched much in the context of judgment, but these appear to be as important as the involitional heuristics in their effect on judgments (Naylor et al. 1980).

Approaches Based on Attribution Theory

Perhaps the dominant theoretical perspective in social psychology for the past decade has been attribution theory. There are a number of attribution theories (Kelley & Michela, 1980), but instead of discussing each theory, we will focus on the central elements of this approach. The central elements of attribution theories are that people attempt to understand and to interpret behavior (both their own and that of others) in terms of its causes, and that one's reactions to a given behavior are significantly affected by these causal interpretations.

Research on aspects of attribution theory has been considerable. Kelley and Michela (1980) report that a computer-assisted search yielded over 900 relevant references from the literature. Although this may not critically cover such a large amount of research, it is intended to address a few findings of special interest.

ANTecedENTS OF AtTRIBUTION

There are three major classes of antecedents. These classes were labeled as situational or situational causes. This is concerned with the observer. This can be described (in another or in one's own terms) or behavior. Situational causes are those that can be attributed to the observer or to the situation. For example, the observer or the situation may be common to other actions. The observer may be considered an indicator of the other actions, or the other actions may be considered an indicator of the observer. Situational causes are also considered to be those that can be attributed to the observer or the situation.

Further evidence (e.g., Frey, 1976; Himmelfarb, 1972) suggests that if one's actions are consistent with dispositional traits or dispositional attributions, then the behavior of the actor in inconsistent action is more likely to be made.

INTEGRATING INFORMATION.

The consistency of an actor's behavior is a central concern about the causes of such behavior. Consistency is concerned with the behavioral consistency. How does one account for the behavior of the actor in inconsistent actions? The similarity strategy assumes that properties of the observed behavior are probably related to the representation of the person and Kahneman (1974). For other explanations for important events...
model of performance rating

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relevant references from the decade of the 1970s. We cannot systemat-
ically cover such a large amount of research here and will selectively
address a few findings of special relevance to performance evaluation.

ANTECEDENTS OF ATTRIBUTIONS. Jones and Davis (1965) suggest that there
are three major classes of antecedent variables that effect attributions.
These classes were labeled as information, beliefs, and motivation. Informa-
tion is concerned with the consequences of the action or behavior ob-
erved (in another or in oneself) in comparison to the consequences of
other possible actions or behaviors. The intention governing the action is
indicated to the observer or to oneself by those of its consequences not
common to other actions. The fewer common consequences that exist,
the less ambiguous or uncertain is the inferred intention. Beliefs about
what other people would do in the same situation (what the socially desirable
action is) also affect attributions. If the observer (or self) believes that few
other people would have acted as the particular actor did, then it is more
likely that a trait or disposition will be inferred for that actor than if the
action was socially desirable. Motivation refers to whether the observer's
(or self's) welfare is affected by the action of the actor. If the action does
affect the perceiver's welfare, then dispositional attributions are more
likely to be made.

Further evidence (e.g., Frieze & Weiner, 1971; Hayden & Mischel,
1976; Himmelfarb, 1972) suggests that an observer is more confident of
trait or dispositional attributions if he or she observes consistent action or
behavior of the actor in inconsistent or dissimilar situations, but that an
inconsistent action of a person is likely to be attributed to situational
differences.

INTEGRATING INFORMATION. The previous section suggests that the consis-
tency of an actor's behavior as an impact on the kind of attribution made
about the causes of such behavior. Clearly, most people are not perfectly
consistent in their behavior, but we do make inferences that predict be-
behavioral consistency. How do we arrive at predictions about behavior
from fallible or unreliable data? We will consider several integration strat-
egies that appear to be important, namely, similarity, discounting, sali-
ce, and primacy. Others are noted in Kelley and Michela (1980).

The similarity strategy assumes that properties of the cause are similar
to properties of the observed effect (Shultz & Ravinsky, 1977). This is
probably related to the representativeness heuristic suggested by Tversky
and Kahneman (1974). For example, we tend to favor complex causal
explanations for important effects. Discounting refers to attributing the
behavior of an individual to nondispositional factors, such as the environment or another person. As noted earlier, inconsistent behavior is often attributed to situational causes. Also, behavior that is perceived to be constrained, rather than voluntary, is discounted as being diagnostic about the actor’s traits or characteristics (Kelley, 1972).

Salience refers to the finding (e.g., Taylor & Fiske, 1975) that an effect is attributed to the cause (which may be a person) that is most salient in the perceptual field at the time the observer notes the effect. Salience has been found to be affected by relative uniqueness of a person or factor (e.g., Taylor, Fiske, Etcoff, & Ruderman, 1978), by “vividness” (Nisbett & Ross, 1980), emotional interest (e.g., Walster, 1966), concreteness (e.g., Enzle, Hansen, & Lowe, 1975), and the temporal, spatial, and sensory proximity of information (Nisbett & Ross, 1980). The most prevalent explanation for the impact of salient or vivid information is related to the information-processing strategies employed by people (Kelley & Michela, 1980; Nisbett & Ross, 1980), particularly the availability heuristic (Tversky & Kahneman, 1973).

The primacy effect is the tendency of a person to scan and interpret a sequence of information until an attribution or causal inference is made and then to disregard later information or to assimilate it into the earlier attribution (Kelley & Michela, 1980). This is congruent with our earlier discussion concerning categorization processes and characteristics of prototypes.

TYPES OF ATTRIBUTIONS. We have alluded to the types of attributions made about the behavior of others and of ourselves. Here we will be more specific about some of the research findings regarding the different types of attributions made about the causes of behavior.

ACTORS’ VERSUS OBSERVERS’ ATTRIBUTIONS. A general finding of attributional research is that actors tend to attribute their own behavior to situational characteristics, but that observers tend to attribute the same behavior to trait or dispositional characteristics of the actors (Ross, 1977). Although Ross (1977) has termed the tendency of observers to attribute the behavior to traits as “the fundamental attribution error,” it is not clear that such a tendency can be termed an “error” with great certainty (Harvey, Town, & Yarkin, 1981). The accuracy of social judgments and perceptions such as causal attributions is difficult to ascertain, particularly in natural settings (cf. Cronbach, 1955). For our purposes it is sufficient to note this tendency for observers (such as performance raters) to see characteristics of the actor (or the work performer) as the cause of performance.

STABILITY AND LOCUS A classification of causal attributes is possible (see Figure 8.6). Weiner, Frieze, Kuuka, Reed, 1979, p. 67. In this 2 x 2 classification of causal attributes there is an interaction of two dimensions: stability and locus of control. Stability is simply the degree to which the observed outcome is stable (relatively) “unstable.” The locus of control is either “internal” (to the actor) or “external” (the same name.) Figure 8.6 presents a general principal causal attribution matrix (Weiner, 1982).

If the cause of an action is perceived to be relatively stable, then the attribution is to task difficulty (or luck; the actor’s effort or motivation is not perceived to be external and therefore of no consequence.

COGNITIVE PROCESSES IN PERFORMANCE

The literature on cognitive processes in performance cognition appears to be a rich
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large certainty (Harvey,
judgments and perceptions
ain, particularly in natural
is it is sufficient to note this
ers) to see characteristics of

\[\begin{array}{|c|c|}
\hline
Locus of Control & \hline
\text{Internal} & \text{External} \\
\hline
\text{Ability or skill} & \text{Task difficulty} \\
\hline
\text{Effort or motivation} & \text{Chance or luck} \\
\hline
\end{array}\]


the actor (or the work performer) as causing observed behavior (such as work performance).

STABILITY AND LOCUS AS DETERMINANTS OF ATTRIBUTIONS. Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1972) have proposed a \(2 \times 2\) classification of causal attributions based on factors of stability and locus of control. Stability is simply dichotomized as (relatively) “stable” and (relatively) “unstable.” The locus of control of the causal factor can be either “internal” (to the actor) or “external.” (Note that this use of “locus of control” should not be confused with the personality characteristic of the same name.) Figure 8.6 presents the Weiner et al. classification and the principal causal attribution made for each of the four cells.

If the cause of an action is perceived to be internal and relatively stable, then the attribution is to the ability or skill of the actor. If it is perceived to be internal but relatively unstable, then the attribution is to the actor’s effort or motivation level. If external and stable, then the attribution is to task difficulty (or simplicity). If the cause of the behavior is perceived to be external and unstable, then the attribution is to luck or chance.

COGNITIVE PROCESSES IN PERFORMANCE EVALUATION:
SUMMARY AND IMPLICATIONS

The literature on cognitive processes in human judgments and social cognition appears to be a rich source of theoretical concepts applicable to
performance evaluations. Figure B.7 summarizes the major cognitive processes that function in the process of performance judgment for the rater. This knowledge makes any given judgment a product of the interaction of all cognitive and noncognitive factors.

The actual job performance of the rater, as well as the performance of the ratee, in addition to the personality characteristics of the rater and ratee, all influence the range of categories or prototypes that are used for evaluating the job performance of the ratee. These are assessed in the following order: (a) feedback on the ratee's performance, the typical attributes of the ratee's performance, and the typical attributes of a performance judgment, all of which serve as the input to the process. These characteristics serve as the input to the process. In some cases, the prototype of the ratee is used to generate an adequate fit between the characteristics of the ratee and the category prototype. The ratee's performance is then assessed. In other cases, information about the rater is assumed to be stored and retrieved in memory and is used to guide the judgment based on category prototypes. The next stage is to assess the judgment based on category prototypes.

The view presented in this study is that performance evaluations are made on the basis of the cognitive and noncognitive factors that often lead to biases in performance judgments.
performance evaluations. Figure 8.7 is an attempt to summarize the major cognitive processes that function when we make judgments about others. (We have omitted in Figure 8.7 other noncognitive factors that affect performance judgments for the sake of greater clarity. Also, our present knowledge makes any given arrangement of and set of interconnections among all cognitive and noncognitive factors little more than a guess.)

The actual job performance and related behaviors and characteristics of the ratee, in addition to the purpose or purposes of the rater's observation, influence the range of category possibilities and the initial categorization of the ratee. The initial category selected and the actual behaviors and characteristics of the ratee affect the observed behavior and characteristics of the ratee. These are assumed to be relatively automatic processes, following Feldman (1981) among others. The observed behavior and characteristics serve as the input to an information-processing complex comprised of attributional processes, judgmental heuristics, and trait information and schemata storage. It is presumed that specific behaviors are not likely to be stored (Carlston, 1980; Hastie & Kumar, 1979). The output from the information-processing complex is assessed for its goodness of fit with the typical attributes of the category prototype. If the fit is adequate, a performance judgment, appropriate to the format of the evaluation instrument, is made. If the fit is inadequate, two processes occur. An active (or controlled, following Feldman, 1981) search for additional information is begun and the initial categorization is questioned to determine if recategorization is warranted. These two processes continue until there is an adequate fit between the output of the information-processing complex and the category prototype. (The adequacy of the fit is probably not fixed but is variable and influenced by factors such as the purpose of the judgment and time and effort constraints placed on the rater.) When an adequate fit is obtained, then the judgment occurs. A performance judgment is presumed to be stored and, thus, influences later observation of behavior, information processing, and, consequently, future judgments (cf. Lingle & Ostrom, 1979).

SUMMARY AND IMPLICATIONS

The view presented in this chapter, and summarized in Figure 8.7, that performance evaluators process information concerning work performance based on category prototypes and that they use judgmental heuristics that often lead to biases and errors in decision making suggests a
different conception of the rater than has been (implicitly) held by most researchers of the rating process. The traditional view considered raters to be basically rational processors of information who needed only the proper rating instrument to produce psychometrically sound judgments. As we have discovered that there is no ideal rating instrument (see Chapter 4), we have also learned in this chapter that people do not tend to treat each person as an individual, recalling accurately the specific behaviors of each. Instead, we see that people attempt to simplify their cognitive load through the use of person categories, the storage of traits rather than behaviors, and the use of judgment heuristics, such as availability, representativeness, and anchoring. These simplifying strategies are used because much of the time they work well: The decisions or judgments are at least adequately accurate enough for the particular purpose. However, sometimes the strategies fail. A function of rater training probably should be to sensitize raters to these strategies and their limitations (cf. Einhorn & Hogarth, 1978).

Cooper (1981a, 1981b) has argued from a viewpoint similar to that taken in this chapter that halo in ratings is strongly influenced by cognitive distortions that support the development and maintenance of "illusory" theories that raters hold about how work performance dimensions covary. Cooper further argues that the elimination of these illusory covariation theories is difficult because of the same cognitive distortions. These distortions include the discounting of inconsistent information, the tendency to look for confirming but not disconfirming information, the failure to maintain and attend to accurate "hit" rates regarding the correctness of past judgments, and the relative cognitive ease of making judgments of "similar" rather than judgments of "different."

Cooper (1981b) has reviewed various techniques that have been tried to reduce halo and suggest that those techniques more consistent with the cognitive distortion perspective have been the more successful in reducing halo. These techniques include increasing the familiarity of the rater with the ratees, using multiple raters to "cancel" out idiosyncratic theories of illusory covariation, obtaining ratings or global aspects of work performance (that can be used to control statistically the effect of a general overall evaluative factor on the other more specific dimension ratings), and obtaining ratings on salient but performance irrelevant factors. Cooper also notes that the workshop method of rater training (e.g., Ivanchevich, 1979; Latham et al., 1975) has shown some success in reducing halo.

Feldman (1981) has suggested that we should determine what category systems successful (accurate) raters use and what their category pro-
n (implicitly) held by most of the raters is that needed only the proper sound judgments. As we did not tend to treat each specific behavior of each employee their cognitive load of traits rather than a, such as availability, representing strategies are used. Decisions or judgments are at particular purpose. However, for training probably should limitations (cf. Einhorn & viewpoint similar to that enthusiastic by cognitive and maintenance of “illu- lusion” performance dimensions of these illusory same cognitive distortions. Consistent information, the confirming information, the rates regarding the corrective case of making judgments different.” Questions that have been tried to more consistent with the more successful in reducing similarity of the raters with idiosyncratic theories of aspects of work performance. The effect of a general (dimension ratings), and irrelevant factors. Cooper & training (e.g., Ivancevich, success in reducing halo. I determine what category what their category pro-

totypes look like. Field research is needed to understand how categorical decisions are made and what determines the salience of information in organizational settings. Field studies should be augmented by laboratory research that can better control the situational factors that may confound results in the real-world settings. If successful, results from such research could be the basis for training raters in a particular organization in the use of appropriate categories and their prototypes.

The automatic nature of much of the processing of information makes the elimination of evaluation biases and errors difficult. We can probably partially alleviate some of these problems by reducing the memorial load on the rater through performance diaries, by encouraging and training raters in systematic observation and performance sampling techniques, and by giving raters feedback on the accuracy of their judgments whenever possible through comparisons with objective performance data or with other raters’ judgments (Feldman, 1981).

Not enough attention has been given in past research to the cognitive aspects of performance ratings. We trust that in the near future it will be possible to place a chapter such as this near the front of a book on work performance measurement rather than near the end!