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5 On Personality and Memory

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ON PERSONALITY AND MEMORY

Recent years have witnessed a dramatic increase in interest among both experimental and clinical psychologists in the relations between personality and cognitive processes. Within the domain of personality theory, for example, there has been a general disenchantment with earlier dynamic, trait, and situationist approaches to personality, accompanied by the emergence of an interactionist view that places principal stress on the individual's memories of the past, organization and perception of the present, and expectations for the future (Bowers, 1973; Kelly, 1955; Mischel, 1973, 1979). Cognitive interactionism in personality theory, once somewhat iconoclastic, is now thoroughly couched in the language of cognitive psychology. Thus it forms the conceptual basis for a new dynamic psychology that investigates the relations between personality and cognition. At the same time, the evolution of cognitive psychology from classical associationist learning theory to more recent accounts that underscore control processes and schema formation has led to a new emphasis on the importance of motivation, plans, and other characteristics of the individual perceiver, thinker, or rememberer (Mandler, 1975; Miller, Galanter, & Pribram, 1960; Neisser, 1967, 1976). Corresponding developments can be observed in clinical psychology, where strictly dynamic or behaviorist formulations have given way to a new cognitive therapy that stresses the influence of the patient's percepts, ideas, and memories on his or her clinical state (Beck, 1970; Mahoney, 1977; Meichenbaum, 1977).

In the past, most investigators of personality and cognition have emphasized individual differences in cognitive style, the "New Look" in perception, fantasy

in thematic apperception and daydreaming, the organization of personal constructs, and the development and utilization of self-control strategies. Except for the psychoanalytic tradition, however, relatively little systematic attention has been devoted to aspects of personality and the recollection of the past. The major objective of this essay is to review previous efforts to explore the relation between personality and memory, particularly episodic memory.

A PERSPECTIVE ON PERSONALITY AND MEMORY

At the outset, it seems important to spell out some assumptions that might guide empirical inquiry in this area. This is a little difficult because the place of personality within psychology is far from clear, and because cognitive interactionism within personality has not yet coalesced into a unified framework with a set of consensual constructs. Furthermore, memory theory is not a monolith, and there are many conceptual and methodological choices that an investigator must make. Finally, with few exceptions cognitive psychologists who study memory have not been centrally concerned with personality processes. Nevertheless, our research program, just beginning, is set against a backdrop of broad principles pertaining to personality, memory, and the relation between them.

The Domain of Personality

The field of personality is concerned with the distinctive patterns of thought, behavior, and experience that characterize a person's unique adjustment to his or her life situation. In principle, any personality theory must be a general psychological theory in which the knowledge gained from the study of physiological, cognitive, social, and developmental processes is synthesized into a comprehensive view of individual behavior and experience. The psychology of personality seeks to understand the joint operation of these processes from the point of view of the person involved, as he or she acts to understand, respond to, and change the physical and social world in which he or she lives. As noted earlier, the dominant theme in contemporary personality theory emphasizes the interaction of persons and situations. This chapter embraces a version of interactionism that emphasizes cognitive processes (Mischel, 1973, 1979) and reciprocal determinism (Bandura, 1974).

Traditionally, empirical inquiry within personality has focused on individual differences: their assessment, development, and impact on behavior and experience. This has led not only to the development of a sophisticated body of test theory (Cronbach & Meehl, 1955; Jackson, 1971; Wiggins, 1974) but also to a

preoccupation with determining the number and nature of the dimensions that comprise personality (Eysenck, 1977; Guilford, 1975) and to a running debate concerning the temporal stability of personality features and the relations between generalized dispositions and actual behavior in specific situations (Block, 1977; Epstein, 1979). However, personality has never been confined to the study of individual differences. Freud, for example, was much more interested in general constructs such as sexuality, aggression, anxiety, and defense than in population variance on the dimensions implied by these constructs. Recently, the domain of personality has expanded to include the study of a number of broad constructs including consciousness, emotional behavior, self-awareness and self-regulation, intrinsic motivation, impression formation, attributional processes, and implicit personality theory. In most of this work there has been little or no explicit concern with individual differences—yet these topics clearly belong in the domain of personality.

Throughout its history, personality has been divided into two content areas concerned, respectively, with structure and dynamics. These distinctions can still be valuable within the framework of cognitive interactionism. For example, rather than conceptualizing the structure of personality in terms of some exhaustive list of abilities and predispositions, it may be useful to identify it with the cognitive structures (schemata) that organize our knowledge of ourselves and the physical and social world within which we live. Similarly, rather than construing the dynamics of personality in terms of the opposing forces that drive and direct behavior, they should be identified with the cognitive processes by which we perceive and remember information pertaining to ourselves, other people, and the social world. Of course, a firm distinction between structural and dynamic factors in personality is untenable. Personality structures, like cognitive structures generally, are constantly subject to development and change through the processes of assimilation and accommodation. There may be nothing static in personality except our awareness of ourselves as the same individual from one moment and situation to another—and even self-consciousness seems subject to division (Hilgard, 1977).

Given this framework, we need not confine ourselves to the study of individual differences in memory functioning and their correlates. The study of general processes involved in social and personal memory is itself a prime topic within the psychology of personality. Of particular interest is the nature of generalized mental representations concerning the self, others, and social situations; the processes involved in encoding and retrieving memories for social events and personal experiences; and the manner in which these episodes are represented in the cognitive system. Indeed, even the general processes involved in attribution and impression, part of the procedural knowledge represented in the memory system (Hastie & Carlston, 1980), belong as much to the domain of personality as to social or cognitive psychology.

At some point, however, the personality psychologist must confront individual differences in social and personal memory and relate these to other features of the person and his or her life situation. Adopting a functionalist approach to this problem, a good starting place is the taxonomy of cognitive-social learning person variables offered by Mischel (1973). The set of cognitive competencies, for example, includes individual differences in attentional capacity and cognitive style that are closely related to memory. Also important are the encoding and retrieval strategies by which social and personal information is processed in the memory system. These strategies, in turn, are influenced by the individual's system of personal constructs, values, interests, and needs, and also by his or her response to perceived situational demands, as reflected in expectations and plans. It should be noted that these kinds of person variables include both relatively enduring and relatively transient features of the person. These features need not be represented in the individual's phenomenal awareness, although it is recognized that the documentation of unconscious mental contents is fraught with difficulty.

Principles of Memory Functioning

Within the domain of relatively permanent memories, Tulving (1972) has distinguished between those that are episodic and those that are semantic in character. Episodic memories have to do with personal experience and carry as essential components some reference to the self and to the spatiotemporal context in which the events occurred; semantic memories, by contrast, have to do with the facts of the world, the meanings of words, rules of language and inference, logical and mathematical operations, and highly overlearned skills. Contrary to Tulving's intentions, there is a tendency to think of these as separate memory systems, but careful consideration confirms that they are in fact closely related (Reed, 1979; Schonfield & Stones, 1979). The formation of episodic memories is based on information provided by the knowledge structures of semantic memory, in that perceptual representations are constructed and interpreted on the basis of what the person already knows. Semantic memories, in turn, emerge as related individual episodic memories accumulate: The spatiotemporal features that distinguish the episodes become blurred, yielding a highly generalized representation of them as a whole. Thus new knowledge structures evolve that can more easily absorb and interpret later, similar experiences. Some of this organized knowledge is highly relevant to personality: This is especially so for the knowledge structures pertaining to ourselves, others, and social situations (Epstein, 1973; Schneider, 1973).

In contemporary cognitive theory, episodic memory traces are commonly conceptualized as bundles of features or attributes that describe perceptual events (Bower, 1967; Tulving & Watkins, 1975; Underwood, 1969; Wickens, 1972). The list of potential memory attributes is very long; it includes modality of

experience, acoustic and visual recodings, frequency of occurrence, spatial and temporal relations with other stimuli, dictionary meaning, associative and categorical relationships with concepts in semantic memory, connotative meanings, and affective quality. In addition, stimuli are interpreted in the context of other distal and internal stimulus events, whose features are also encoded in this manner. In the present context, attributes such as connotative meaning, pleasantness, emotional valence, and aspects of the experiential context deserve particular attention. It should be clear that features of personality, including personal constructs, intentions, goals, motives, and emotions, can influence the interpretations given to perceptual events and that these aspects of the individual's state are themselves features of the experiential context in which the events took place. Thus, aspects of personality, by coloring the meaning given to an event and the context in which it takes place, help determine which features are available for encoding at the time of perception.

Equally important in current theory is the emphasis on control processes that guide the encoding and retrieval of memories (Anderson & Bower, 1972; Atkinson & Shiffrin, 1968; Craik & Lockhart, 1972; Tulving & Thomson, 1973). The exact nature of the memorial representation of an event is affected by random fluctuations and developmental changes in encoding processes, as well as by task demands on individual encoding strategies (Bach & Underwood, 1970; Bower, 1970; Underwood, 1965; Wickens, 1972). Additionally, the fate of the material over the retention interval will be a function of the extent to which it is elaborated within existing cognitive structures (Jacoby & Craik, 1979). Finally, the retrievability of an available memory trace will depend on the extent to which the cognitive structures that guide the retrieval attempt match the attributes that were encoded as features of the memory trace (Tulving & Thomson, 1973; Watkins & Tulving, 1975). Again, it should be clear that these control strategies can be biased to emphasize or avoid certain elements in the perceptual field or attributes of memories, depending on the relevance of features of the events and memories for the individual involved.

Although there is a tendency to talk about the processes involved in encoding and retrieval as if they entailed extracting information from the environment and recapturing memory traces, respectively, there is now some consensus that perceptual and memorial operations are better characterized as constructive and reconstructive activities, respectively (Bartlett, 1932; Jacoby & Craik, 1979; Jenkins, 1974; Neisser, 1967, 1976). It seems clear that the final product of memory operation is actively created on the basis of quite fragmentary trace information and is strongly influenced by the cognitive schemata that are active at the time. As a natural outcome of the subject's "effort after meaning," certain details may be omitted, transformed, or added in order to make the event fit with currently active schemata. Thus, again, salient features of personality have the opportunity to influence not only what is remembered, in the sense of encoding and retrieval, but also what shape the reconstructed memory will finally take.

APPROACHES TO THE STUDY OF PERSONALITY AND MEMORY

Interest in personality–memory interactions antedates the formal emergence of cognitive interactionism in personality. Ebbinghaus (1884), for example, invented the nonsense syllable precisely because he recognized that memory in the real world was affected by individual moods, motives, and interests. He wanted to begin by studying memory "in the raw," without having to account for these factors; it is unfortunate that succeeding generations of cognitive psychologists followed this program well past World War II, without going on to the second part of Ebbinghaus' agenda. Historically, of course, the first to concern themselves with the influence of personality processes on memory were those investigators allied with psychoanalysis especially Freud himself (1900, 1901, 1915) and Rapaport (1942). With the Gestalt psychologists the psychoanalysts rejected Ebbinghaus' notion that forgetting resulted from the decay or erosion of memory traces and asserted instead that memory was organized by, and expressive of, certain motives of the organism. In a different vein, Bartlett (1932) held that an important factor guiding the person's reconstruction of past experience was his or her attitude toward that experience. "Attitude" was construed quite broadly to include individual differences in motivation, affect, and interest patterns: "Here is the significance of the fact... that when a subject is being asked to remember, very often the first thing that emerges is something of the nature of attitude. The recall is then a construction, made largely on the basis of this attitude, and its general effect is that of a justification of the attitude [Bartlett, 1932, p. 207]." Adler (1937; Ansbacher, 1947), like Bartlett, emphasized the mutuality of personality and memory. In his view, personal recollections are selected to correspond with, and to express, the style of life adopted by the individual; furthermore, they served to maintain that life-style in the face of threat or pressure for change.

The major efforts to study personality and memory may be categorized into four approaches, which are to be thought of as fuzzy sets: studies of repression, individual differences related to verbal learning, person memory, and autobiographical memory. The following review is necessarily selective: There are many individual efforts within each approach that have been excluded from consideration for reasons of economy and clarity of presentation.

Repression

The key concept in the psychoanalytic view of forgetting is the notion of repression. Certain instinctual wishes related to sexuality and aggression, which conflict with the demands of the external physical and social world, give rise to the experience of anxiety. Ideas and memories associated with these instinctual

strivings are rendered unconscious by repression, thus relieving anxiety, and are allowed conscious expression again only after other defense mechanisms disguise their relation to the primitive instinct. The repression of memories, and their emergence into consciousness, is construed as a shift in "cathexis," or attention, away from or toward certain traces of past experience. Thus the psychoanalytic theory of memory anticipated contemporary information-processing theories by giving control processes a central role in memory function. By emphasizing the important influence of emotions on these control processes, it laid a foundation for the later study of interactions between personality and memory.

Within the domain of personality and memory, work on repression has the longest history (Erdelyi & Goldberg, 1979; Holmes, 1974; MacKinnon & Dukes, 1962; Rapaport, 1942; Zeller, 1950). It is also the least satisfactory, because of both conceptual ambiguities and methodological shortcomings. For Freud, repression acted upon percepts, ideas, and memories associated with primitive sexual and aggressive instincts and the primary source of evidence for it came from the analyst's interpretation of the free associations of individual patients. When the concept was operationalized for laboratory investigation, however, the target of repression was redefined to include almost anything threatening or unpleasant, especially unsuccessful or interrupted tasks (Holmes, 1974; Zeller, 1950). This line of research has been reviewed and rejected as evidence of repression by reviewers early and late, friendly and hostile: by Rapaport (1942) because it misinterpreted Freud's meaning of conflict, threat, and defense and by Holmes (1974) because the effects obtained could be interpreted in terms of *nondefensive* cognitive factors. At present, research on repression is caught in a double bind: Most members of the psychoanalytic community reject the experimental work as ill-conceived, irrelevant, and unnecessary; and most experimentalists are skeptical of psychosexual theory, clinical observation, and the interpretive method.

Recent restatements of the concept of repression, however, show how the selective processing of stimulus and trace attributes can be brought into the service of personality. For example, Mandler's (1975) interpretation of network theories of semantic memory holds that the attributes associated with conceptual nodes include personal and contextual meaning as well as dictionary meaning. When new information enters the cognitive system, it undergoes a meaning analysis in which its relation with concepts already present is established. Thus, by a process of generalization and discrimination a hierarchy of related nodes is developed in which each concept shares the meaning, including personal and contextual meaning, of some others. In Mandler's view of repression, a meaning analysis may operate so as to avoid concepts that are associated with conflict or anxiety; or a highly salient personal experience may sensitize the person to related information and color the meanings attached to it. Erdelyi and Goldberg

(1979) have recently proposed a similar information-processing account of repression. They begin with the assumption that information processing is selective and then assert that this selectivity, operative at all stages of processing, can be brought into the service of personality. Individuals can therefore limit the extent to which unpleasant or threatening new information is processed, so that the resulting memory traces are not encoded in easily accessible form, or individuals can limit search processes so as to circumvent the retrieval of this kind of information.

Thus, the presence of emotional and other connotative attributes of memory, coupled with the controlled selectivity of information processing, creates a theoretical context where a modified concept of repression is viable. A plausible redefinition of repression liberates it from Freudian psychosexual theory and holds that individuals are capable of defensively biasing information-processing functions so that threatening material available in both the perceptual field and memory is not represented in phenomenal awareness.

Memory for success and failure experiences has also been studied outside the psychoanalytic context (Butterfield, 1964; Weiner, 1966). An important source of this work is Gestalt theory, which held that memorial processes operated to distort trace information toward "good form": symmetry, regularity, simplicity, completeness and the like (Riley, 1962). The theory led to the prediction that traces of poor-form stimuli would be more memorable, at least over short intervals, because of the persisting mental activity involved in transforming them to good form. Interest in the role of personality in this process was stimulated by Zeigarnik's (1927) observation of individual differences in memory for interrupted or failed versus completed or successful tasks. In most subjects, retention favored the interrupted or uncompleted tasks, as predicted by the theory; for those subjects who perceived the task outcome as personally threatening, however, retention favored the completed or successful ones.

Discovery of the Zeigarnik effect and its reverse stimulated the interrupted-task research on repression discussed earlier, but selective memory in this paradigm has also been related to a number of other personality variables. For example, Atkinson (1953) found that subjects high in achievement motivation favored the recall of incompleted tasks, provided that the tasks were attempted in a context in which achievement motivation was aroused; Eriksen (1954) showed that subjects with high ego strength selectively recalled interrupted tasks under task-oriented conditions and completed tasks under self-oriented conditions. The measurement of selective recall in the task-interruption/failure paradigm is problematic (Pettinati & Evans, 1978), but the best evidence clearly indicates a general tendency for subjects to favor the recall of completed tasks or successful experiences. Recently, Matlin and Stang (1978) have compiled a number of demonstrations of the "Polyanna Principle" in cognition generally and memory in particular. Perhaps the most interesting contribution of the work is the suggestion that selectivity in recall varies as a function of both the personality charac-

teristics of the subject and the situational context in which the critical events occurred.

Individual Differences and Verbal Learning

A large number of studies relevant to personality and memory employ methods that are quite familiar because of their association with the conventional study of human learning and memory in the experimental laboratory. In principle, of course, one could take any garden-variety experimental task employed in human learning (memory span, memory for designs, paired-associate learning, free recall, story memory) and correlate task performance with individual differences in personality. Such a strategy has been explicitly proposed by Johnson (1974), and the large body of relevant research has been thoroughly reviewed (H. Eysenck, 1973; M. Eysenck, 1977; Goodenough, 1976; Johnson, 1974). Two independent lines of research are especially noteworthy: These have to do with cognitive style and arousal, respectively.

Cognitive styles represent characteristic ways of handling information that govern perception, memory, and the organization of thought. A large number of such styles have been suggested by various investigators, but only a few have been studied within the context of memory paradigms: changing-condensing (Gomulicki, 1956), importing-skeletonizing (Paul, 1959), leveling-sharpening (Holzman & Gardner, 1960), broad-narrow categorizing (Messick & Damarin, 1964; Messick & Fritzky, 1963), and field independence-dependence (Goodenough, 1976). Only field independence has been subject to more than occassional inquiry, and Goodenough's review reveals a complex set of findings. Field independence should lead subjects to impose organization on stimulus material, but there does not appear to be any consistent relation between this dimension and either paired-associate learning or free recall. In a similar manner, field independence should permit the subject to make finer discriminations among stimuli arrayed along a dimension, but there is no relation to transfer of training or stimulus generalization. Goodenough has summarized this literature as follows: "field-dependent and field-independent people differ more consistently in how the learning or memory process occurs than in how effective that process is [p. 688]."

Hullian learning theory asserted that high arousal could facilitate or inhibit the learning or reproduction of associations, depending on the level of response competition. A later development in arousal theory was Walker's (1958) concept of action decrement, which held that high levels of arousal at the time of input would produce a longer lasting memory trace, but at the expense of a stronger inhibition on immediate utilization. The relevance of personality lies in the attempt to induce arousal by means of an experimental manipulation of emotional state or by relying on preexisting individual differences in characteristic levels of arousal. Many investigators have followed H. Eysenck in assuming that high

scores on scales of introversion and neuroticism are associated, respectively, with high chronic levels of central and autonomic arousal. A large number of such studies (reviewed in H. Eysenck, 1973; M. Eysenck, 1977) appear to support the central predictions of Hull's and Walker's theories. M. Eysenck (1977) has recently provided a reinterpretation of the arousal-memory literature in terms more congruent with contemporary information-processing theories of cognition. He holds that high arousal restricts the number of attributes encoded as part of the memory trace and biases retrieval efforts toward the material most readily accessible in storage. The new theory accounts for the classic effects of arousal on learning and memory and also for some new findings: poor incidental learning among introverts and slower recall by introverts of items from difficult lists, for example.

There is a scattering of studies conducted in a similar vein relating other features of personality to memory-task performance (see Johnson, 1974, for a selective review). For example, curious subjects show better incidental memory than noncurious ones (Maw & Maw, 1961), but anal retentives have no better memories than anal expulsives (Fisher & Keen, 1972). Interestingly, there is relatively little work relating performance on memory tasks to individual differences in repression-sensitization (Bell & Byrne, 1978).

There are, however, several problems with this literature. The positive effects obtained are typically weak and unreliable, casting doubt on the whole enterprise, and there is little attempt to relate the laboratory findings to behavior. Johnson (1974) has pointed out another difficulty: These studies have only rarely been informed by the conceptual advances of contemporary cognitive psychology. He advocates that personality psychologists follow their cognitive colleagues in dividing memory storage into its sensory, primary, and secondary structures; subdividing secondary memory into episodic and semantic components; and distinguishing among the specific control processes involved in encoding memories, transferring them from one storage structure to another, and retrieving them. With this model of memory in mind, the investigator can go about the task of investigating the correlates of individual differences in the capacity of memory structures and in the operation of control processes within each stage of information processing. M. Eysenck (1977) has offered a similar program, emphasizing the effects of momentary arousal, introversion-extraversion, neuroticism, and intelligence on performance in primary and secondary, episodic, and semantic memory tasks.

Such an approach is certainly systematic, but the strategy presents certain difficulties from the point of view of both cognitive and personality psychology. For example, it has never been entirely clear how fruitful it is to compartmentalize memory into some number of storage structures (Craik & Lockhart, 1972; Melton, 1963; Tulving, 1968; Wickelgren, 1973), nor may it be as easy to separate the encoding and retrieval phases (Jacoby & Craik, 1979; Tulving & Thomson, 1973) or their substages (McClelland, 1979) as was once thought.

These ambiguities within cognitive psychology itself suggest that a task-oriented strategy may not, in the final analysis, fulfill its promise of theoretical richness. From the point of view of personality psychology, moreover, it is even clearer that this approach is fundamentally misguided. The goal is admirable enough: to study the influence of personality on memory, employing tasks that allow rigorous control over the conditions of acquisition, retention, and retrieval and that permit precise specification of the locus of the effects observed. However, the material involved is relatively inert, rarely ranging beyond the usual run of digits and nonsense syllables, word lists and banal prose passages, and geometric forms and unfamiliar faces. Equally important, the typical laboratory setting is quite sterile, not appreciably different from that employed in conventional studies of human learning and memory. There is no reason to think that personality processes will be particularly visible or influential under these circumstances.

Structural concepts, stage analysis, and an emphasis on control processes have undeniable heuristic value in the study of memory (Crowder, 1976) and have been very valuable in the investigation of individual differences in cognition (Hunt, Frost, & Lunneborg, 1973) or psychological dificit (Koh, 1978). However, it should be clear that, as far as personality and memory go, the topic of central interest should not be the relations between person variables and task variables in the abstract but rather those between person variables and the content of what is remembered and forgotten. Some of the approaches referred to in the foregoing implicitly recognize this, but on the whole the point is not often acted upon. A number of different kinds of experiments show how meaningful personality-memory interactions can be revealed within the context of conventional verbal-learning procedures, provided that the investigator selects appropriate stimulus materials or structures an appropriately involving context for encoding and retrieval.

For example, Wickens (1972) and his associates, examining release from proactive inhibition (RPI) in the Brown-Peterson paradigm, have found that subjects encode connotative meanings of words such as pleasantness, evaluation, and masculinity-femininity as well as denotative meanings such as category membership. There are substantial individual differences in the amount of RPI observed with shifts in connotative features. This suggests that some individuals are more sensitive to particular connotative meanings than others; alternatively, there may not be complete consensus as to the connotations of the words. Interestingly, a study by Kail and Levine (1976) showed that the extent of RPI observed when there is a shift between masculine and feminine attributes is related to the degree to which children identify with culturally prescribed sex-role stereotypes. Similarly, category clustering and subjective organization permit observation of the subject's encoding of stimulus attributes and his/her use of them to guide the retrieval and reconstruction of memories (Bower, 1970). In a study by Bousfield and Cohen (1956), women showed greater clustering of "feminine" words and men showed greater clustering of "masculine" words,

suggesting that sex-role orientation might influence the encoding and/or retrieval of relevant information. More recently, S. Bem (1980) has reported that clustering of "masculine" and "feminine" words is related to individual differences in sex-role orientation, at least for men. Thus, features of personality can exert an influence on the encoding and retrieval of relevant memories.

Another direction for this kind of research is exemplified by the work of Rogers, Kuiper, and their colleagues on self-reference in memory (see Rogers, this volume; Kuiper & Derry, this volume). These experiments involve conventional procedures for the study of verbal learning, with the exception that the critical material is a list of adjectives varying in the degree to which they describe individual subjects. When subjects were presented with a set of trait adjectives to study, Rogers (1977) found that those who were asked to decide if each item were self-descriptive showed better recognition than uninstructed subjects; a subsequent comparative study involving incidental learning indicated that items for which self-reference decisions were made were retained better than items processed in conventional orthographic, phonemic, and semantic conditions (Rogers, Kuiper, & Kirker, 1977). In another experiment, subjects who had previously studied a list of adjectives under conditions of a self-referent orienting task and who later received a surprise test of recognition memory gave more false positive decisions for self-descriptive distractors than for nondescriptive ones (Rogers, Rogers, & Kuiper, 1979). A later study (Kuiper & Rogers, 1979) compared self- and other-reference to orthographic, phonemic, and semantic orienting tasks, consistently finding superior recall under the person-oriented conditions. Although self- and other-reference did not consistently yield different levels of recall (Bower & Gilligan, 1979), there was evidence of a differential relation between recall and processing time in the two conditions. The results indicate that encoding information with respect to oneself or a familiar other yields a rich and elaborate memory trace. This approach is especially interesting because it does not classify subjects on nomothetic trait dimensions but rather employs idiographic techniques for the assessment of self-descriptions, thereby reducing the risk that individuals have been forced into slots where they do not fit.

A rather different paradigm for the study of personality and memory involves state-dependent retention (SDR), in which performance of a response is contingent on the presence of the same organismic state as that in which acquisition originally took place. Although most studies of human SDR have entailed drug-induced states (Eich, 1977), there is some suggestion in the literature of SDR effects due to changes in emotional state (Isen, Shalker, Clark, & Karp, 1978; Weingartner, Miller, & Murphy, 1977). Bower, Monteiro, and Gilligan (1978, Experiment 3) adapted the SDR paradigm to study the effects of emotional state on retroactive inhibition. Emotional state was manipulated by means of hypnotic suggestion. Memory for the original list was best when there was congruence between the states present at encoding and retrieval, especially when the interpolated list was studied in the different state. Research by Nasby (1980), conducted

entirely in the normal waking state, failed to find an effect of congruence between encoding and retrieval moods in a simple list-learning procedure. However, both encoding and retrieval were better for material whose affective connotations were consonant with the individual's mood at the time the operation was performed. These results indicate that mood is a contextual feature encoded as part of an episodic memory trace and that variations in emotional state at the time of processing can influence the accessibility of memories. Emotion-based SDR and similar effects are important because they should lead to a richer understanding of how affect is represented in the cognitive system (Zajonc, 1980).

Person Memory

The study of social cognition has enriched the literature of cognitive psychology by employing stimulus materials that bear a closer resemblance to "real-world" memory than the kinds of items that have been conventionally used in verbal-learning studies. In this way, it has helped address the issue of ecological validity by showing that the principles developed in the verbal-learning laboratory are generalizable to the encoding, organization, and retrieval of information about individuals and their actions in the social world. The work—whether or not it involves recognizable memory procedures—is highly relevant to the topic of this chapter because it reveals aspects of the nature and function of the knowledge structures that guide the encoding and retrieval of information about people (Hastie, Ostrom, Ebbesen, Wyer, Hamilton, & Carlston, 1980).

A large body of research has shown that information in semantic memory, including the declarative knowledge represented by implicit personality theory and the procedural knowledge represented by algorithms for impression formation, influence the way in which individuals are perceived and later remembered (Schneider, 1973; Schneider, Hastorf, & Ellsworth, 1979). Following Bartlett's (1932) emphasis on the role of prior knowledge and inference in perception and memory, these findings have often been summarized in terms of schematic principles (Taylor & Crocker, 1980). Much recent research has attempted to investigate the details of the structure and function of schemata in social cognition. For example, Cantor (1980; Cantor, Chap. 2, this volume; Cantor & Mischel, 1979) has argued that mental representations of social categories (persons and situations) are defined by prototypes with high convergent and discriminant cue validity. Hastie (1980a) has examined the effects of a prior personality impression in memory for specific behavioral information about a person, finding that both highly congruent and highly incongruent items are remembered better than irrelevant items. Elsewhere (Hastie, 1980b), he has argued that these findings are consistent with those in other domains of a curvilinear relation between schema congruence and memory.

Just as semantic memory contains generic information about the facts of the world, the meanings of words, the properties of common objects, and the attributes of specific individuals and wider social categories, so it must contain

generalized representations of oneself. Accordingly, a major effort has been devoted to the analysis of the structure and function of the self-concept as an aspect of semantic memory. The self has variously been construed as a node in a memory network with links to other nodes representing specific behavioral episodes and summary trait information (Bower & Gilligan, 1979; Markus & Smith, this volume) or as a prototype representing the characteristic attributes of the individual (see Chap. 8 by Rogers and Chap. 9 by Kuiper & Derry, this volume). What is clear is that the self is a cognitive structure that guides the processing of information in memory: New information is examined for self-reference and coded accordingly, and the self-schema can interact with the encoded attribute of self-reference (and other more specific attributes) to guide subsequent retrieval attempts. It remains to be seen if the schema for self is qualitatively different from schemata for others; and the details of the structure of the self-schema need to be specified more clearly. For example, assuming that the self is structured as a prototype, does that prototype represent the statistical average of the person's standings on all the dimensions in the personality space (Rosenberg & Sedlak, 1972; Wiggins, 1979) or the list of only those traits that are most representative of him or her (Markus, 1977)? Moreover, it is possible that the self is not a monolithic cognitive structure but that there are many "selves," and thus many self-schemata, corresponding to different roles or social situations, represented in the cognitive system.

To date, most investigations of person memory have been more concerned with the discovery of general principles than with the study of individual differences. However, a straightforward extension of this research examines the influence of personality factors—whether enduring or transient—on memory for the characteristics and actions of other people. Some indication of the possibilities here is given by recent studies of memory for information with direct self-relevance. For example, Mischel, Ebbesen, and Zeiss (1976) examined selective memory for the results of a battery of personality tests, as affected by individual differences in repression-sensitization, immediate past experiences, and expectations about the future. There was a general bias toward selective memory for personal assets as opposed to liabilities, but this effect was strongest when the subjects expected to succeed on a subsequent cognitive task. When there was no prior experience or expectation of the future, memory for assets and liabilities was related to characteristic tendencies toward repression or sensitization. The results of another experiment employing a similar procedure suggest that the effect is due to factors operating at the encoding rather than the retrieval stage of information processing (Mischel, Ebbesen, & Zeiss, 1973).

Other studies have investigated the influence of personality variables on memory for others. A series of studies by Bower and his colleagues, for example, has examined the effects of mood and expectations on person memory. Monteiro and Bower (1979) asked subjects to read a short narrative about two characters while in a state of hypnotically induced happiness or sadness; one of

the characters in the story was portrayed as happy, the other as sad. One day later, the subjects recalled the story in the normal waking state, with no attempted mood manipulation. Those who read the story while happy remembered more about the happy character, and those who read the story while sad remembered more about the sad one. In another study, Owens, Bower, and Black (1979) asked subjects to read an ambiguous text describing the events of a day in the life of a fictional character. Prior to this, some subjects read a short passage intended to bias their interpretations of the protagonist's motives. On a later memory test, recall favored the motive-relevant passage and showed intrusions and distortions consistent with the attributed motive.

Although these studies examined the influence of relatively transient variables, ongoing research by Kuiper, Markus, and their colleagues (Kuiper & Derry and Markus & Smith, this volume) has begun to study the influence of more stable features of personality (as represented by the self-concept) on the encoding and retrieval of information about others. These efforts foreshadow a renewed interest in the impact of personal constructs on person perception and person memory.

Autobiographical Memory

Concern for ecological validity in the study of memory, including personality–memory interactions, eventually must lead the investigator away from the laboratory and into the real world, exploring the individual's recollections of events and experiences that have transpired outside the laboratory. Although, in the past, cognitive psychologists have not been particularly concerned with direct inquiry into "real-world" memory (Bartlett, 1932; Meltzer, 1930; Neisser, 1978), there are presently definite trends in that direction—as witnessed by studies of memory for pleasure reading and prose or verse committed to memory in the course of everyday life (Neisser & Hupcey, 1974; Rubin, 1977), school classmates (Bahrick, Bahrick, & Wittlinger, 1975), public events (Squire & Slater, 1975; Warrington & Sanders, 1971), and eyewitness testimony (Hastie, Loftus, Penrod, & Winkler, 1980; Loftus, 1975). There is also an emerging literature on autobiographical memory (Linton, 1975, 1978; Robinson, 1976). This last topic is particularly interesting because even casual observations of ourselves and others suggest that autobiographical recollections are important aspects of personality. Indeed, what a person can and cannot remember, and the way in which personal experiences are reconstructed, may be more revealing of the individual's personality than the most sophisticated trait measure. Because so little is known about the remembering and forgetting of personal experiences, the topic provides a rare opportunity for cognitive and personality psychologists to make common cause.

Recently, Crovitz (Crovitz & Quina-Holland, 1976; Crovitz & Schiffman, 1974) and Robinson (1976) have introduced a method for the sampling of autobiographical memory based on observations by Sir Francis Galton. In the

paradigm, a word serves as a cue for the retrieval of a discrete personal experience related to it. The task is a very engaging one for subjects and yields memories spanning a wide range of ages, content, salience, detail, and emotional valence. The technique also reveals individual differences in response to particular cues, the content and salience of the memories so recovered, and the handling of emotion; these may be related to other personality variables. Suppose, for example, that a particular person is strongly disposed to behave in a certain way, has certain goals or expectations paramount at the moment, is in a particular emotional state, or routinely thinks about him/herself and others in particular terms. One might reasonably expect to see these individual differences reflected in the ease with which the person can gain access to memories of relevant personal experiences and in the manner in which these events are reconstructed in detail.

More than half a century ago, Washburn and her colleagues studied such effects with a procedure much like that employed by Crovitz and by Robinson (Baxter, Yamada, & Washburn, 1917; Morgan, Mull, & Washburn, 1919; Washburn, Giang, Ives, & Pollock, 1925; Washburn, Harding, Simmons, & Tomlinson, 1925). In some of these experiments the subjects were presented with a stimulus word and instructed to recall either a pleasant or an unpleasant experience associated with it; in other cases the subjects were asked to recall experiences in which specific emotional states were aroused; in other experiments, the subjects were uninstructed about what to recall but were asked to rate the pleasantness of the memories that emerged. Individual differences in the qualities of the memories obtained, and in the latencies between presentation of the probe and recovery of memories of various types, were found to be related to self-ratings and peer ratings of the subjects on such dimensions as optimism–pessimism, cheerfulness, and emotionality.

In a similar manner, Lloyd and Lishman (1975) found that clinically depressed patients retrieved memories of unpleasant experiences faster than those of pleasant experiences, whereas normals showed the opposite pattern. Teasdale and Fogarty (1979) confirmed these results with normals subjected to an experimental induction of depressed mood. A questionnaire study by Markus (1977, Experiment 1) indicates that individuals who define independence–dependence as an important part of their self-concepts are able to gain access to more memories of specific past experiences where they behaved in an independent or dependent manner than subjects who did not possess such self-schemata. These kinds of effects deserve further and more detailed exploration.

In the past, most research on autobiographical memory has focused on individuals' earliest recollection from childhood. There are, of course, good reasons for cognitive psychologists to be interested in early memories, inasmuch as the alleged "childhood amnesia" occurring around 5 to 7 years of age raises questions concerning the course of cognitive development (White & Pillemer, 1979). Interestingly, there is no convincing evidence from studies of humans that child-

hood amnesia is distinct from the ordinary forgetting that would occur in adults over a comparable period of time. An analogous phenomenon has been studied intensively in infrahuman species, however (Campbell & Spear, 1972; Spear, 1979), and this should serve to sustain our interest until the necessary research has been performed. But is there any reason for personality psychologists to be interested in this phenomenon?

Historically, the answer is "yes." Freud (1901) held that the poverty of childhood memories was due to the repression of preoedipal experiences and that the surface memories could be analyzed to reveal the latent primitive contents underlying them; Adler (1937; Ansbacher, 1947) held that the manifest content of early recollections represented the life-style (personality) of the individual. In addition to descriptive studies of early recollections (Dudycha & Dudycha, 1933a, 1933b, 1941; Waldfogel, 1948), there have been several attempts to investigate their personality correlates. Many of these research efforts have been hampered by the use of cumbersome coding schemes that attempt to cover the minutiae of psychoanalytic theory (Kramer, Ornstein, Whitman, & Baldridge, 1967; Langs, Rothenberg, Fishman, & Reiser, 1960; Mayman, 1968; Saul, Snyder, & Shepard, 1956). Somewhat more tractable have been the Adlerian attempts to relate surface features of these memories to general constructs such as anxiety and psychological security (Ansbacher, 1947; Mosak, 1969; Purcell, 1952).

New research on early recollections can proceed along a number of different lines. For example, the development of autobiographical memory would seem to be an important aspect of the emergence of the self-concept. Thus, cross-sectional and longitudinal studies are needed to document more convincingly the alleged poverty of childhood memory. Some measure of childhood amnesia would be expected on the basis of what is already known about memory development in childhood (Brown, 1975; Hagen, Jongeward, & Kail, 1975). However, Schachtel (1947) and Neisser (1962) have also suggested that the disruption in memory may be functionally tied to aspects of personality and social development, which entail radical changes in the schemata which guide cognitive activity. While viewing the problem from rather different vantage points, they both propose that the amnesia occurs because the adult schemata that provide the framework for retrieval and reconstruction efforts are incompatible with the encodings produced by the childlike schemata applied to the original episode. Thus we are led to view the phenomenon in a context encompassing both personality and cognitive change.

There are also individual differences in the quality of early memories that may repay examination. Some people have richly detailed, vivid, and involving memories; others have early recollections that are rather fragmentary, vague, and inert. Those of the latter type are strongly reminiscent of the "screen memories" described by Freud, and it would be interesting to relate them to neuroticism, anxiety, and other aspects of personality. Finally, a series of early recollections

can be treated as fantasy material, much like a story written to a TAT card, which can be coded objectively and then examined for thematic continuities within the corpus of the individual's early recollections or related to other person variables and individual behavioral styles.

Within the wider field of autobiographical memories, two further types seem particularly relevant to personality psychologists: "flashbulb" and "involuntary" memories. Flashbulb memories are particularly vivid, detailed memories of some personal experience: widely shared examples include one's memory for first hearing of the assassinations of John F. Kennedy and Martin Luther King, but it is also clear that each individual possesses some flashbulb memories that are quite idiosyncratic. Brown and Kulik (1977) conducted a survey of personal memory for salient news events and found that the occurrence of a flashbulb memory for any particular event was correlated with the "consequentiality" of that event for the person. One extension of this research would be to conduct a survey of individuals' flashbulb memories, for public or private events, and relate these to such personality factors as plans, goals, and interests. Involuntary memories, as described by Proust in *The Remembrance of Things Past* (see also Salaman, 1970), seem to come to the person unbidden. Often he or she can recognize the environmental cue involved, but what is interesting about these memories is that they occur spontaneously, without requiring deliberate attempts at retrieval and reconstruction on his or her part. These, then, are memories that are "waiting to happen." The events involved must have been particularly important at the time and may continue to be related to the person's life and self-concept.

SOME QUESTIONS ABOUT PERSONALITY AND MEMORY

Each of the approaches previously outlined is particularly suited for answering certain questions, and at this point it seems more appropriate to practice methodological pluralism than to become method-bound. With a set of methods in hand, then, it is time to turn to some broad issues that require attention.

Some of these issues have to do with the general processes by which social and personal information is represented and handled within the cognitive system. This includes "semantic memory" questions concerning the structure and organization of schemata pertaining to the self, other people, and social situations; of equal importance are "episodic memory" questions pertaining to the way in which recollections about particular people and experiences are encoded and retrieved. Both kinds of questions can be addressed by methods that are extensions of procedures already established in the study of cognition and memory. My laboratory has been particularly interested in memories for specific personal experiences, including events transpiring during hypnosis (Kihlstrom & Evans,

1979), the features of adults' earliest recollections of childhood (Kihlstrom & Harackiewicz, 1980), and the retrieval of autobiographical memories in general (Chew & Kihlstrom, 1980). We are also increasingly interested in exploring the phenomenon of childhood amnesia and the nature of generalized memory representations concerning the self.

Individual differences are a prominent feature of the material encountered in these experiments—in the ability to dissociate memories or otherwise control retrieval, in the availability of different types of memories, the amount of detail and vividness characteristic of them, and in their content and emotional valence. Memories related to certain topics, or associated with particular emotions, may be more salient to some individuals than to others. What is accessible in memory, and the manner in which these recollections are reconstructed, may be related to the individual's self-concept or other personal constructs, as well as to his or her emotional state, expecbations, and goals. It is not necessary to adopt a static, traitlike conception of personality in these studies. It is probably more rewarding to examine features of memory for personal experiences and other people as they are affected by changes in the individual's situation as he or she perceives it. Of particular interest are those changes in social and autobiographical memory that accompany personality development and therapeutic change. From a cognitive-interactionist point of view, both entail the emergence of fundamentally new ways of construing oneself and the social world; these changes in schemata should have consequences for the encoding, retrieval, and reconstruction of relevant memories. In any event, it is of course insufficient simply to show that some feature of memory is related to some feature of personality. It is crucial to attempt at least some inquiry into the details of the underlying process.

It also seems important to determine if the effect is to be conceptualized as a change in memory proper—in the accessibility of memories, or in the character of their reconstruction—or in terms of what the person is willing to bring to mind and report and how he or she is willing to think about it. There are at least two separate issues here—one having to do with the possibility of changes in conscious awareness of particular memories, the other having to do with the consequences of biased reconstruction. The first issue is related to the encoding specificity principle and the distinction between availability and accessibility, both familiar in the memory literature. Research on hypnotic amnesia and hyperamnesia is relevant here because it dramatically illustrates a division in consciousness affecting the ability of the person to recall voluntarily something that is available in the memory system (Hilgard, 1962, 1977; Kihlstrom, 1980). The dissociative processes so revealed may also be placed in the service of personality. Similarly, the phenomena of childhood amnesia and state-dependent retention suggest that the social categories and emotional states active at the time of recall may determine what a person is able to remember.

The second issue is closely related to the questions raised by Bartlett (1932) in his studies of repeated reproduction and by Loftus (1975) in her studies of

eyewitness testimony. Memories may remain accessible despite changes in particular personality variables, but their reconstruction may be altered markedly by the changed schemata. The consequences of reconstructive activity for later remembering are largely unknown. The reconstructed episode may not be preserved in the store of permanent memories or it may be encoded independent of the original trace; yet, again, the reconstruction may supplant the old trace entirely. Whether one or both (or more) versions of an event are available and accessible to recall will be an important factor in subsequent personality–memory interactions.

Finally, from the point of view of the personality psychologist, social and personal memory are mostly interesting for the contribution they make to the individual's ongoing behavior in the world. Clearly, one's perception of oneself, others, and social situations, as well as one's expectations concerning the outcomes of particular events and actions, will be determined in large part by his or her specific autobiographical memories and the generic social and personal knowledge that develops from them. In this way, the interaction of personality and memory will affect the individual's planning and execution of interpersonal behavior. Similarly, the availability of specific memories of particular events and acts may affect the person's response to role and situational demands on behavior, or evaluation of information that is apparently inconsistent with his or her expectations and self-concept. Of course, the person's emotional state, active schemata, cognitive style, and other personality characteristics themselves control the availability and accessibility of particular memories and the manner in which they are reconstructed at the time of their retrieval. And in the process of cognitive-behavioral therapeutic endeavors, memories that are consistent with the newly developed schemata may become more salient while inconsistent ones become less available. Finally, the percepts, corresponding behaviors, and their effects on the environment are encoded as new episodes in the cognitive system. Although their fate is ultimately determined by the vicissitudes of assimilation and accommodation, in principle they are available for reference in subsequent cognitive-behavioral episodes—thus completing the cycle of transactions that lie at the core of reciprocal determinism.

We do not possess answers to any of these questions yet, but we are now trying to go about the business of finding some answers. If most of these problems strike the reader as relevant to anyone interested in cognitive psychology, and not just cognitively oriented personality psychologists, this is intentional. The study of personality and memory draws on concepts and methods familiar in the study of cognition and memory generally. However, it is our firm hope that the questions raised from the point of view of personality, and the answers forthcoming from the research, will prove interesting and useful to cognitive psychologists as well. From our point of view, the goal of the enterprise is a comprehensive account of human behavior and experience, to which both cognitive and personality psychologists, as well as others, must make contributions.

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