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Refining Strategies for Research on Self-Representations in Emotional Disorders

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This article examines a number of conceptual and methodological issues relevant to the investigation of self-representations in emotional disorders, and suggests ways to refine this areas's research strategies. We first trace the influence of previous work in personality theory and cognitive sciences on cognitive models of clinical disorders, noting the central role of the schema contruct. Issues such as stimulus generation, subject selection, and the importance of priming cognitive structures before testing for their operation are highlighted as ways to access and capture the complexity of self-construal. In addition, schema conceptualizations and research are examined in light of ecological validity. We argue that schematic structures can be usefully compared to personal narratives which structure interpersonal experience. This view suggests that we move beyond the investigation of the way in which subjects process static stimuli and focus on how subjects process information about dynamic interpersonal events in which they themselves participate. Specific suggestions for research are provided.

KEY WORDS: schema; self-representation; cognition and emotional disorder; design issues.

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Concurrent with the growing interest in cognitive models of psychopathology has been the development of constructs seeking to explain the way in which individuals form representations of their daily world and how these representations influence their subsequent interactions. While a number of candidates have been examined (i.e., expectancies, attributions, or self-regulatory abilities), the construct most frequently utilized in this context has been the schema (e.g., depression: Beck, 1967; anxiety: Mathews & MacLeod, 1985; social skills: Merluzzi, Rudy, & Krejci, 1986; schizophrenia: Magaro, Johnson, & Boring, 1986; psychosomatic disorders: Toner, Garfinkel, Jeejeebhoy, Scher, Shulhan, & Di Gasbarro, 1990).

Schemata as commonly defined are pre-existing memory representations which are employed in a constructive fashion during retrieval, but also impose their own structure on new information (Alba & Hasher, 1985; Fiske & Linville, 1980; Neisser, 1976). As the construct has spread beyond its field of origin, its meaning has become compromised. In an effort to address this problem, and because definitional issues are often crucial to the conceptualization of any research paradigm, we endorse the set of criteria suggested by Williams and colleagues, (1988) for determining schematic operation: (a) a schema should have a consistent internal structure which is imposed upon the organization of new information; (2) the knowledge contained within the schema should be generic in nature, comprising abstracted representations of regularities in the individual's environment; and (3) the format in which this information is represented is akin to a package or module of generic information, such that activation of any one part will tend to produce activation of the whole (Williams *et al.*, 1988, pp. 154-155).

SCHEMATA IN CLINICAL DISORDERS

In their broadest sense, schemata in clinical disorders are cognitive structures that guide recall selectively and provide default information to fill in gaps in ongoing processing. People with emotional disorders are thought to rely on this type of information-handling mechanism to allow them to better anticipate negative features of their environment, or to establish default valves in advance so that they are able to retain a fragile sense of control. In this sense, cognitive models that utilize the schema construct to explain emotional disorder, characterize clients as less trustful or open to events as they unfold before them, but rather as relying more on routinized information processing to inform them about situations in advance. These theories recognize that we all rely on information-handling strategies to allow us to reduce the torrent of incoming data to a manageable stream, but that in the case of someone with a clinical disorder, these routines are less permeable to falsification and may be built upon propositions that are erroneous.

Explication of the nature of schemata in depression has been offered by Beck (1967, 1976) for whom schemata are cognitive structures whose elements reflect a consistent content related to loss, personal inadequacy, and futility. Schemata in anxiety disorders, on the other hand, are comprised of elements whose content reflects the imminence of harm and personal vulnerability (Ingram & Kendall, 1987; Mathew & MacLeod, 1985). Cognitive models of eating disorders, especially anorexia nervosa, point to the operation of schemata whose content reflects self-control, discipline, and thinness as a measure of self-worth (Bemis & Hollon, 1990, this issue).

One particular type of structure which many of those theories focus on is a schema about the self, typically described as an organization of information about who one is, and often who others want one to be, which is stored in long-term memory. The self-schema has been the focus of concerted measurement efforts, drawing on disparate methodologies to demonstrate the existence of a single coherent self-structure, considered subordinate to other schemata.

SELF-SCHEMATA IN CLINICAL DISORDERS

Stemming from earlier work in social and cognitive psychology, addressing itself to the notion that cognitive structures concerning the self develop out of individuals' attempts to explain their own behavior (Kihlstrom & Cantor, 1984; Markus, 1977; Rogers, 1981), clinical research on self-schemata has been provided with a multitude of measures to choose from for the purpose of assessing these constructs. Confirmatory data are offered in the form of findings demonstrating that judgements about the self, recall of self-relevant information, and ratings of self-referent information are performed more quickly and more efficiently than similar judgments or recall of semantic material (e.g., Davis & Unruh, 1981; Markus, 1979; Rogers, Kuiper, & Kirker, 1977) or information about others (e.g., Bradley & Mathews, 1983; Kuiper & MacDonald, 1982). These findings suggest that there exists in memory an extensive knowledge base about oneself which individuals draw upon to process emotional information in specific instances. What is still unknown is whether such organizations are specific to the pathological state (i.e., influence processing only while the individual suffers from the disorder), or if once formed, they persist into recovery and leave the individual at risk should circumstances conspire to enable their reactivation. While evidence in favor of both "state" (e.g., Dobson & Shaw, 1987; Miranda & Persons, 1988) and "trait" explanations (e.g., Teasdale & Dent, 1990; Williams & Nutly, 1986) can be cited, the question as to whether schematic processing differences merely reflect the effects of mood, rather than the operation of a cognitive structure, has yet to be conclusively resolved.

The picture that emerges from the accumulated research on self-schemata in clinical disorders (for a review of this work in depression, see Segal, 1988) is elemental: in the sense that differences between patients and controls tell us only about isolated features or elements that are salient for one group and not the other. When we learn, for example, that agoraphobics detect significantly more fear-relevant words presented to the unattended ear in a dichotic listening task (Burgess, Jones, Robertson, Radcliffe, & Emerson, 1981) or that depressed subjects take longer to arrive at negative self-judgements on an encoding task, while nondepressed subjects are quicker at positive self-judgments (Kuiper & MacDonald, 1982), we are only informed of the elements which may constitue the self-structure but have little understanding of the manner in which they are organized or the conditions under which this system may override ongoing information processing.

Just as no bald combination or linear addition of features from simple or complex cells can account for pattern recognition in the visual system (Hubel & Weisel, 1962), it is unlikely that current schema measures will reveal how individual elements or contents are integrated into the continuous stream of subjective appraisal. In order to develop measures capable of addressing this next level of complexity, we need to examine the problems with extant methodologies and consider the conceptualization from which they arise.

ISSUES RELATED TO CONCEPTUALIZATION AND METHODOLOGY

Current methods of self-schema assessment incorporate choice points regarding a number of important design features. These points relate to: (a) methods for priming cognitive structures; (b) selection of stimulus items; and (c) individual difference variables.

One of the most salient issues related to the self-schema conceptualization pertains to whether this construct will be primed before it is measured or whether no prime will be used. The priming notion is based on the idea that schematic processing may not occur unless the eliciting conditions are sufficiently powerful to activate the structure. This leaves us in the awkward position of being unable to clearly evaluate the results of studies in which self-schemata were measured, but no prime was used. In this case, negative findings could be due to the fact that subjects did indeed possess the relevant schemata but that they were not properly activated and hence the results do not necessarily demonstrate that a schema for the self does not exist. Similarly, positive results in the absence of priming may reflect the general accessibility of mood-congruent cognitive content which may mimic features of schematic infor-

mation processing. The priming issue is an important one to address, given that it also represents a serious threat to efforts at verification, since negative findings do not necessarily rule out the existence of schemata. It may be of value to develop criteria for judging future studies on self-schemata which are capable of determining the integrity of the findiings in light of a sufficient or consensually acceptable priming procedure.

Conceptualization is also germane to the type of stimulus items to which subjects are asked to respond. For the most part, subjects have relied on stimuli generated by the experimenter. This procedure, of course, requires that experimenters define the universe of items in the domain of interest and is at risk for limiting subjects' response capacity to the descriptions provided. Whether stimulus items are adjectives that have been previously rated by patients as being descriptive (Gotlib & Cane, 1987), or descriptors drawn from the general category of words thought to be relevant to a specific disorder (e.g., Burgess *et al.,* 1981), we are still imposing our understanding of subjects' phenomenology on the subject. Ideally subjects ought to be able to generate their own stimuli, yet such a procedure would probably prove unwieldy, given the need to standardize stimuli across experimental conditions as well as to prepare the individual items ahead of time so that they could be used in testing. Experimenters interested in the detection of fear-relevant stimuli in anxiety disorders would be hard-pressed to allow subjects to generate their own fear-relevant words and then convert these into color slides so that they could be used in a Stroop color-naming task, for example (Mathews & MacLeod, 1985).

Perhaps a compromise could be reached where a researcher generates a large pool of adjectives that subjects can examine and from which they can choose adjectives that are truly both self-relevant and fear-related (e.g., card sort or Q-sort methods). In this way the experimenter's task still constrains the individual to some degree, yet by having a large enough pool of available items the patient can identify those that are the most personally meaningful and have them included in the study protocol. It seems as though this issue will always involve a trade-off between the demands of experimental rigor expressed as a preference for nomothetic assessment vs. the desire to include stimuli that are maximally relevant and generated on the basis of idiographic assessment.

The next point involves the interaction of subject selection factors and self-schematic processing. A spreading activation model of semantic memory (Collins & Loftus, 1975) suggests that the activation thresholds of cognitive structures are determined in part by their past frequency of usage. In this sense patients who have suffered from depression more frequently in the past or who are in a current depressive episode of long duration may be thought of as possessing schemata that are more reactive than individuals who are

suffering from their first depressive episode, or who may only have been depressed for a few weeks. Evidence supporting this proposition comes from work by Hammen and co-workers (1986) who report that severity of depression influenced the nature of self-schema responding. Segal and Vella (1990 this issue) also found that the strength of the relatedness effect for schematic adjectives in their study using the Stroop color-naming task was stronger for depressed inpatients than it was for depressed outpatients. These findings suggest that severity or chronicity may be an important grouping variable in studies of self-schemata in depression (and possibly in other disorders). If this proves to be the case, then combining data from subjects with differing onset histories may lead to positive findings being washed out due to weak response rates in patients for whom activation of their dysfunctional cognitive structures has not persisted for very long.

An additional point regarding subject selection is that the probability of schematic activation can be enhanced by choosing subjects who possess personality characteristics thought to be conducive to the activation of schemata in certain risk situations (Segal, Shaw, & Vella, 1989). Zuroff and Mongrain (1987) and Hammen *et al.* (1985) used this stategy to investigate self-schematic responding following events that were both schema congruent and incongruent. In this case, a categorization schema based on previous work in depression suggesting the existence of two distinct personality clusters related to dependent and self-critical or perfectionistic behaviors (Beck, 1983; Blatt, 1974) was utilized. This research is noteworthy for emphasizing the interaction of cognitive and environmental variables and is more ecologically valid than paradigms which do not prime the self-schema in advance of testing. While these studies relied on naturally occurring events to serve as primes, it is equally possible to imagine a research paradigm in which individuals classified as either dependent or self-critical are exposed to an interpersonal or achievement-related prime in the laboratory. The effects of this prime could then be measured by examining the intrusion of emotionally related material on an information-processing task, such as Stroop color-naming or a dichotic listening task.

The value of this paradigm is that it allows for differential predictions regarding congruency between the prime and the interference effect. For example, dependent subjects who had been exposed to an interpersonal prime (e.g., interaction with a confederate in which they are rejected) and feel somewhat deflated or sad would be expected to show the intrusion of these effects on automatic information-processing tasks (e.g., as measured by increased interference on color-naming or increased acuity for detection of schema-relevant words). But equally inportant, dependent subjects would not be expected to show such effects following interaction with a confederate in a situation which stressed an achievement theme. The reverse pattern

of results might be expected to hold for subjects high on the self-critical grouping. This paradigm ought to enhance the probability of demonstrating schematic processing since an explicit attempt is made to match the eliciting condition to the particular cognitive organization of the subject.

ECOLOGICAL VALIDITY

A vital methodological issue needing to be addressed is the ecological validity of the tasks. One problem with many of these tasks is that their conceptualization of schemata stems from a need to satisfy pre-exising experimental requirements. These requirements end up defining the self-schema in terms of the stimuli used in the experiment. Personal adjectives, negative and positive words, and other discrete items serve as the elements from which schematic operation is both tested and understood to work from. Although this sort of laboratory research has the advantage of facilitating rigorous hypothesis testing by increasing experimental control, its relevance to important real world and clinical phenomena has been questioned (Neisser, 1976).

It is interesting to note that Bartlett (1932) initially developed schema theory in an attempt to increase the ecological validity of research in memory, believing that while traditional learning theory was adequate for purposes of dealing with material such as paired-associates, it was not adequate to account for the type of learning that allows people to process new experience. He proposed studying memory for narratives, in order to examine how people bring the past to bear upon the act of making sense of novel written material.

Since the mid 1970s the cognitive scientists have shown a great deal of interest in story grammars and story schemas (e.g., Mandler, 1978; Rumelhart, 1975; Thorndyke & Yekobich, 1980). This research generally assumes that stories have in common a basic underlying structure which is used to aid in comprehension. If parts of a story are missing, readers, even children, will use this structure to fill in the gaps. Mandler and Johnson (1977), for example, found that when subjects recalled stories they often "recalled" events that were not in the story, but that would be predicted by the structure of the story schema. Mandler (1978) asserts that the structure of story schemas are similar across cultures, and that they influence not only our recall of stories, but our encoding of them as well.

Script theory posits a similar structure to that of the story schema for our understanding of events. A script is a "predetermined, stereotyped sequence of actions that defines a well-known situation" (Schank & Abelson, 1977, p. 41). Like story schemas, scripts allow us to fill in details that may be missing, yet differ from schemas by being less abstract, less generalized,

and tied more specifically to a class of situations. For example, when I tell a friend about having been to a restaurant I do not need to explain all the details of entering the restaurant, being seated, reading the menu, etc., as my friend will assume that these details follow the standard script unless I explain otherwise. Scripts are formed through repeated exposure to well-structured events, allowing the creation of "standardized generalized episodes" (Schank & Abelson, 1977). Nelson and Greundel (1981) have discovered that children as young as three have scripts, or what they refer to as Generalized Event Representations, for a number of regular events, such as eating dinner and going to birthday parties.

While research on story schemas and scripts for typical situations (e.g., restaurant) is a step in the direction of ecological validity, there is an important feature of the type of schematic processing relevant to everyday life and to clinical situations which is missing. In real-life interactions the individual is a participant in the story that is processed. Thus, for example, an individual who views him or herself as unlovable may have a schematic representation of a repetitive story, or theme, in his or her life that confirms this unlovability.

The complexity of the situation is compounded by the fact that people interact with their environments in a fashion which tends to confirm their expectations (Carson, 1969; Kiesler, 1982; Safran, 1984; Wachtel, 1972). It would thus be important to have a model of schematic processing that allows us to understand the way in which people deal with real-life events in which they themselves participate.

One suggestion is that naratives that are relevant to psychopathology and psychotherapy research are a type of *personal narrative* in which the individual repeatedly participates in the same dysfunctional interpersonal pattern. From a more clinical perspective Luborsky (1984) has developed a methodology for assessing these recurring themes in clients' lives, which he refers to as *core conflictual relationship themes.* Within each theme can be identified a wish (e.g., "to assert myself"), a response from other (e.g., "they dominate me"), and a response from self (e.g., "I withdraw"). While Luborsky's (1984) approach focuses on the dysfunctional and redundant self-other interactions as perceived by clients, he is less interested in distinguishing between the perception of an event and the actual event that transpires, nor is he interested in clarifying the nature of the cognitive structure which plays a role in the core conflictual relationship theme.

In an attempt to clarify the nature of this type of structure, Safran (1986; 1990a, b) has proposed the notion of the *interpersonal schema.* An interpersonal schema is defined as a generic cognitive representation of self-other interactions and can be thought of as a cognitively oriented elaboration of Bowlby's (1969) internal working model concept. Bowlby (1969) hypothesizes that the infant develops an internal working model of self-other inter-

actions to facilitate the maintenance of proximity to attachment figures. Attachment theory postulates that there is a wired-in propensity for maintaining relatedness to others, and that this propensity plays an important role in the survival of the species. Thus, it would seem to be particularly adaptive to be able to encode past experience in a way that maximizes the probability of survival. Consistent with this reasoning, Bowlby (1969) hypothesizes that human beings develop internal working models representing interpersonal interaction relevant to attachment. In the language of cognitive psychology, this type of working model can be conceptualized as an *interpersonal schema* that is abstracted on the basis of interactions with attachment figures, and that permits the individual to predict interactions in a way that increases the probability of maintaining relatedness with these figures. This type of schema is a *generalized representation of self-other relationships,* rather than a representation of self or a representation of others. It is, thus, intrinsically interactional in nature.

Stern (1985) has proposed a concept very similar in nature to the interpersonal schema, in suggesting that infants develop generalized representation of self-other interactions by abstracting the critical features of a particular type of interactional event into a prototypical memory structure. For example, an infant may average together a number of episodes while he or she feeds at the mother's breast in order to come up with a generalized representation of this type of interaction.

An event prototype of this sort is then aggregated with similar prototypes of interaction with mother (e.g., the mother's response when the child is sad, the mother's response when the child is angry) in order to arrive at a higher level prototype of self-mother interactions. A schema at this level of abstraction would be equivalent to Bowlby's (1969) internal working model. In theory, schemata at this level of abstraction would then be aggregated into schemata at a higher level of abstraction to create schemata for a particular type of individual (e.g., a schema for interactions with women who have certain characteristics or men who have certain characteristics). It is thus hypothesized that individuals develop interpersonal schemata at different levels of abstraction that are hierarchically related (Safran, 1990a).

What are the contents of an interpersonal schema? It is hypothesized that an interpersonal schema may include images of specific interactions that have taken place relevant to a particular class of events as well as memory codings of one's own expressive motor and autonomic responses to those events. These interpersonal schemata are similar in structure to the type of emotion schemata described by Leventhal (1984). A schematic structure of this type would contain beliefs and expectations about other people (e.g., people are uncaring and rejecting), beliefs about the self (e.g., I am unlovable), and beliefs about the way one must be in order to maintain relatedness

(e.g., I must by strong at all times). These beliefs and expectations, however, would be *implicit* in the generalized representation of self-other interactions, rather than explicit. In other words it would be a type of procedural rather than declarative knowledge (Safran, 1988a). In theory, one would be able to reflect upon one's own habitual style and explicate his or her own implicit principles of operation. As in often evidenced in therapy, however, people are not always able to do this and, in fact, an important part of therapy often involves helping clients to do this (Safran, Segal, Vallis & Shaw, 1986).

ECOLOGICALLY VALID RESEARCH STRATEGIES

Nomothetic vs. Idiographic Research

The research stategies that will be discussed can be divided into two general types: nomothetic and idiographic. In order to conduct schema research at the nomothetic level it is first necessary to have hypotheses regarding the type of cognitive content that is characteristic of a particular criterion group.

Guidano and Liotti's (1983) attempt to describe the core cognitive structure associated with different disorders provides a good example of this type of starting point. Another example of a starting point for the generation of such hypotheses is provided by Millon's (1986) work on personality disorders. He has developed a three-dimensional framework for the important themes relevant to different personality disorders and in this context has articulated some very specific hypotheses about the types of expectations and coping styles associated with different personality disorders. Models of this type aid in developing hypotheses about the general types of personal narratives associated with different personality disorders.

In order to investigate such disorders it is important to target criterion groups that are cognitively homogeneous. One's definition of cognitive homogeneity, however, depends upon the level of analysis being employed. While many depressed clients may be cognitively homogeneous in that they have a negative view of the self, they may be cognitively heterogeneous with respect to the type of personal narratives we have been discussing.

Further information relevant to the identification of cognitively homogeneous criterion groups and the generation of hypotheses about the schema types associated with these groups can come from idiographic research. As we move beyond general descriptions of processing style toward a more detailed model of core cognitive structures, it becomes harder to make generalizations across subjects and idographic research becomes vital. This type of research requires the investigator to possess specific hypotheses about

the important schema for a particular individual which can then be used to generate predictions about the type of processing biases that are likely to occur for that individual. The validity of the general theory may then be evaluated through multiple replications with individual subjects (Chassan, 1979; Safran, Greenberg & Rice, 1988). An example of this type of intensive analysis research in cognitive psychology can be found in Newell and Simon's (1972) research on problem-solving. By focusing intensively on the problem-solving behavior of *specific* subjects in *specific* situations, they have been able to develop a general model of the fashion in which people solve problems.

Psychotherapy as a Naturalistic Laboratory

If we wish to investigate the processing of events in which people participate, it is important to use interactive tasks. If, however, subjects are participating in, and thus influencing these events, it becomes difficult to expose them to precisely the same stimuli. Thus, rather than creating a stimulus situation by staging an interaction, our first suggestion is to employ the psychotherapy situation as a naturalistic laboratory to assess the schematic processing of interpersonal events. Psychotherapy sessions can provide useful samples of clients' everyday processing and behavioral styles (Goldfried & Davison, 1976), and an important methodological advantage is that the investigator has a completely accurate record of interpersonal events transpiring in which the subject has participated. This record can serve as the criterion against which memory biases can be assessed.

An interesting methodological lead is provided by Neisser (1981) who used material from John Dean's trial to assess the schematic effects on memory in an ecologically valid fashion. By comparing his memory for events taking place in meetings with President Nixon around the Watergate affair against the criterion of actual transcripts of those meetings, Neisser was able to draw various inferences about the fashion in which Dean's memory had been biased.

While Neisser's conclusions were *post hoc* inferences, in theory it would be possible to make predictions about the memory biases that are likely to occur for a subject in advance and to then compare these to the biases that actually take place.

Following a psychotherapy session, for example, patients could be asked to write a short summary of the interactions occurring between themselves and the therapist during the session (e.g., 20 to 80 words; see Thorndyke and Yekobich, 1980, for decription of similar methodology in narrative schema research). These summaries would be divided into individual propositions that could then be evaluated by raters for their consistency with schema

types hypothesized to be characteristic of certain disorders (e.g., agoraphobia, obsessive-compulsive disorder). The first hypothesis to be evaluated would be that patients show *greater* recall for aspects of the interaction that are schema consistent. This would be accomplished by providing a team of independent raters with a list of the different schema types and instructing them to rate each proposition on a seven-point scale indicating its relevance to each schema. Assuming adequate inter-rater reliability, judges' ratings for each subject and every proposition would be averaged in order to arrive at an overall evaluation of the extent to which aspects of the interaction recalled by each subject were consistent with the schema type associated with their criterion group.

It is important to emphasize that the criterion groups should be formed on the basis of symptom clusters or diagnoses. This strategy reduces the likelihood of producing results that merely confirm group assignment. Although criterion groups could be formed on the basis of finer distinctions, such as Beck's (1983) sociotropic and autonomous subtypes of depression, researchers must be careful to hypothesize the coexistence of interpersonal themes that are sufficiently different from those that resulted in the original classification in order to avoid the tautological problems inherent in schema research.

Although the above procedure would provide some test of the hypothesis that subjects show better recall for aspects of the interaction that are schema consistent, the fact that subjects may also be shaping the interaction in a schema-consistent fashion constitutes an inevitable confound. Another procedure would have to be employed to test the hypothesis that subjects actually show *biased* recall of the interaction in a schema-consistent fashion. To accomplish this, two independent raters who are provided with transcripts of the entire psychotherapy session would be instructed to go over the list of session summaries provided by each patient and identify propositions which in their opinion are distortions or biases in the recall of events which actually took place. Only those propositions for which there is complete agreement between judges would be retained. A separate team of independent raters would then be provided with a list of the different schema types and instructed to rate each of the subsets of biased propositions for the extent to which it is consistent with each of the schema types. Assuming adequate inter-rater reliability, these ratings would be averaged across judges and across propositions for each subject, in order to arrive at an estimate of the extent to which each subject showed schema-consistent memory biases.

In addition to the type of nomothetic approach described above, idiographic research could be conducted using an adaptation of the type of methodology employed by Weiss *et al.,* (1987), to develop reliable formulations of patients' dysfunctional beliefs about interpersonal relationships, or what

they refer to as pathogenic beliefs. We will not discuss their methodology in detail hear. In brief, however, they employ two tems of raters. The first generates a list of possible formulations about the case. Some of these formulations are accurate while others are plausible, but inaccurate. Members of the second team are then provided with relevant clinical material and are required to discriminate the accurate formulations for the patient from among the false alternatives In this fashion inter-rater reliability is established between the two teams.

Once a methodology of this type has been adapted to develop reliable schema formulations for each subject, the methodology could parallel the nomothetic methodology described earlier. In the idiographic methodology, however, the individualized schema formulations for each patient would be employed as the criteria for evaluating schema consistent recall and memory biases. Since this is a single case-intensive analysis methodology, the study would have to be replicated over a number of cases in order to demonstrate generalizability (Chassan, 1979).

Questionnaire Research

Another possible format for determining the nature of interpersonal schemata involves assessing subjects' expectations about interpersonal responses that are likely to occur as a consequence of certain behaviors on their part. Inventory methods could be employed to examine whether clients with specific disorders show consistent differences in the type of interpersonal behaviors to which they expect negative responses. For example, Safran, Hill and Ford (1988), in a piolot study, developed an Interpersonal Schema Questionnaire (ISQ) that asks subjects what type of responses they would anticipate from three different significant others in response to sixteen different interpersonal behaviors that are sampled from Kiesler's circumplex model of interpersonal behavior. Subjects are instructed to indicate both the nature of the interpersonal responses they would expect (e.g., disappointed, resentful, respectful, warm) and how desirable these responses would be to them. The study found that subjects who were classified as highly symptomatic on the basis of the SCL-90 (Derogatis, 1977) were more likely to anticipate undesirable responses to a variety of different interpersonal behavioral than low symptomatic subjects.

In a follow-up study, Hill and Safran (1990) administered the ISQ to a sample of 216 college undergraduates, divided into high and low symptomatic groups on the basis of the SCL-90. They found that, collapsing across interpersonal situations, high symptomatic subjects expected responses that were significantly more undesirable than those expected by low symptomatic

subjects. Furthermore, high symptomatic subjects expected responses that were significantly less friendly, sociable, and trusting. Finally, high symptomatic subjects expected more complementary responses (i.e., hostile responses) to hostile acts than did low symptomatic subjects. In constrast, low symptomatic subjects expected more complementary responses (i.e., friendly responses) to friendly acts than did high symptomatic subjects. These data provide preliminary evidence that the ISQ may be useful in assessing subjects' generalized representations of self-other interactions. Further research will be required to replicate these findings and to evaluate the utility of the measure for such purposes as evaluating change and distinguishing between different criterion groups of interest.

Theory Guided Projectives

Our final suggestion for research involves the use of theory guided projectives to infer the contents of schemata interpersonal schema in both children and adults. In one study, Main *et al.* (1985) showed 6-year-old children pictures of children undergoing separations from their parents and asked them how they imagined these children would feel and act. They found that children who had been classified as securely attached through mother-child observational measures were more likely to imagine active ways of dealing with separations than were children who were classified as insecurely attached. These results were consistent with the hypothesis that securely attached children have working models of the attachment figure as accessible. In a similar fashion it would be possible to use projective stimuli that focus on salient themes, such as separation or the expression of anger, with adults. A collection of cards could be designed to represent an array of stimulus conditions. Diagnostic groups would be instructed to provide interpersonal stories to the subset of cards. The stories would then be coded for the presence/absence of common interpersonal themes such as rejection or abandoment. This technique could be employed to generate critical hypotheses about the interpersonal schemata and strategies for maintaining emotional contact with other associated with different diagnostic groups. This form of assessment could be employed as a more discovery-oriented approach to elaborate our hypotheses about the schema related themes associated with different criterion groups.

Summary

The focus on processing of interactional events and on the *personal narratives* that structure the individual's experience is consistent with a grow-

ing trend in cognitive psychology and in the field of personality. Recently, Jerome Bruner (1987) extended the analysis of stories to the analysis of life narratives, or autobiographies. Bruner starts with the proposition that we all construct our own life narratives, although we are limited by cultural, interpersonal, and linguistic forces. Eventually " the ways of telling and the ways of conceptualizing that go with narratives become so habitual that they finally become recipes for structuring expereince itself" (Bruner, 1987, p. 31). Sarbin (1986) has recently suggested that the narrative may be considered a root metaphor for understanding human behavior and experience. A recent special issue of *Journal of Personality* (McAdams & Ochberg, 1988) has been devoted to various approaches to employing the narrative in the study of personality, and recent psychoanalytic thinking attempts to understand the process of change as the restructuring of personal narratives (Schafer, 1981; Spence, 1982). Similarly, Russell and Vandenbroek (1988) have described a methodology originating in cognitive psychology for the investigation of changes in personal narratives over the course of therapy, and emphasize the role of such narratives in self-construal.

The current emphasis on the schematic processing of complex dynamic events and the metaphor of schema as personal narrative thus converges with developments in a number of subdisciplines of psychology. A number of research strategies stemming from this perspective have been outlined in a preliminary fashion. A considerable amount of work will be required to move beyond this preliminary "idea" stage to the formal development of a methodologically rigorous research strategy. We hope, however, that our suggestions will provide an encouragement to researchers to make this transition.

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