

# Assessment of Social Skills

by Robert Paul Liberman

## Abstract

Deficiencies in social skills, important in the functional adjustment and rehabilitation of persons with schizophrenia, derive from inadequate learning experiences, disuse, anxiety, cognitive disturbances, and amotivational states. Social skills training programs should be specifically organized to compensate for these varied sources of deficiency in interpersonal competence. Assessment of social skills deficits can proceed along topographical, functional, and information-processing lines. Assessment technology is in its early stages of development and will require attention to the psychometric properties and multidimensional focus of evaluative instruments.

Tom was first referred for psychiatric treatment at the age of 15 when his teachers noted that he remained totally aloof from his classmates, rocked in his chair and talked to himself. He responded to questions in a monotone and with monosyllabic answers. When relatives or nursing staff attempted to engage him in conversation, his rocking increased in speed, he bit into his fingers, and he destroyed his clothing and nearby furniture. He moved from one psychiatric hospital to another, deteriorating in his personal habits and social behavior.

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Jim had his first hospitalization after a year's service in the Peace Corps. His supervisors noticed growing depression, withdrawal, and suspiciousness in Jim and when he was examined by a psychiatrist, he verbalized delusions of being controlled by the CIA. After a 3-week hospitalization with neuroleptic drug therapy, Jim gradually recovered his friends

and returned to a job. His main complaints, during the next two years, were easy fatigability, depression, and dry mouth, a side effect of his maintenance neuroleptic drug therapy. He lived at home with his parents and participated actively in family, church, and social functions.

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Carl drifted in an apathetic life style for a year after his discharge for a florid schizophrenic episode with auditory hallucinations and incoherence. He spent his days lying on the sofa at home watching TV. If his sister did not wake him up and drive him to the day treatment center, he did not go. Shortly after meeting a girlfriend who was well organized and supportive, Carl found a part-time job, took an interest in his appearance, purchased new clothes, and began working out with weights. He moved out of his family home and found a roommate. For the first time in almost 2 years he seemed "alive," energetic, and goal-directed. This lasted about 2 months. In quick succession, he got the "flu," lost his job, broke up with his girlfriend, and grieved the accidental death of a friend. While agreeing to increase his dose of neuroleptic medication, Carl surreptitiously stopped taking it. Within a few weeks, he became psychotic and was rehospitalized.

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After three hospitalizations during a 2-year period for religious, persecutory, and grandiose delusions and tactile and visual hallucinations, Ted seemed to "pull together." He got a job as a mechanic, rented an apartment and found new friends. He reduced his contacts

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with his parents which had been stormy and marked by criticism and overinvolvement. When he lost his job because of an economic recession, he pounded the pavement until he found another one. When he and his father quarreled over his access to a \$2,500 bank account, they negotiated their differences with the help of a social worker until a satisfactory compromise was worked out. His neuroleptic medication was gradually reduced and then discontinued. Three years later, Ted has had no return of symptoms and is planning to marry.

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John was raised by his widowed father in a decrepit, cold water flat in a blighted area of the city. He was embarrassed to bring his school chums to his home because of its unpleasant atmosphere. While he tried to make friends, he found over the years that they tended to exploit him for favors and money with little reciprocity. At the age of 25 he began believing that he had a special mission and that his actions were being controlled by forces from outer space. He dropped out of his factory job and entered a psychiatric hospital where he was diagnosed as suffering from schizophrenia and treated with neuroleptic drugs. In the hospital, he rarely left his ward. His relationships with nursing staff were marked by extreme docility and dependency. He approached staff members only to have them satisfy some basic, personal need; for example, after 2 days of almost total self-isolation, he approached a nurse and asked her if she would sew a button on his shirt. He retired to bed early and pulled the bedclothes over his head, thereby effectively shutting out the world.

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Each of the above individuals experienced symptoms that are characteristic of schizophrenia and each received the diagnosis of

schizophrenia during their hospitalizations. Yet, they are more different than similar in their adaptation to their worlds and in the course and outcome of their illnesses. While biological vulnerability, central nervous system dysfunction, and responsiveness to neuroleptic medication are presumed to influence interindividual variability in schizophrenia, another source of variability likely stems from the social skills possessed by individuals suffering from schizophrenia before, during, and after periods of psychotic decompensation. Admittedly, the evidence pointing toward a relationship between social skills and course of schizophrenia is largely indirect, inconclusive, correlational, and based upon retrospective analyses; however, for heuristic reasons we will assume that social skills do exert a significant influence on the onset, prognosis, course, and outcome of schizophrenia (Lieberman et al. 1980).

### What Are Social Skills?

Before reviewing the ways in which social skills have been operationalized and assessed, it is necessary to outline a conceptual framework for understanding what is meant by social skills. Social skills refer to the everyday conversations, encounters, and relationships that people have with each other. Social skills include the ability to give and obtain information, and to express and exchange attitudes, opinions, and feelings. Thus, a major function of social skills is to subserve interpersonal interactions. Social skills refer to the nature and function of communication between people.

Behavioral scientists have dichotomized social communication into two major spheres, based upon the interpersonal needs served (Bennis et al. 1964). One sphere is the *instrumental*, where social interaction serves to gain tangible ends that are required for physical, material, and financial well-being. Instrumental relationships have as their function the performance of tasks and the achievement of productive goals. Work and service relationships primarily subserve instrumental role needs. Such interpersonal relationships as boss-employee, conductor-violinist, clerk-customer, agent-client, and doctor-patient serve instrumental goals. Even within families, portions of the relationship between spouses or between parents and offspring serve instrumental role purposes—for example, when spouses discuss the division of labor in carrying out household maintenance tasks. The nature and quality of any interpersonal relationship affect and are affected by the attainment of goals and completion of tasks, but the goals and tasks are the central concerns governing instrumental interactions.

Examples of instrumental situations are:

- purchasing an item in a store;
- asking for directions for a bus trip;
- requesting a job promotion or salary raise;
- complaining about side effects from a drug and asking for amelioration from one's physician;
- giving information about work experiences at a job interview;

inquiring about an apartment for rent;

talking with a social worker about social security benefits.

Instrumental situations require interpersonal communication of varying degrees of complexity, intimacy, duration, and frequency. Some situations can be managed with a single, brief question while others may require repeated interactions, some with great intensity of expression, over a long period of time.

The second sphere that encompasses human interaction is the *social-emotional* one. In social-emotional situations, individuals are not aiming to acquire information or tangible gains that will improve their physical or economic well-being, but rather are aiming to meet their affiliative needs through making acquaintances, conversing with friends and relatives, exchanging emotions and experiences with intimates, and interacting with members of their immediate household. A social-emotional relationship is formed solely for the purpose of fulfilling itself—such as love, marriage, or friendship. The transactions in such relationships are information, opinions, and feelings that are not necessarily aimed at accomplishing some tangible goal. Social-emotional interactions deal with expressions of love, hate, ambivalence, alienation, sadness, happiness, joy, and wishes.

Examples of social-emotional situations are:

asking one's spouse how he/she feels;

disciplining one's child;

greeting a friend with a hug and a smile;

complaining to one's spouse about feeling tired or ill;

going to a show with a friend;

asking one's neighbor who he/she will vote for;

exchanging comments with an acquaintance about the weather or sports.

The major targets or goals of social-emotional situations are to acquire, make more intimate, and maintain friendships and family relationships.

Obviously some interpersonal interactions subserve both instrumental and social-emotional functions, such as when a father praises his child for carrying out a chore or errand. It is not the interpersonal "other" that defines the nature of the interaction, but rather the primary function of the specific interaction for the individuals concerned. In some situations, one person is obtaining gratification of instrumental needs while the other person is obtaining social-emotional satisfaction. This can occur when a person agrees to drive a neighbor to the hospital on an emergency and receives thanks and gratitude in return. The driver has succeeded in strengthening the friendship ties with his/her neighbor (social-emotional needs) and the neighbor has obtained needed medical care (instrumental needs). The family, in previous generations and in more traditional societies, satisfied both instrumental and social-emotional needs. In recent years, however, the family has satisfied fewer instrumental needs since geographical and social mobility as well as other institutions have preempted the work and economic functions of the family.

In summary, we can divide most if not all of interpersonal interactions into the instrumental and social-emotional categories according to the functions or human goals they subserve. This is an important distinction to make since it affects the way in which social skills are to be assessed and trained. We will now take another step toward defining social skills by developing categorical ways of viewing interpersonal interaction. Each of these viewpoints can be used for evaluating instrumental and social-emotional situations. The conceptual categories of social skill are (1) topographical, (2) functional, and (3) information processing. These three categories are not mutually exclusive but, rather, provide concurrent, multidimensional ways of objectifying the abstract concept, social skills. Each dimension or category, by itself, has limitations of validity.

### Topographical View of Social Skills

John appeared disheveled and stooped over with his shoulders hunched together. He rarely made eye contact, except furtively. He greeted others reluctantly with a limp handshake, and answered questions as often with a grunt or nod as with words. The content of his conversation was liberally sprinkled with negative self-references and pessimistic expressions of hopelessness for the future. The nursing staff could not remember the last time they observed him smile.

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The topography of social skills includes the verbal content and nonverbal elements in person-to-person communication. Colloquially we are familiar with the im-

portance of verbal content in making assessments of a person's social competence since we designate socially skillful individuals as "articulate" and "verbal." In the verbal dimension we are concerned with the individual's choice of words and phrases in the communication effort. For example, the individual who can put his feelings into words, rather than "act out" his feelings, is considered more socially appropriate and competent. Some clinicians have observed that psychosomatic patients have great difficulty in being aware of and expressing their feelings and have labeled this deficiency, "alexithymia."

The verbal and semantic components of communication have been operationalized in a variety of ways, primarily on the basis of face validity and ad hoc assumptions about what is considered "socially skillful." Individuals who refuse to comply with unreasonable requests and who initiate requests for changes in others' behavior to gain a desired goal have been viewed as more socially skilled than individuals who show compliance and passivity. Offering praise and appreciation when it is deserved in an interaction—such as saying "thank you" when complimented—is considered a sign of social skill from the topographical point of view.

In addition to the verbal content of speech and how words and phrases are related semantically, the topographical definition of social skills also includes the paralinguistic or nonverbal elements of communication. These have been studied extensively by social psychologists, ethologists, and communication theorists and include many components of inter-

active style that give connotative meaning to what is being said. For illustrative purposes, these paralinguistic and nonverbal elements are listed in table 1, together with normative indications for their being considered socially skillful. Comparative studies have found that some of these nonverbal elements are abnormally excessive or deficient in schizophrenics and other chronic mental patients when compared with normals (Eisler et al. 1975; Hersen et al. 1978). Similarly, patients who received social skills training significantly improved their performance of the nonverbal behaviors that were targeted for training and showed higher levels of performance than patients who did not receive training (Goldsmith and McFall 1975; Bellack et al. 1976).

However, the molecular, topographical approach to defining social skills is beset by questions about its validity. As pointed out by Bellack (1979, p. 169):

it is not at all clear which components are worth assessing. The customary target behaviors have been selected on the basis of face validity and of the voluminous social psychology literature on interpersonal behavior. The tenuous nature of face validity is self-evident . . . and much of the

social psychology literature is based on a laboratory model in which specific response components are studied in isolation, out of the normal context and combinations in which they occur. While eye contact, voice volume, or hand gestures might be important when all other aspects of interactive behavior are held equal, interactions in the real world are rarely so simple or clearly differentiated. . . .

In addition, a number of studies have failed to establish the external validity of these molecular, topographical components of social skills. For example, while the global ratings of social skill of chronic psychiatric patients in group therapy and structured interviews were moderately correlated, there was little relationship between these two evaluation situations and the molecular verbal and nonverbal components displayed by the same patients in role play situations (Bellack et al. 1979). In a followup to this study, Bellack (1979) found little relationship between molecular behaviors rated in role-playing exercises and other measures of interpersonal behavior rated during naturalistic interactions. While the overall contribution made by topographical research on social skills is suggestive, its cumulative impact is not

**Table 1. Paralinguistic and nonverbal elements**

Nonverbal elements	Indicative of "social skill"
Duration of verbal response	Longer duration
Latency of verbal response	Shorter latency
Dysfluencies and pauses in speech	Fewer speech disruptions
Smiling and facial expression	More smiling
Loudness of speech	Louder speech
Intonation of speech	More accents and variation in tone
Eye contact	Greater eye contact
Posture	Mobile and open posture
Hand gestures	More appropriate gestures

yet sufficient to establish the criterion validity of these molecular verbal and nonverbal components.

### Functional View of Social Skills

When John was offered vocational rehabilitation counseling, he appeared uninterested and had to be escorted to the sessions. While he had considerable savings in his bank account, he repeatedly forgot to get to the bank in time and resorted to "begging" other patients and staff for cigarettes and other personal needs. He did, however, assert his desires to meet with his psychiatrist and would engage the latter in long discussions about trying different drugs or combinations of drugs.

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An alternative view of social skills begins with the assumption that attainment of instrumental and social-emotional goals reflects competence and adaptation. Individuals who can satisfy their material and physical needs through instrumental role functioning are considered socially skilled. Similarly, individuals who can meet their needs for conversation, companionship, nurturance, and affection through friendships and family relationships are considered socially skilled. Thus, the ability to return an item of defective merchandise with a refund or the ability to obtain a job in a competitive employment situation would be considered instrumental social skills. The ability to acquire friends and maintain intimacy over time would be considered indicators of social-emotional skills. A caveat in this view is that such instrumental and social-emotional needs and goals must be met without

violating the rights and needs of others. For example, a nursery school child who monopolizes teacher time and toys, at the expense of peers, cannot be considered "socially skilled" despite temporarily achieving goals.

The functional definition of social skills focuses on the outcome of the interaction between "actor" and "respondent," as reflected in the achievement of the "actor's" instrumental and social-emotional goals. Achievement of goals, however, is often dependent upon the attitudes, feelings, and needs of the "respondent," particularly in reaction to the "actor." This consideration of the two-way, interactive framework of social skills is implicit in definitions of social skill that have been offered by workers in the field.

Social skill is the ability to elicit social reinforcement from others. [Doty 1975, p. 679]

Social skill is the ability to maximize the strength of punishment from others. [Libet and Lewinsohn 1973, p. 311]

The likelihood of achieving one's goals is markedly enhanced if the individual grasps and makes use of generally accepted social norms and expectations. The reactions and readiness of others to respond favorably (i.e., to give positive reinforcement) to an individual will depend in large measure on the individual's ability to "read" the social context accurately. Here is where the *timing* of a social initiative is important. For example, in one study of male college students who rated themselves as heterosocially anxious or nonanxious, both groups supplied an equal number of positive statements to a female confederate, but the nonanxious students were

more proficient in their timing of positive feedback. The absolute quantity or quality of verbal and nonverbal responses may be less important than when the responses are made. Two individuals who use identical styles for entering into an established conversational group may have differing success depending upon the timing of their entry. Attention must be paid to the interactive sequencing of verbal and nonverbal communications, such as by analyzing the conditional probability of responses given different antecedents and contexts.

The importance of familiarity with the "rules of the game," together with topographical and functional aspects in determining social skill, can be highlighted by a transcultural example. In the United States or Western Europe, a relative in mourning at a funeral would be considered deficient in emotional skills for failing to exhibit signs of grief and sadness. On the other hand, in Japan, a mourner who cried in public at a funeral would be considered *gauche* and inappropriate—the time and place to grieve for Japanese is in the privacy of the home with only the immediate family present. In every culture there are rules governing social behavior in most common situations. In a similar vein, bodily contact between friendly males is commonly accepted and valued in Arab and African cultures, but would be viewed as an indicator of sexual intimacy in Northern Europe or the United States. Barker and Wright (1955) found that in a town in Kansas there were over 800 standard "behavior settings"—going to church, interacting in the drug store, conversing on the

street—with each of these settings having its own rules for social conduct. People are not ordinarily consciously aware of these rules; that is, the rules often remain implicit and are sensed mainly when violations occur in their adherence.

The inclusion of the *reactions of others* and the *social norms* in an expanded conceptualization of social skills that also takes into account the *topographical* and *goal-attainment* or *functional* views is illustrated by two of the most comprehensive definitions of social skills:

[Social skill is the ability to] express both positive and negative feelings in the interpersonal context without suffering consequent loss of social reinforcement. Such skill is demonstrated in a large variety of interpersonal contexts and involves the coordinated delivery of appropriate verbal and nonverbal responses. In addition, the socially skilled individual is attuned to the realities of the situation and is aware when he is likely to be reinforced for his effort. [Hersen and Bellack 1977, p. 512]

[Social skill is the ability] to understand other people's use of elements of expression . . . convey impressions through appropriate verbal and nonverbal behaviors . . . to affect behaviors and feelings of others in ways the person intends and which are socially acceptable . . . to influence the environment sufficiently to attain basic personal goals. [Trower, Bryant, and Argyle 1978, p. 2]

Particularly important for chronic mental patients is the accurate perception of social situations which enable them to respond appropriately. Inappropriate affect and behavior are perhaps the prime reason for the alienation

and stigmatization of the chronic mental patient. In part, these deficiencies result from long years of institutionalization during which the norms of the hospital, where "crazy behavior" is expected, supplant the norms of society. Among the social-emotional situations that cause problems for schizophrenics and other chronic patients is the arena of self-disclosure. Many patients, conditioned by the expectations for open revelations of symptoms and distress in psychiatric settings, inappropriately generalize these expectations to the community. Self-disclosure is an important verbal skill in the acquiring and deepening of friendships; however, if the timing and context are poorly appreciated, premature and excessive self-disclosure may lead to rejection by others.

### Information-Processing View of Social Skills

John claimed that treatment staff members at the psychiatric hospital were angry with him, despite their persistent efforts to reach out to him supportively. He misperceived potential acquaintances as rejecting him, when actually most people were indifferent to him because of his passivity. He had great difficulty thinking of any alternatives for spending his weekend leisure time, and usually ended up sitting at home alone. At one point he asked the social worker if she could find him a board-and-care home to which he could be discharged. She arranged for him to have an interview at one place and emphasized the importance of his looking his best. When she arrived, his hair and pants were dirty and there was no time to clean up. They went to the interview and John was told by the manager of the home to "think it over and call back if in-

terested." A week later, John told the social worker that he had misplaced the phone number of the home but still wanted to move there. When the social worker asked him what he could do about the situation, John was at a loss for words. When she gave him the phone number and a coin to make the phone call, he insisted that the operator of the home would be angry if he called and that his only option was to stay in the hospital.

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Building on the topographical and functional definitions described above, researchers have added an information-processing and problem-solving view to produce an overarching approach to social skills that has particular relevance to the schizophrenic because of its emphasis on cognitive functions. Guilford (1967) proposed that social skills involved several elements of "behavioral cognition." Based on the results of a factor analysis of several tests of social intelligence and verbal comprehension, Hoepfner and O'Sullivan (1968) identified six orthogonal factors of behavioral cognition that were independent of verbal comprehension. These factors included abilities such as the correct recognition of gestures and postures as expressions of thoughts and feelings; resolving contradictory information received from two modes of expression; comprehending a sequence of social events; and predicting the consequences of a social situation. General intelligence did seem to be a moderator variable in the sense that individuals who had high intelligence test scores generally had high behavioral cognition scores, while individuals with low intelligence test scores had either

high or low behavioral cognition scores.

Spivack, Platt, and Shure (1976) defined social skills as "interpersonal, cognitive problem-solving skills." They identified six skills: problem recognition, means-ends thinking, alternative thinking, causal thinking, perspective taking, and consequential thinking. In a series of studies, they found that psychiatric patients generate fewer means to achieve a goal than do normals. Within a group of 190 psychiatric patients, poorer problem-solving skills were associated with high scores on the Sc and Pa scales of the Minnesota Multiphasic Personality Inventory (MMPI), and poorer premorbid social competence. However, patients did not differ from normals in the ability to recognize correct solutions to interpersonal problems.

Trower, Bryant, and Argyle (1978) developed a comprehensive information-processing model to describe socially skilled behavior. First, they hypothesized that social behavior is initiated and maintained by an overall goal with a set of subgoals, united by a plan of action. To implement this plan of action, the "actor" must first perceive the relevant characteristics of the interpersonal situations, translate these perceptions into possible courses of action, decide which course of action is best, and then implement the chosen action through a series of discrete motor responses. Feedback from the environment begins this process again. Based on this model, Trower, Bryant, and Argyle (1978) constructed 51 exercises to teach patients observation skills, listening skills, and speaking skills.

At the Camarillo/UCLA Mental Health Clinical Research Center for the Study of Schizophrenia, a research group led by C.J. Wallace independently developed a similar information-processing model of socially skilled behavior (Wallace 1978; Wallace et al. 1978, 1980). They theorized that a socially skilled response is the end result of a chain of behaviors that begins with accurate "reception" of relevant interpersonal stimuli, moves to flexible "processing" of these

stimuli to generate and evaluate possible response options from which the correct one is chosen, and ends with appropriate "sending" of the chosen option. Based on a survey of the literature on interpersonal problem-solving skills, they identified a set of potentially important variables for "receiving," "processing," and "sending" functions. These variables and their employment in assessment and training of social skills are shown in table 2.

**Table 2. "Receiving," "processing," and "sending" variables in an information-processing conceptualization of social skills assessment and training**

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**"Receiving" phase**

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**Assessment**

Who is in the scene?  
Where is the situation?  
What was said by the others in the scene?  
Who wants what from whom?  
Which emotions were expressed?

**Training**

Focus attention and use attentional exercises  
Prompt correct answers  
Model correct answers  
Reinforce correct answers

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**"Processing" phase**

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**Assessment**

Define goals, rights, and responsibilities  
Generate response alternatives  
Anticipate and evaluate consequences  
Choose a response

**Training**

Adopt a "problem-solving set"  
Prompt, model, and reinforce problem-solving strategies  
Practice problem-solving through exercises

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**"Sending" phase**

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**Assessment**

Verbal content  
Nonverbal components  
Timing and context  
Reciprocity

**Training**

Behavioral rehearsal  
Modeling  
Prompting and cueing  
Positive feedback  
Self-instructions and self-reinforcement  
Practice in vivo

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## Methods of Assessing Social Skills

The behavioral and social learning approaches to clinical problems, such as social skills deficits, emphasize a fundamental *integration of assessment with therapeutic or educational efforts*, and a *multilevel* or *multimethod* approach to assessment. Intrinsic to behavioral therapy and training approaches is ongoing evaluation of progress, which then provides a feedback loop back to the clinician. The behavioral assessment strategy is to employ multilevel and multimodal measures that tap the subjective experience of the patient (affect, cognition, imagery, sensation), the observable behavior of the patient (verbal and nonverbal responses), and in some cases the physiological or biological level (electrodermal response, electromyographic response, hormonal levels). In the field of social skills assessment and training, measurement primarily focuses upon subjective responses and overt behavior and its consequences.

Beyond the assessment of the ongoing progress and changes in the patient's subjective and overt behavioral responses to social situations, the clinician and researcher is interested in evaluating *generalization* of the skills into untrained and novel situations, and *durability* of any skills that have been acquired. A final assessment goal is to determine whether the learned social skills will "strengthen" the individual and make him less *vulnerable* to those life events and stressors that can provoke relapse. Thus, an assessment strategy must be able to determine which levels of social skill change with training; whether the changes are of suffi-

cient scope and amount to enable the individual to interact successfully in naturally stressful situations; whether the patient can use the newly acquired skills in novel settings to solve interpersonal problems; whether the skills remain in the person's repertoire over time; and whether the skills protect the person from symptomatic relapse and psychosocial deterioration.

There are a number of questions that arise when one begins to develop an assessment strategy for social skills:

What types of responses should be measured?

- internal states and subjective experiences;
- verbal and nonverbal elements of behavior;
- completion of functional interpersonal goals and tasks;
- frequency of interaction or extent of avoidance;
- social anxiety and discomfort;
- degree of compliance with social rules.

Who should conduct the measurements?

- the patient;
- the others interacting with the patient (e.g., confederates and interviewers);
- uninvolved trained observers.

What situations should be used for assessments?

- interactions with intimates;
- instrumental and task situations;
- problem-solving situations;
- initiating or terminating interactions
- positive or negative assertion situations

What framework should be used for the assessment technology?

- self-report questionnaire;
- interview;
- naturalistic in vivo observations;
- confederate tests;
- role play situations;
- permanent products of interactions

While it would be ideal to measure social interactions reliably as they spontaneously occur in natural settings, this technology is rarely economically or ethically feasible. Many important social interactions occur unpredictably in response to infrequent but intense challenges and provocations and, hence, cannot be easily scrutinized. Some situations are intimate and private events that do not permit the presence of outside observers. There are occasional approximations that can be made to carrying out direct observation of social behavior in natural settings (e.g., observing a patient in a waiting room social situation, or observing spontaneous interactions on a hospital ward), but for the most part assessors have had to compromise by relying on "second best" methods of measurement. These "second best" methods are not mutually exclusive since they are each designed to tap different levels of social skill. (See table 3.)

## Advantages and Limitations of Assessment Technology

While these methods have been used reliably and productively by investigators who have developed our initial data base on social skill assessments, they have been marked more by face validity and



consensual validity than by systematic analysis of their psychometric properties. For example, self-report inventories have been constructed in different ways, with some eliciting responses focusing on social anxiety and others focusing on social effectiveness. Researchers who have developed self-report inventories have tended to agree much more on the content of the questions than on how the questions are asked or how the answers are framed. Some inventories have used "true-false" and "yes-no" formats while others use Likert-type scales. The questions or items are open to idiosyncratic interpretation because of the lack of space and time for elaboration of instructions, and the ambiguity of the questions. At the MHCRC for the Study of Schizophrenia, we have noted that our schizophrenic subjects have uniformly abhorred the self-report inventories related to social skill. They have found them confusing and difficult to answer; hence, we have experienced a high refusal rate in repeated administrations of the inventories, and for those who have complied with the task, they have done so perfunctorily and with obvious unreliability.

Role-play tests have the advantage of clarity and specificity in the instructional sets provided to the patients. While schizophrenic patients are more likely to comprehend the lengthier instructions given directly or through a standard audiotape than they are the written instructions for a paper-and-pencil questionnaire, some individuals experience awkwardness and embarrassment in complying with the role-play expectations. The social performance anxiety associated with the

**Table 3. Methods of measuring social behavior**

Measurement technology	Types of social behavior measured
Self-report questionnaire	<p>Social anxiety or comfort "During an argument I am sometimes afraid that I will get so upset that I will shake all over."</p> <p>Social approach or avoidance—frequency "I have hesitated to make or accept dates because of shyness."</p> <p>Social difficulty or ease "I enjoy starting conversations with new acquaintances and strangers."</p> <p>Perceived effectiveness of social interaction "When I have done something important or worthwhile, I manage to let others know about it."</p> <p>Positive assertion "Do you tell your friends you care for them?"</p> <p>Negative assertion "Are you usually able to say 'No' if people make unreasonable requests?"</p>
Interview	<p>All of the above</p> <p>Ratings of the interviewer Verbal and nonverbal behavior of patient (competence and comfort as perceived by interviewer) Subjective reaction by the interviewer</p>
Role-play tests	<p>Social perception</p> <p>Cognitive processing Generating alternatives Weighing consequences Choosing a reasonable option</p> <p>Nonverbal communication Duration of reply Latency of response Duration of eye contact Speech dysfluencies</p> <p>Compliance content and requesting a change in others' behavior—negative assertion</p> <p>Praise, approval, appreciation, and acknowledgment—positive assertion</p>

**Table 3. Methods of measuring social behavior—Continued**

Measurement technology	Types of social behavior measured
Role-play tests (continued)	Social rules
Naturalistic interactions	Competence and comfort of the patient as globally perceived by the confederate Completion of specific tasks and assignments Subjective reactions to the patient by the confederate "When I am with this person, he makes me feel distant from him."
Permanent products	Tangible indicators of completion of tasks or entry into certain situations Ticket stubs, salary stubs, job application Written reports on the completion of interpersonal assignments by the significant other involved in the assignment (e.g., teacher, parent)

"testing" qualities of the role-play situation may interfere with the patient's full demonstration of social skills.

However, role-play tests of social skill offer researchers a standardized, easily replicable assessment situation. The interpersonal tasks and challenges posed by the role-play test can be generated in quantity, with judges rating each task for degree of difficulty and type of skill, thereby enabling different task situations to be used for pre- and posttesting after a period of training. This interchangeability of the scenes or tasks reduces the biasing of practice effects. Role-play tests also provide opportunities to assess both discrete component behaviors of social skill (e.g., duration of eye contact) as well as global features (e.g., ratings of overall assertiveness or appropriate affect). Role plays are also convenient to ad-

minister and can be harnessed to a measurement approach that uses direct observation, videotapes, and "blind" raters.

On the other hand, role-play tests are handicapped by methodological flaws. The most serious problem with role-play tests lies in their lack of external validity. Since the role-playing situations differ in many ways from the real life situations encountered by the patient, there is no assurance that what is evaluated during the analogue situation in a videotape studio reflects "real life" behavior. For example, the demand characteristics inherent in role-play tests may induce very different behavioral responses than might occur in real life—better or worse, depending on the expectations generated by the patient, the clinician, and the experimenter. Furthermore, the discrete behavioral components of social skill that

have been the most frequent targets of role-play assessments bear an uncertain relationship to other criterion measures of social skill. Three recent studies, in fact, failed to find correlations between the paralinguistic and nonverbal behaviors rated from role-play tests with ratings made from more naturalistic situations (Bellack 1979).

Naturalistic interactions encompass simulated or staged encounters which are designed to approximate situational tasks and challenges that are frequently encountered in real life. For example, one research group unobtrusively observed psychiatric patients interacting with a "stranger" in a hospital waiting room. The stranger was, in fact, a confederate of the researchers who was prepared to interact with the patients in a preordained manner (Gutride, Goldstein, and Hunter 1973). The research group at the MHCRC for the Study of Schizophrenia has adopted the naturalistic, conversational interaction described by Goldsmith and McFall (1975). In this assessment approach, the patient is instructed to bring up a popular topic (e.g., sports) at the first pause in the conversation; to offer the confederate (who is introduced as a friend of the clinician or researcher) a cup of coffee; and to terminate the conversation after 5 minutes. On his side, the confederate is instructed to say, after being introduced, "I'm sorry, I've forgotten your name"; to refuse the offer of coffee; and to ask directions to a nonexistent bus stop or building. Thus, the interaction is staged to require the patient to initiate and complete certain tasks, and to cope with mild stressors presented by the confederate.

The naturalistic interactions

have been found to be sensitive to the effects of training in a number of studies; however, the variation among these naturalistic interactions in duration, content of task, stressors, and setting makes comparisons between studies difficult. Major advantages of the naturalistic interaction as a valid form of assessing social skills are the spontaneity induced by its surreptitious nature, and the lengthy exchanges between the patient and the confederate that can occur. Social behavior is *interactive* and is best evaluated by situations that permit conversational partners to take turns in talking and responding over an extended sequence. This enables the information-processing aspects of social skill to become manifest since the patient must use "receiving" and "processing" skills as well as "sending" skills. The naturalistic interaction also permits a wider scope for rating social behavior. Ratings can be made of:

- subjectively experienced affect and subjectively reported estimates of performance (by the patient)
- subjective reactions of the patient's impact (by the confederate)
- perceptions of the patient's anxiety (by the confederate)
- perceptions of the patient's competence (by the confederate)
- global and discrete indicators of the patient's anxiety, and competence (by objective, trained raters from videotapes of the interaction)

In addition, both the confederate and the trained observers working from the videotapes easily can be

kept "blind" as to the patient's treatment/training condition.

There are ethical issues that need to be considered since the naturalistic interactions are contrived and the observations are carried out surreptitiously. To protect the patient's rights, it is important that (1) the contrived task not cause undue pain to the subject, (2) the subject be debriefed regarding the nature of the deception, if any, and (3) the subject be given the right to deny the use of the information obtained through surreptitious observation. Without such precautions, such tasks could create a suspicious atmosphere which might cause relationship problems for the patient, the experimenter, and the collaborating clinicians.

### Identifying Ecologically Valid Situations for Assessing Social Skills

In the above sections, we have elaborated a multidimensional framework for understanding the concept of "social skills" and described some of the technology used for measuring social skills. A singular lack in the methodology for measuring social skills has been the failure of investigators to obtain ecological validation for the social situations and responses incorporated into self-report inventories, role-play tests, and naturalistic interactions. Social skills trainers have tended to assume, without empirical justification, that certain situations and events were critical to a schizophrenic's adjustment to and survival in the community. Thus, we have seen the familiar litany of situational typologies inserted into question-

naires and behavioral rehearsals—positive and negative assertion, starting conversations, making an appointment with the clinician, dating, and saying "No" to unreasonable requests. With rare exceptions (Goldsmith and McFall 1975), scenes have been chosen for social skills assessment and training that have had only face validity. Because of our failure to test the ecological validity of our choice of target goals in social skills training, it is important to do a better job in selecting interpersonal situations that can be documented as critical to a schizophrenic's functioning and survival in the community.

At the Camarillo/UCLA MHCRC, Wallace (1977) conducted a project to assess situations relevant to successful living in residential care facilities in the community. Five residential care operators and two social workers who were liaisons between the state hospital and these community facilities were interviewed at length to solicit those behaviors and social situations that were viewed as crucial in either the return of patients to the state hospital or the production of discomfort and displeasure in the operators with their patients. A content analysis of the situations generated by this interview revealed two commonly cited problems: (1) A patient believes that his rights have been violated by another patient or by the operator. (2) A patient is accused of violating the rights of another patient or the operator. Based on the content analysis of the interviews, 26 interpersonal situations were constructed.

The five operators and two social workers were again contacted

and asked to indicate the "best" and "worst" responses that a hypothetical patient might make to each of the 26 situations. From the numerous possibilities mentioned, five alternatives were developed for each of the 26 situations, and based on the amount of aggression displayed in each response, were classified from "best" to "worst."

The situations and response alternatives were then formulated as a multiple choice questionnaire which was mailed to a random sample of 50 residential care operators in Los Angeles and Ventura Counties who were asked to indicate for each situation the rank order from "best" to "worst" of the five response alternatives. Questionnaires were returned by 37 operators and Kendall's Tau and the mean rank of each alternative were calculated for each situation. Four of the 26 situations were discarded either because their Tau was less than 0.70 or because their alternatives were separated by less than a 0.75 difference in the mean ranks. Thus, situations were constructed which had been specified by the residential care operators themselves as being important for successful living in their facilities. In addition, the operators had suggested the response alternatives and had provided consensual validation of the adequacy of each alternative for dealing with the stressful situation.

The next step was integrating these potentially stressful scenes and their response alternatives into a social skills training framework. Ten situations from the questionnaire were randomly selected and used with 18 patients in a role-playing assessment/training program. The context of each situation was presented by the trainer,

and a role model delivered a prompt to "open" the scene. The patient was then expected to respond spontaneously to the prompt and attempt to deal with the stressful situation. After the behavior rehearsal was completed, the patient was asked to (1) identify his rights, duties, and goals prescribed by the situation; (2) generate response alternatives (including the response actually rehearsed); (3) predict the likely consequences of each alternative; and (4) evaluate each alternative as a means of achieving his identified goals.

Results indicated that the assessment/training program was reliable. Across the 10 scenes, scores for individual patients in selecting the "best" to "worst" alternatives were highly correlated ( $r = 0.89$ ) as were the total number of correct answers to the questions administered following the behavior rehearsal. The 10 situations did not differ in their difficulty level. Of course, patients differed significantly in their scores for the spontaneous rehearsal ( $F = 3.47$ ,  $p < .001$ ), and in their responses to the postrehearsal questions ( $F = 10.78$ ,  $p < .001$ ).

The goal of this project was to develop an individual problem-solving profile—which could be extrapolated to many dimensions of life outside the situations in residential care homes—that would be directly relevant to social skills training. Efforts to attain this goal have been undertaken by the "Life Skills Training" project at the Sepulveda (California) VA Medical Center, one of the constituent projects within the MHCRC for the Study of Schizophrenia. Under the leadership of M. Brown, A. Munford, and C. Deets, a Life

Skills Inventory is under development that would provide an index of the competence and deficits of chronic schizophrenics in diverse, important, daily living situations. The same behavior-analytic procedures used in the development of critical situations from residential care homes, described above, is being used to validate this more comprehensive inventory. The behavior-analytic procedures encompass five stages (Goldfried and D'Zurilla 1969): (1) a situation analysis, (2) response enumeration, (3) response evaluation, (4) development and use of the inventory, and (5) evaluation of the reliability and validity of the inventory.

The first stage, a situation analysis, identifies and describes the important situations in which schizophrenic clients must be competent to maintain adequate functioning for reentering the community. This analysis occurs in four segments. First, a comprehensive list of situational areas or domains requiring competence is drawn from patient records and a review of the literature. These domains include those involving self-care, management of symptoms and medication, nutrition and eating, budgeting and personal finance, use of leisure time and vocational activities, use of transportation, dealing with social agencies, interacting with relatives, and friendship and peer relations.

Second, the list of situational domains provides content for an open-ended, semistructured interview with people having extensive contact with the patient population. Third, these groups (e.g., work supervisors, employment agency personnel, rehabilitation practitioners, relatives, nonrelative

caretakers, and ex-patients) are asked what situations were problematic and what coping responses might be effective in those situations. In addition, these people are asked to rate the situations drawn from the literature and patients' records in the same manner. These interview results provide a list of problematic situations for the next phase.

The objective of the second stage of the procedures, response enumeration, is to determine the customary range and sequence of responses made by patients in each of the situations identified in the first stage. Thus, the situations are broken into a series of tasks and a variety of responses (also known as task analysis). The variety of responses must then be ranked in a hierarchy of effectiveness. The literature review, the patient records, and the semistructured interview will have indicated the component responses of the problematic situations.

The third stage involves the evaluation of these responses by people having extensive contact with the patients when they reenter the community (e.g., personnel officers, rehabilitation practitioners, relatives, nonrelative caretakers, other ex-patients, and community members such as merchants). These groups judge both the importance of the task and the degree of effectiveness for each of the enumerated, potential patients' responses. These judgments are used to reach a consensus about response effectiveness classified into three categories: superior, average, and adequate. Those responses about which judges show wide disagreement are eliminated to improve the reliability of the inventory. This phase

of the inventory development produces a variety of responses arranged in a hierarchy by level of effectiveness for each situation previously identified.

In the fourth stage, the assessment inventory is developed to allow direct responses that can be assessed through questionnaires, interviews, role-play tests, and naturalistic interactions in each of the life skill domains. The first three stages provide a criterion analysis as well as indicating the content of the items and criteria for scoring the responses. In the fourth stage, the patients are asked to imagine themselves in a real life situation and to demonstrate how they would respond in that situation. Further, they are asked what they were thinking or feeling before, during, and after the task. This stage will translate the concept of competence into an operational definition for each of the important domains of life skills.

The final stage is the evaluation of the assessment instrument. Procedures are used to determine the reliability and the validity of the Life Skills Inventory, such as test-retest, interitem, and interrater reliabilities. Inventory responses made by adequately functioning ex-patients, inadequately functioning ex-patients, and adequately functioning normal individuals are compared to evaluate further which situations and which responses within those situations differentiate the three groups. Based on this information, the Life Skills Inventory can be refined. The desired result is a comprehensive Life Skills Inventory which can accurately estimate a client's degree of competence in common, problematic life situations.

The Life Skills Inventory can be a practical and effective means of evaluating an individual's competence in varied areas of life, and predicting how successful adjustment outside hospital systems is likely to be. In addition, the assessments can be readily integrated into highly individualized social and life skills training programs to increase clients' functioning to a competent level before they are discharged from mental hospitals. Finally, the Life Skills Inventory could provide an empirical means of evaluating treatment effectiveness.

At the MHCRC for the Study of Schizophrenia, instruments like the Life Skills Inventory will be integrated into an individualized social skills assessment/training program for schizophrenics. The focus will be on skill attainment at criterion levels for each patient, based on the specific interpersonal problems facing each patient in the various settings of everyday life. Patients will enter the training sequence at a level commensurate with their skills, with some requiring basic skills acquisition and others beginning at higher levels of skills training. Each patient is to progress at his or her own pace through a four-level hierarchy of skills development—shown in table 4—in areas such as peer and family relations; community living; vocations; and symptom management. The proposed assessment/training program, a personalized system of instruction, is designed to allow a person to progress at a different rate in each of these four areas of skills development. Thus, some individuals will possess adequate independent skills for community life (e.g., purchasing and preparing

**Table 4. Areas of functioning and hierarchies of clinical intervention for the Community Living/Social Skills Training Program**

Level of training	Social	Independent community living	Vocational	Symptom management
I	Basic social skills training	Sheltered living with specific training in grooming, housecleaning, budgeting, and shopping	Prevocational training	Supervision of symptoms and administration of medication by caretaker plus education in self-management
II	Instrumental skills training	Community living with supportive roommate (daily staff visits)	Sheltered workshop/volunteer assignment	Fading staff supervision and increasing self-monitoring
III	Conversational skills training	Community living with supportive roommate (occasional staff visits)	Community employment with staff supervision	Peer/family supervision of self-monitoring
IV	Generalizing skills to special problem situations and enhancing social etiquette.	Community living with supportive roommate ("buddy") or living alone	Independent community employment	Independent self-monitoring

food, obtaining transportation, and renting an apartment), but will lack skills for socializing with peers and for obtaining a job. Alternatively, a person may have adequate employment skills, but lack the know-how for coping with distracting and distressing symptoms (e.g., how to obtain psychiatric consultation, how to request changes in medication or antidotes for side effects). The advantage of focusing separately on these various areas of skill development is that a person may reach a plateau in one area while continuing to advance to higher levels in another area. By the end of training, patients should have an opportunity to maximize assets, and move capably into the least restrictive

and highest quality environment consistent with their level of skills.

#### **Assessment of Motivational, Affective, and Cognitive Deficits Related to Social Skills**

Beyond the ecological validity of the particular situations and interpersonal skills that are earmarked for social skills training, the choice of assessment and intervention targets should also be guided by what is known about the *psychological deficits* that influence and determine a schizophrenic's socially skillful *performance*. The performance of an individual schizophrenic in social situations can be deficient for one or more of the following reasons:

- Lack of appropriate social learning in past experience—this has been referred to as a primary deficit in social skills. The individual was insufficiently exposed to socially skillful models within the family or received insufficient reinforcement or too much punishment for fledgling efforts at communication, interpersonal problem solving, and conversation.
- Loss of previously learned skills as when social skills drop out of a repertoire because of long-term institutionalization or years of sheltered and withdrawn living in the community. This "secondary" deficit of social skills derives, as does the "primary" type, from lack of practice, and deficiencies in the external environment's provi-

sion of models, prompting, cueing, reinforcement, and punishment.

- Excessive anxiety in social situations, a particularly important aspect of the experience of schizophrenics and heightened by histories of "primary" or "secondary" deficits. Anxiety and other dysphoric affects disrupt effective social performance even when the elements of social skills are in the individual's repertoire.

- Deficits in cognitive, information-processing skills. These include faulty decoding, perceptual, or "receiving" skills; stimulus overload with consequent failure to organize thoughts and actions; insufficient generation of response alternatives when faced with interpersonal problems; and negative expectations about response consequences.

### **Assessing Motivation as a Precursor to Social Skills**

Initial, ongoing, and outcome assessment of social skills should incorporate measures of the motivational state of the patient, especially when it is known that the patient once displayed social competence and suffers from "secondary" deficits in social skills. The motivational state of the patient is always in equilibrium with the richness, availability, and contingencies of modeling and reinforcement in the patient's life space. Hence, a complete assessment of social skills should encompass a survey of the reinforcers accessible in the patient's environment.

Schizophrenics and other chronic mental patients often show a pervasive loss of affective expression, experience, and responsive-

ness to the activities, events, and rewards that reinforce adaptive behavior in most people. Schizophrenics will frequently describe feelings of emptiness or blandness or even a total lack of feelings—a subjective phenomenon that corresponds with their observably flattened affect. *Anhedonia* is a term coined to describe the lack of pleasure in everyday life experienced by many schizophrenics. With a lack of connection of pleasure and emotional responsiveness to instrumental and social-emotional activities, schizophrenics lose interest in the external world, retreat to fantasies, apathy, withdrawal, delusions, and hallucinations, and have no motivation to pursue goal-oriented activities.

The social anxiety experienced by many schizophrenics leads to an active avoidance of social and therapeutic relationships. The reinforcer that serves as the most powerful reinforcer for most people—social relationships—is nonoperative or even an aversive stimulus for schizophrenics. It is understandable that clinicians—who are subject to feelings of frustration, rejection, disappointment, and, if empathic, even emptiness—are reluctant to work therapeutically with schizophrenics on a regular basis for long periods. But if the fear of relationships and flight from social reinforcers is a major feature of schizophrenia, then a tolerant, nondemanding, and long-term, reliable and trusting relationship with a therapist who can demonstrate human feelings is just what "the doctor ordered" for schizophrenics. On the basis of empirical and clinical studies, the time frame to be expected for building social reinforcers into the life experience of

schizophrenics would be a minimum of 6 months and as long as 2 to 4 years for many patients (Lieberman et al. 1974; Paul and Lentz 1977).

Although schizophrenics are characterized by a constriction in their range and potency of reinforcers, they can be motivated to participate in social skills training by the creative use of positive and negative reinforcers. Money—a widely accepted, highly normative, generalized reinforcer—has been found to be an effective reinforcer for schizophrenic patients' performance in role playing and carrying out interpersonal assignments (Doty 1975; Wallace 1981). Schizophrenic patients in the Camarillo/UCLA social skills training project received \$2 for participating in each day's 5 hours of training and evaluation activities. Together with a heavy emphasis on establishing and maintaining close and collaborative therapeutic relationships, the financial reward helped to limit dropouts to only 2 out of a cohort of 30.

Another unusual source of motivation for use in social skills training comes from the experimental findings on social censure. While criticism and negative feedback tend to be viewed as harmful "no-no's" by behavior therapists, studies conducted on laboratory tasks suggest that when clearly linked to incorrect response, critical feedback helps schizophrenics improve their performance. Two recent studies have demonstrated that exposure to a censured model resulted in positive behavioral changes in the social skills of chronic schizophrenics (Denicola 1979). For censure to be beneficial, it must be presented

contingent upon inappropriate behavior. It is likely that pairing praise for appropriate behavior with censure for inappropriate behavior will improve outcomes with schizophrenic patients. Important considerations are the quality of the relationship between the patient and the therapist who is giving criticism, the amount of psychopathology experienced by the patient, and the accurate perceiving and processing of the critical feedback (e.g., the patient will not benefit if the criticism is interpreted in a delusional fashion). A series of controlled, single case clinical experiments with schizophrenic patients indicated that various punishment methods were effective in improving social interaction and rational conversation when positive reinforcers alone had failed (Patterson and Teigen 1973; Liberman et al. 1974; Davis et al. 1976; Fichter et al. 1976).

The use of a reinforcement survey as part of the assessment of patients undergoing social skills training would seem apt. Through interviews, questionnaires (Cautela 1977), direct observations of patients' preferences, and reports from reliable informants, it is possible to piece together knowledge about what does and does not motivate a particular patient. Reinforcement surveys require a listing of people, places, things (e.g., possessions, hobbies, food, drinks), and activities that occur often in the patient's daily life or which the patient would like to increase in frequency. Such surveys can yield useful information for the clinician who is planning a social skills training program and for the experimenter who is interested to see if a therapeutic endeavor

has led to a change in the patient's range of reinforcers.

Attempts to measure the reinforcing qualities of a patient's environment also point our therapeutic efforts in the direction of the community. It makes little sense to invest long hours in hospital-based social skills training of the individual, unless the community and its aftercare systems can provide reinforcers and prompts to maintain the patient's progress. Here, then, assessment of quality of life and social support networks overlaps with assessment of social skills. For example, one way to overcome deficits in reinforcers is to use a procedure termed "reinforcer sampling." In reinforcer sampling the patient is systematically exposed to activities, interactions, and people that are not initially reinforcing but with sufficient contact and experience become reinforcing. Aspects of the patient's social and physical environment that have past, present, and future reinforcing properties are crucial to change in the patient and can be evaluated through a survey.

### **Social Anxiety and Social Skill**

In the previous section on the assessment of motivation, we pointed out that social anxiety is widespread as part of the schizophrenic experience and that it interferes with the responsiveness of the schizophrenic patient to social reinforcers. In this section, we describe the need to measure social anxiety as part of the assessment of social skills and the methodological confusion that has existed because of the failure to distin-

guish social anxiety from deficits in social performance. A personal description of social anxiety by John, our illustrative schizophrenic, graphically reveals the impact his anxiety had on his social performance:

I wanted to have dates and girlfriends, but I would get too tense to do anything. I joined a computer dating club but never got up the nerve to call any of the girls. Once I planned to attend a dance held in my neighborhood by a social club. I even bought some new clothes for the occasion. But as I walked up to the door of the place where the dance was held, I began to tremble and feel lightheaded. When I put my hand on the doorknob, it slipped because my palm was sopping with sweat. Instead of going in, I turned around, went home, and crawled into bed.

Social and performance anxiety can affect social performance in a number of ways; it can facilitate, impair, inhibit, or disrupt the overt behaviors that constitute social performance. Thus, the quality of social performance and social competence as perceived by observers is, in part, a function of the presence and amount of social anxiety. Conceptually, performance and anxiety in social situations should be assessed separately since they represent different factors that are probably orthogonal. Most of the self-report questionnaires that tap subjective perception of social skills have items which ask patients to describe their perceptions of social performance and the presence or absence of associated anxiety and discomfort. The overall score reported by such questionnaires is a conglomerate of views of performance quality (i.e., competence) and affect (i.e., anxiety). It would be



preferable to have the competence and comfort factors from such inventories summarized separately since different intervention strategies could be mounted depending upon the relative extent of competence or anxiety.

The best example of an assessment methodology relying on self-report that does clearly differentiate performance from anxiety was developed by Goldsmith and McFall (1975). These investigators put together, in their study of chronic mental patients' social skills, a comprehensive set of internal state measures that included the Interpersonal Situation Inventory; three additional scales that asked patients to rate their difficulty in meeting and talking to people, their future ability to perform in interpersonal situations, and their feelings of self-worth; and ratings of competence and comfort in actual interpersonal situations that were recently encountered. The Interpersonal Situation Inventory consists of 55 interpersonal situations to which patients responded by indicating their comfort and competence or by indicating that the situation posed by the item was inapplicable to their lives.

Social anxiety can be rated by the patient; by interviewers, observers, or significant others; and by physiological means (e.g., electrodermal response, heart rate, electromyogram). Each of these response modes—subjectively experienced anxiety, observation of overt motoric and verbal signs of anxiety, and physiologically assessed arousal and tension—should be measured to give an accurate picture of anxiety and stress (Lang 1971).

While the assessment of anxiety

in clinical situations is appropriate to determine whether anxiety reduction or competence training is warranted, it should be noted that direct training of overtly demonstrated skills can have an anxiety-reducing effect on the patient. Whether or not specific anxiety-reducing methods, such as systematic desensitization or imagery-based flooding, provide an increment of benefit in social skills training programs needs empirical exploration. As the reader familiar with behavior therapy methods will understand, direct training of social skills through behavioral rehearsal, practice, and in vivo assignments contains within its training steps several opportunities for "exposure" to anxiety-evoking situations—the most powerful ingredient of all anxiety-reduction treatment packages.

### **Cognitive Processes and Social Skill**

The most intensively studied psychological aspects of schizophrenics have been their cognitive and attentional deficits. These deficits have been presumed to be fundamental or basic mediators to schizophrenic symptomatology and indicative of the underlying neuropsychological vulnerability in persons predisposed to schizophrenia. The term "cognitive" may refer to all processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used. This includes processes of sensation, perception, attention, memory, thinking, language, and related verbal and motor responses. It can be seen that these information-processing

functions are also important determinants and moderators of social skills.

Subjective reports by schizophrenic patients during their actively psychotic periods highlight the problems experienced with selective attention. They seem overwhelmed by a flood of sensory input that they cannot control. For example, John, our illustrative schizophrenic patient, stated that:

I have trouble concentrating and keeping my mind on one thing at a time, especially when I'm with people. I can hear what they're saying, but I can't keep up with them and make sense of the conversation. I lose my grip on being a part of the conversation and drift off. It's not so bad when I'm talking with just one other person, but if I'm trying to tune in to a conversation with several people, things come in too fast and I get lost. It's hard for me to contribute to a conversation when the ideas get blurred.

This subjective account graphically illustrates the cognitive problems experienced by schizophrenics in an interpersonal context. During the past 40 years, research in laboratory settings has quantified and categorized cognitive deficits experienced by schizophrenics through a variety of performance tests. Some of the deficits that have been confirmed and replicated are deficiencies in sustaining a focus of attention, distractibility, slowness in the initial processing of information into sensory memory, impaired detection of relevant stimuli that are imbedded in irrelevant "noise," and inefficient organization of information in short-term memory. From this body of research emerges the likelihood that the social skills deficits, as well as the de-

lusions, hallucinations, and thought disorder characteristic of schizophrenia, are mediated by attentional and perceptual dysfunctions which interfere with the integrity of rational, ordered thought, language, and conversation.

Since it is virtually certain that cognitive, attentional and information-processing deficits play an important role in determining the type and intensity of social skills deficits in schizophrenics, it is vital that evaluation of social skills training include measures of cognition and information processing. The inclusion of measures that tap this more basic level of functioning—a level that mediates an individual's adaptation and responsiveness to the social environment—may be more sensitive to the effects of intervention programs. Real effects of intervention programs aimed at social skills may fail to be detected because the outcome measures are too global or fail to assess the levels of functioning that are more proximal to the actual targets for change. The impact of social skills training will be more likely disclosed if the assessment methods used tap the specific cognitive processes that are affected by interventions aimed at improving information-processing and attentional mechanisms. Thus, in addition to measuring multidimensional outcome in the symptomatic, familial, social, community, and vocational spheres, investigators who wish to obtain a comprehensive and sensitive assessment of the outcomes of therapeutic intervention in schizophrenia should also consider the cognitive-attentional sphere. There are reliable and discriminating methods

now available for that, including the continuous performance test, short-term memory tasks, the span of apprehension test, the smooth pursuit eye movement test, and various reaction-time tests.

### **Cognitive Functioning With Social Stimulation**

Cognitive and physiological arousal have been hypothesized as mediating the well-described relationship between high levels of social stimulation and symptomatic relapse. Based on research conducted by British investigators at London's Institute of Psychiatry, two complementary processes have been posited to explain the unusual sensitivity of schizophrenic patients to social stimulation (Wing 1978). For schizophrenics living in understimulating environments, such as large, custodial institutions, negative symptoms develop—apathy, social withdrawal, inactivity, and loss of self-care skills. These negative symptoms, or deficits in adaptive behavior, have been termed the "social breakdown" or "clinical poverty" syndrome. On the other hand, overstimulating environments, such as highly critical or emotionally overinvolved relatives at home, or total push, intensive treatment programs, can produce florid psychotic relapses. This dilemma of too little or too much social stimulation has been well described by Hirsch (1976):

The primary handicap of schizophrenics can be seen as an extraordinary vulnerability, like walking a tight-rope, with the dangers of an understimulating social environment leading to the negative symptoms of social withdrawal and inactivity on the

one side, and the dangers of overstimulation leading to florid symptoms and relapse on the other. [p. 461]

Under conditions of overstimulation, a state of central nervous system hyperarousal occurs which increases the danger of symptomatic relapse. For example, schizophrenic patients living with relatives high on "expressed emotion" (i.e., criticism or overinvolvement) tested within their homes showed higher levels of spontaneous fluctuations in the galvanic skin response when their key relative entered the room than did patients with low "expressed emotion" relatives (Tarrier et al. 1979).

High levels of social stimulation could lead to information overload in schizophrenics who suffer from cognitive and attentional dysfunctions. Sensory or information overload could, then, produce the physiological hyperarousal and other neurochemical events which trigger social impairments and symptomatic exacerbation in individuals vulnerable to schizophrenia. The intensity and duration of the noxious social stimulation would determine the type and severity of induced psychopathology. As a speculative example, moderately high levels of social stimulation might induce sufficient cognitive disorganization to lead to delusion formation, while extremely high levels might lead to more thorough-going disorganization and incoherence of thought and speech. Social withdrawal may be an "escape" adaptation by schizophrenics faced with the hyperarousal and information overload inherent in social situations. As Wing (1975) has described the schizophrenic patient:

If he can't withdraw, if he is forced to interact by a socially intrusive environment, he is bound to show his abnormality in the form of delusions, speech disorder, or odd behavior. [p. 265]

There are empirical data to suggest that cognitive dysfunction is increased by excessive social stimulation in schizophrenia. Sensory input processing has been found to be impeded more significantly by pictures suggesting interpersonal themes of hostility and dependency than by those depicting neutral themes. Intellectual deficits in schizophrenics have been noted to be at their greatest when responses are required to situations with little structure and much reference to personal and social themes. Schizophrenic thought disorder has been found to be more pronounced when the patient is tested making social judgments vs. judgments among objects. The effectiveness of reinforcement in learning tasks has been reduced by the experimenter's presence in the same room with the schizophrenic (Salzinger 1973).

### Implications for Clinical Intervention and Social Skills Training

If schizophrenic patients do indeed experience the cognitive dysfunctions described above, then much of the assessment and intervention done to date in social skills training—emphasizing verbal and nonverbal *responding* to social challenges—may bypass the more critical psychological processes that are closely linked with attention, perception, and information processing. Focusing only on the

topographical features of social skills—eye contact, gestures, voice volume, requesting the “other” to change, refusing an unreasonable demand—may lead to limited generalization because the cognitive processes that facilitate many different types of socially skilled behaviors in many different situations are not targeted for intervention. Thus, it may be more important to target the sensory input and cognitive processing precursors to verbal and nonverbal output.

Some of the relevant cognitive precursors have been identified by clinicians (Spivack, Platt, and Shure 1976; Trower, Bryant, and Argyle 1978; Wallace et al. 1980). They include “problem recognition,” “problem identification,” “accurate perception of the relevant characteristics of the interpersonal situation,” “knowledge of social mores,” “information processing capability,” “identifying short- and long-term goals,” “generating response alternatives,” “weighing the pros and cons of alternatives,” “evaluating and predicting potential consequences,” “choosing a reasonable alternative,” and “implementing an alternative and evaluating its effectiveness in achieving one's goals.”

The social skills training program for schizophrenics developed at the Camarillo/UCLA Clinical Research Center (Wallace 1981) represents an important point of departure for clinicians who wish to incorporate cognitive, problem-solving strategies in their social skills training. Wallace and his colleagues theorized that a socially skilled response is the end result of a chain of behaviors that *begins* with accurate “reception” of rele-

vant interpersonal stimuli; *moves* to flexible “processing” of these stimuli to generate and evaluate possible response options from which a reasonable one is chosen; and *ends* with appropriate “sending” of the chosen alternative.

These workers have created an integrated assessment and training package, based on role playing of approximately 200 different interpersonal scenes in areas of hospital, community, friendship, and family relations. After each situation is role played, the patient is asked a series of questions designed to assess his “receiving” and “processing” skills. Errors or deficiencies in these cognitive skills call into action training techniques which are evaluated during the role play and, as in most conventional types of social skills training, are remediated through instructions, modeling, prompts, coaching, and positive feedback.

Meichenbaum and Asarnow (1979) have described similar training paradigms, but for children with academic and behavioral problems. They have carried out “think aloud” training designed to foster each performance-related skill that has been identified through task analysis of the children's situations and goals. Among the skills taught through modeling, prompting, and feedback are:

- (a) problem identification or self-interrogation skills (“What is it I have to do?”);
- (b) focusing attention and response guidance, which is usually the answer to the self-inquiry (“Now, carefully stop and repeat the instructions”);
- (c) self-reinforcement involving standard-setting and self-evaluation (“Good, I'm doing fine”); and
- (d) coping skills and error-correcting op-

tions ("That's okay . . . even if I make an error, I can go slowly"). Such cognitive training is conducted across tasks, settings, and people in order to ensure that children do not develop task-specific response sets, but, instead, develop generalized strategems. [Meichenbaum and Asarnow 1979, pp. 15-16]

While the preliminary results of the few intervention studies employing cognitive strategies are promising, most of the empirical and clinical work applying cognitive strategies with deviant adult and child populations has yielded meager generalized outcomes (Ledwidge 1978; Denicola 1979; Meichenbaum and Asarnow 1979). Self-instructional and -evaluative training with schizophrenics has been disappointing. Most clinicians have reported that patients appear bored, fail to attend to or get involved with the training procedures, and do not reliably carry out assignments to practice the self-control skills outside of the training sessions. To improve the results of cognitive training, investigators teaching problem-solving strategies to retarded clients have recommended alterations in the training procedures, including: (1) greater duration of training; (2) rationales for the purpose and usefulness of cognitive strategies; (3) fading of prompts and modeling from the trainer; (4) increased demand for and monitoring of mental involvement in the tasks; and (5) training across settings, problems, and persons. Since some of these recommendations have been incorporated into the Camarillo/UCLA social skills training program, the full report of the results and followup data from this program will serve as a further test of the utility of teaching cognitive

and problem-solving skills to schizophrenics.

There are suggestions from the experimental psychopathology literature that additional tactics might be helpful in improving the learning of social skills by schizophrenics. These include such procedures as prominent posting of graphics that prompt patients to follow training procedures; monitoring levels of arousal and "information overload" through psychophysiological and cognitive tests; repeated practice and over-learning; and allowing patients to temporarily "escape" or take a "timeout" from training when it becomes overstimulating. It would also be desirable for social skills assessors and trainers to recognize the diversity in the cognitive and attentional deficits and problems that schizophrenics demonstrate. This will require a more personalized clinical approach that takes into account each individual's cognitive deficits, assets, and needs.

Assessing the cognitive level in outcome studies may become an even more important feature of clinical research as investigators begin to conduct preventive intervention with children and adolescents who are considered to be at risk for developing schizophrenia. The underlying genetically transmitted vulnerabilities to schizophrenia are, in part, manifested by deficits in attention and information-processing (Asarnow, in press; Asarnow et al. 1978). Hence, preventive strategies may target change in these cognitive levels as more primary intervention targets that will, if improved, lead to a "ripple effect" with consequent improvement in the social, vocational, community, symptomatic, and familial spheres.

Similarly in the adult schizophrenic, when neuroleptic drug therapy leads to improvements in symptomatic status, it is likely that the drug is only indirectly affecting symptoms. The primary locus of drug effects is probably at basic neuropsychological mechanisms that mediate attention and information-processing functions. The adult schizophrenic who shows distractibility on the job, and withdrawal from family and friends after discontinuing neuroleptic medication, may have experienced cognitive deficits as a first stage of decompensation. Thus, use of methods for measuring cognitive functioning may eventually enable clinicians to detect the "early warning signals" of schizophrenic relapse and to engage in more timely secondary prevention efforts.

### Summary

This review of the various methods of assessing social skills suggests that schizophrenics' characteristic cognitive and motivational deficits have an impact on social skills assessment and training outcomes. The methods of assessing social skills are varied, indeed; there are wide differences in the definitions of the construct "social skills," with resultant differences in the quality and quantity of assessment information. Questions of the reliability and validity of these techniques have only recently been addressed, and the results indicate that further attention must be paid to improving the psychometric qualities of these methods. The relationships among social skills, psychopathology, family interactions, vocational skills, and basic cognitive and

motivational deficits have yet to be explored. These relationships among the multiple dimensions of behavior change are likely to yield important data for developing better assessment and treatment techniques.

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