PSYCHOLOGICAL MODELING: THEORY AND PRACTICE

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Whatever their conceptualization or techniques, psychological treatment approaches have the common goal of restoring clients to realistic and effective social living. From antiquity on, the decisive impact of social example on human conduct has been acknowledged. Greco-Roman and medieval thinkers practiced what they preached. They assigned a major part to learning from appropriate live and symbolic models in raising the next generation, and developing or refining complex skills in adults (Bahn & Bahn, 1970; Clark, 1957). Applied intuitively, modeling techniques were seen as obvious tools to guide, redirect, and educate people. Until recently, however, observational methods remained dormant; they were largely ignored by practitioners and researchers alike. Among historical bases for that neglect, two stand out: one was the dictum firmly held by peripheralistic Behaviorism that all stable learning required the person to perform overt activities directly. In that view, social exemplars were subordinate to first-hand trial and error practice, which alone could establish new behavior (Miller & Dollard, 1941; Skinner, 1953). An overt practice bias narrowed the perceived relevance of modeling to literal, motoric imitation of movements. Since most vicarious benefits are regulated by the symbolic extraction and covert processing of meaningful information, there was a paradigm clash. The restoration of interest in observational learning demanded evidence that would challenge doctrinaire, overt practice accounts of learning. More recent research using observational paradigms confirms that observation creates acquisition. As well as motor acts, the most diverse linguistic, conceptual, and generalizable competencies can be developed.
or restored by vicarious means (Bandura, 1977a; Rosenthal, 1976).

Another obstacle to clinical use of therapeutic modeling stemmed from the intrapsychic premises and interview approaches of the verbal psychotherapies. Ironically, those leanings may derive from Freud's having too readily adopted then-fashionable beliefs about the organization of mental life, based on associationism. If mental contents are joined by associative bonds, it seems sensible to seek the sources of psychological dysfunctions by analyzing patients' free verbalizations as clues to inaccessible determinants. Experimental psychology, preoccupied with overt molecular acts, was little help. It offered few vivid analogies to clinicians facing clients' inert and self-defeating conduct. Many therapeutic concerns seemed too remote from the research laboratory and its typically infrahuman clientele. Rarely meeting on common ground, researchers studied simple behavior while therapists modeled sympathetic listening and interpretative statements or actions—withholding practical guidance lest clients' self-corrective tendencies and spontaneous insights become tainted.

INFORMATION AND GUIDANCE PROVIDED BY SOCIAL EXEMPLARS

Since the first edition of this handbook, there has been enormous progress. Research on information processing and conceptual learning has advanced a view of people as active problem-solvers whose assumptions and cognitive plans guide overt behavior. Between the first sensory registration of input cues and their eventual use in living, current research discloses organized complexity in their symbolic representation, transformation into memory codes, and refinement as viable mnemonic maps (Estes, 1975). Applied study has shown the value of systematic guidance for aiding clients. Of present concern, a burgeoning literature confirms the value of modeling treatments for redressing deficits in social and cognitive skills, and for helping to remove defensive avoidant behavior. With their promise amply documented, modeling therapies now pose questions of how to best refine techniques, to join them with other guidance methods for stronger composite programs, and to adapt them for prevention and other new purposes. In addition to the therapeutic applications, social learning approaches provide means for increasing our understanding of the relationship between cognition and behavior. Since social learning principles allow a host of applications, their potentialities are better grasped and developed from a conceptual framework.

Some Main Roles Served by Models

Other people are salient and powerful models, but not the only ones. Seeing an object fall over a crumbling cliff-edge can alert us to the danger. We use the events witnessed and our inferences about their meaning as useful information to guide expectations and conduct, here, to avoid the precipice. Functionally, a model is any stimulus array so organized that an observer can extract and act on the main information conveyed by environmental events without needing to first perform overly. Guidance thus stems from cognitive activities by the observer, rather than from direct terminal responding and its feedback consequences. In this view, modeling arrays may involve human actors who can be live, filmed, audiotaped, or depicted by sketches. Displays may instead contain impersonal cues both animate and static. Even then, observers may endow neutral stimuli with social properties, depending on context. For example, viewers infer various social meanings from the motions of geometric figures, based on the spatial topography and temporal sequencing of the moving forms (Bassili, 1976).

Many helpful displays are wholly impersonal, such as roadmaps, naval charts, or training films in which mechanical components move into proper order for repair and assembly. No doubt social models are most relevant clinically and have nearly always been used in therapy studies. Nonetheless, organizing events into systematic programs as with in vivo task hierarchies, or observing the correct terminal patterns created earlier by an unseen model, also conveys useful guidance to observers (Alford & Rosenthal, 1973; Robert, White, & Rosenthal, 1975). Studying an antipasto platter arranged by a deft cook would be a homely example. Diverse senses—vision, audition, olfaction—can transmit modeling cues. In therapeutic applica-
tions, displays may contain various combinations of illustrative versus summary or narrative guidance. It is convenient to locate these format options along a heuristic continuum. At one imaginary pole, all content would be taught by demonstration or exemplification; the total display would contain exemplary instances with no orienting statements, summary rules, or interpretive guidance. At the other pole, all content would take the form of instructions or narrative summation devoid of demonstrations. There is little reason to endorse either extreme as a possible strategy. Instructions seem most efficient when content is relatively familiar and already known in part. But most often some synthesis of formats will yield the most clarity and impact. There is little research on the optimal balance between exemplary and narrative guidance for defined change programs or types of clients. That realm remains a topic for the future.

One can see that modeling may encompass a very wide span of modes and content formats, even though human performers who illustrate adaptive coping efforts are usual for clinical purposes. Also, effective modeling rarely comprises a skein of disjoined actions or statements. As a rule, one does not rely on exemplifications devoid of background rationales, goal implications, or supplements that enable clients to relate modeling episodes to concrete problems in their own lives. Meaningful guidance occurs in situational aids and explanations. The models behave in a comprehensible fashion to assist observers’ understanding and retention. The client’s values are taken into account. Otherwise, treatment aids may be dismissed because they affront, or conflict with observers’ belief systems. Exemplary performances usually depict meaningful solutions to relevant problems, often portraying the naturalistic consequences to be expected if clients adopt the modeled styles of behavior. Much helpful guidance is carried under natural circumstances with contextual supports.

Modeling influences can produce four separable kinds of effects in observers. Each class of effects has important features for the planning and implementation of therapy.

1. Observational Learning Effects
First, observers can acquire new patterns of behavior and coping strategies that were not present in their repertoires, or were unavailable in an integrated, usable form. Such observational learning effects are shown most clearly when models exhibit novel response patterns that observers have not yet learned to execute. After observation, clients are able to adopt and implement these new solutions in substantially identical form.

Complex patterns of behavior are conveyed as integrated sequences; their meaningful regularities and functional essentials are preserved. This occurs when new action compounds are exemplified, and also when response elements that already exist in the repertoire are organized anew to follow guidelines or principles grasped through observation. Many discrete acts, response sequences, and cognitive elements already exist as products of maturation, instrumental conditioning, and prior observational learning. Modeling exposures serve an instructional role. They teach new components and guide the recombination of other elements. For example, although the color and form dimensions of stimuli may be familiar, arranging them to satisfy a new abstract rule sets demands that learners cannot meet unaided. After modeling exposures, adults and adolescents could apply a concept that was totally unavailable before (Rosenthal & Kellogg, 1973). They had learned new ways to classify familiar objects and gained new facility with a symbolic principle. Many modeling effects in therapy are analogous, as when submissive clients become more assertive with interaction partners.

Some writers doubt if behavior formed by unique recombinations of elements already available represents new learning, because the components exist in subjects’ repertoires. From that stance, no new musical composition can occur; have not Bach, Beethoven, and Brahms already used most chords? Indeed, Beethoven would not deserve credit for new symphonies, since he merely rearranged a few existing notes. A pianist who masters a demanding concerto would have learned nothing new since the intricate finger movements were present in his or her repertoire; and an “original” novel would demand neologisms, rather than social language. In fact, after childhood very few components of thought or conduct are totally virgin. Yet the assembly of parts into new wholes may
be greatly original. Any behavior array having very low or zero probability of occurrence under appropriate stimulus conditions qualifies as a new response. Most novel molar activities are composed of common behavioral elements.

A great virtue of social learning techniques is their integrative capabilities. Integrated molar solutions are grasped largely intact. Observers can comprehend the interrelationships among components and the principles guiding modeled events. They acquire and can utilize organized, schematic representations of modeled configurations. Often, symbolic elaboration of the events portrayed prepares learners to cope with generalized problems, remote from the concrete details of the exemplars. They devise and can report symbolic rationales that map the key meaning of silent demonstrations (Rosenthal & Zimmerman, 1976). Like knowledge drawn from any other source, vicariously derived information is actively codified by observers as best they can. With well-structured exemplifications, people usually extract much knowledge useful in future conduct. They gain a coherent view of what needs to be done and how to proceed. Then, overt practice and corrective feedback can further refine new skills. Errors in executing component acts, in sequencing elements, or judging informative cues are put right. Guided, and later independent, performance helps stabilize competence and assures learners of their mastery. Their path is smoothed because vicarious guidance equips them for much or most coping before direct practice begins.

In contrast, acquisition prospects were gloomier until recently. It was widely assumed that new response patterns were acquired by gradual shaping through selective reinforcement of trial and error attempts. Discrete responses were slowly shaped and chained by stepwise progression in a laborious sequence. Often avoiding cognitive structuring, or even verbal prompts, the successive approximations paradigm was tedious, if not costly, for learner and teacher alike. Fortunately for survival and efficiency, most naturalistic learning does not take this tedious path. At home, in school, on the playing field, and on the job the novice learns from the precedents and guidance of those with expertise. Moreover, research confirms that observational learning is valuable for countless activities; they span a myriad of cognitive, affective, and behavioral domains (Bandura, 1977a; Rosenthal, 1976).

2. Inhibitory and Disinhibitory Effects
A second main function of modeling influences is to strengthen or to weaken inhibitions of responses that are available in observers' repertoires (Bandura, 1971). The impact of modeling on behavioral restraints largely depends on (1) the rewarding or punishing outcomes produced by models' deeds, (2) observers' inferences that similar or unlike consequences would result from emulating the conduct witnessed, and (3) observers' judgments of their ability to enact the modeled behavior.

Inhibitory effects occur when observers either reduce performing the modeled class of behavior, or generally curtail their rate of response as the result of negative consequences perceived. Clinical modeling rarely seeks to create inhibitions. Yet for some cases, such applications may be warranted. If the behavior is seriously harmful to self or society, inhibitory modeling might aid to reduce the noxious conduct while more functional alternatives are developed.

Disinhibitory effects are evident when observers increase production of formerly inhibited acts after models perform them without any adverse results. Disinhibitory effects are common in clinical modeling designed to reduce fears. Observing another approach, cope with, and master situations that scare clients can vicariously enhance expectations of personal effectiveness and thus reduce fear reactions in observers. With inhibitory avoidance reduced, clients gain optimism and are more apt to undertake direct approaches to threats that formerly were too fearsome. Then, successful overt encounters further reinforce a sense of self-efficacy, allowing the persons to favorably reassess their ability to manage the task. Judgments of one's own efficacy are major determinants of overt performance that mediate confident approach or timorous avoidance in the future (Bandura, 1977b). Research illustrating the foregoing points is reviewed later.

It is important that clients do not perceive modeling displays as coercive pressures. If they make new approaches to avoid shame or embarrassment, overt disinhibition may be bought at the
price of covert distress. In that case, they may judge themselves as too weak or faint-hearted to initiate future approaches. Thus, in structuring trial encounters, it is important to minimize feedback that confirms self-appraisals of incompetence.

3. Response Facilitation Effects
The behavior of others can also serve as discriminative cues or priming stimuli. Perceiving others perform facilitates observers’ production of the same general class of responses, which already exist in their repertoires. Response facilitation effects are distinguished from observational learning and disinhibition because (1) no new responses are acquired, and (2) disinhibitory processes are not involved because the activity is socially acceptable and not encumbered by restraints. Countless examples occur in everyday interactions. If one guest recounts her vacation experiences, others join in and share theirs. One laugh in a room often provokes others. Subtle configurations of behavior can be elicited by modeling. Thus, demonstrating the reaction patterns characteristic of a hypnotized person cues performance equal to standard hypnotic induction (Comins, Fullam, & Barber, 1975). As priming cues, response facilitators are related to set effects. By sensitive use of facilitative exemplars, learners might be aided to become skillful conversationalists or interaction partners. Indeed, a therapist’s style and pacing may provide social cues that alter clients’ coping and self-reactions for better or worse. Teaching clients and therapists to exemplify social cues that bring out the best in other people’s repertoires seems a plausible goal. Since the social activities that people engage in at any moment are partly regulated by the behavior of others, the response-eliciting and cueing function of modeling influences operates continually in all social situations.

Most routine behavior is governed by our past experience in the form of adaptation levels and judgmental standards. We seldom react to situations as unique. We are guided by expectations from related events that are categorized and interpreted as similar. Even perceptual cues are scanned in relation to standards. Once perceived, new information is compared to former inputs that act as meaningful decision-making guidelines (Banks, Clark, & Lucy, 1975). Such frames of reference prepare us to handle current and future demands. If conditions shift, refractory standards can disrupt harmonious adjustment. When people suffer serious illness, like stroke, they typically revise their levels of aspiration downward so that expectations remain in tune with capabilities (Levine & Zigler, 1975). Rigid self-demands would bring the patient chronic disappointment or worse. But the hard-driving achiever will at first lack guidelines for matching aspirations to lowered physical capacity. Usually, as people begin to recognize key features of a situation, they relate them to prior analogues and act accordingly. However, in many cases people lack clear standards for conduct or opinion: Tasks and issues suddenly change or are too novel to apply guidelines from our repertoires. Value judgments must be made but criteria are lacking. There is no handy way to weigh the worth of alternative deeds because the significance of action outcomes is ambiguous. At such times one typically dispels uncertainty by adopting the norms enacted or endorsed by others as evaluative criteria. The fourth main function served by models is providing standards to judge the adequacy and appropriateness of performance under ambiguous or greatly altered conditions.

Modeling influences affect self-regulation standards in many spheres. When novices have to assess their own progress, they may prove extremely self-critical from lack of reference criteria. After exposure to their instructors’ more favorable judgments about the same accomplishments, learners’ self-evaluations became more realistic (Watts, 1973). A model’s choice of performance goals, and what amount of self-reward is fair for meeting them, can instate similar standards in observers even when the exemplary self-demands are stringent (Bandura, 1976b). Indeed, when payment is deferred, viewing the pledges made by others can lead observers to promise enormous donations; the magnitude of pledge increased proportional to modeled standards, with little sign of incredulity or “boomerang!” effects (White, 1975).

Modeled standards can alter observers’ expectancies and inner states with surprising vigor. Perhaps most striking has been the vicarious alteration of pain thresholds. Exposure to models who
are tolerant of shocks lead observers to accept more shocks, and of stronger intensity—without showing any greater autonomic response than groups given less pain. They also rate the shock experiences as less noxious than controls. Observing a model who is intolerant to pain has reverse effects (Craig, Best, & Ward, 1975; Craig & Neidermayer, 1974).

Such data suggest treatment applications worth exploring. Clients whose dysphoria involves unrealistic discontent with their own situations relative to others', and people who devalue their self-worth and deprive themselves of attainable joys because of excessively stringent levels of aspiration, might benefit from appropriate modeling.

Although one can distinguish the foregoing main effects of modeling influences, they often interact. Thus, new social competences may rest on a combination of newly learned social skills, reduced inhibitions about self-expression, social facilitation of preexisting patterns, and the adoption of more realistic standards for judging one's own social performance. In specific cases, classifying the relevant modeling process may be rather arbitrary, since changes are multiply determined.

Determinants of Vicarious Influence

Several interrelated subprocesses jointly control how modeled information is comprehended and utilized by observers. When these components are properly implemented, powerful therapeutic changes can be predictably achieved. Neglect of any subprocess may retard or neutralize the entire treatment plan. Hence, analysis of the subsystems aids both for designing modeling applications and for analyzing procedures that fail to produce their intended effects. Also, recent basic research on the component processes is expanding knowledge rapidly, and revising psychological conceptions of human potentialities. In part, divergence between social learning principles and the operant or nonmediational associative positions stem from these new developments.

Attentional processes.

Presenting a modeling display does not assure that learners will perceive it. They must be able to register the sensory events as coherent input. When stimuli appear chaotic, are too fast, too weak, or carry too many cues simultaneously, observers may fail to discriminate the relevant aspects. Distractions from competing contextual events and other interference have similar effects. If observers actively attend to and register sense impressions, they still must be able to decipher them. Both semantic and judgmental acts are involved. Even in the earliest phases of processing cues presented by tachistoscope, familiar stimuli have greater meaning and dominate more equivocal ones. The semantic influence on "peripheral" scanning events is shown by differences in apparent duration and recognizability among more and less familiar stimuli viewed for fractions of a second (Avant & Lyman, 1975). This occurs although perceptual capacity is surprisingly robust as the number of factors to be detected increases (Rosenthal, White, & Alford, 1974; Shiffrin, McKay, & Shaffer, 1976). Thus, stimulus meanings affect sensory recognition, which is the gateway to short-term memory.

The contents of short-term memory decay very quickly unless stabilized by cognitive transformations. Even in this brief stage, multiple distinct coding systems, built up from past experience, seem available for various types of sensory input (Posner, 1973). More important, it is then that selective attention determines which content will earn priority and which will be promptly lost. Judgmental processes operate to filter key from negligible gist. With auditory cues, for example, the observer attempts to segregate ongoing events worthy of attention from others to be ignored; even so, the structure of the rejected cues can interfere with differential attention (Bregman & Rudnickiy, 1975).

For the molar input sequences typical in therapeutic modeling, judicious selective attention is critical. Three different types of attention loss are plausible. If a modeling display seems boring or has little personal relevance, observers may disattend and scanning grows perfunctory (Kanfer, Karoly, & Newman, 1974). A second hazard involves client-produced covert interference, often mediated by states of excess arousal. A display may be too upsetting for clients. It may trigger their helpless and hopeless self-definition, remind them that they will soon need to attempt the fearsome acts depicted, or encourage deeds that violate strongly en-
trenched values. At such times, observers may re-direct attention to competing cognitions and functionally attenuate the modeling influences (Bandura & Rosenthal, 1966; Spiegler & Liebert, 1973). In that event, one needs to present the threat level more gradually by interpolating easier tasks or protective supplements. When values clash, one must assure that clients approve of treatment’s aims. They should be active participants in selecting the direction of change. Sometimes one may work to change values, but the clients should decide the nature of the change.

An alternative kind of covert arousal problem is best seen in some acute psychotics whose attention is dominated by private events. There, excessive self-preoccupation or emotionality disrupts attentiveness to external events. Strong excitation from any source can disrupt cognitive functioning and prevent the processing of new guidance information. Acute affective disorders are an example. It is largely futile to attempt symbolic ministrations while individuals are mired in despondent agitation or are in the thrall of manic excitement. Fortunately, there have been major recent advances in biological psychiatry for reducing acute arousal (e.g., Akiskal & McKinney, 1973; Fieve, 1973). Once extreme disequilibria are corrected, psychosocial techniques can begin profitably. Clients can be taught new adaptive strategies and helped to rectify the problems they often create by rash decisions, made when their functioning deteriorated.

A third hurdle for attentional processes involves the client’s skill at monitoring and interpreting modeled events to extract their meaning. Attending to relevant information and avoiding distractors is an essential step in effective observational learning. However, sheer duration of attention is less crucial than discerning focus on key meaning components. Judicious observation covaries more strongly with learning than does gross amount of attention time (Yussen, 1974). To assure that clients perceive the crux of modeling routines, and interpret the information properly, one can ask people to describe what they have learned. Omissions or misconceptions can then be corrected by repeating modeled segments, by additional displays, by explanatory summaries, or by discussing guidelines for future conduct.

Retention Processes
Once discriminated, input is soon lost if not recast in more durable form. Modeled information must be represented and encoded in a framework. Such symbolic codes must be available when needed for the response information to be used. Mnemonic systems organize knowledge to aid retrieval.

The representation of information involves complementary but recursive steps, depending on its form and meaning, which jointly dictate how cues are sorted and cognized (Schvaneveldt, Meyer, & Becker, 1976). For example, judgments of an arrow as pointing up or down are faster if “up” arrows are high in their surround and if “down” arrows are low, that is, when the semantic thrust of up direction and high position are congruent (Clark & Brownell, 1975). Both with verbal and nonverbal input, interactions between form and meaning are typical. Verbal material is often learned better if people attach pictorial (iconic) images while representing it. Many verbal learning studies find that constructing internal images aids memory, whether input is brief or lengthy (e.g., Bower, 1972; Pressley, 1976). It is still too soon to gauge the relative merits of iconic, motor, and verbal imagery as representation modes. Results will depend on task demands, on content’s meaning and patterning, and on learners’ skills. Verbal symbols support the lion’s share of knowledge in daily life, but it is often hard to separate mediating systems. Verbal and pictorial items can interfere equally with iconic scanning, cautioning against a sharp dichotomy (Chow & Murdock, 1976). For difficult content, retention and subjective interest rise if graphic aids are used to represent verbal abstractions (Rigney & Lutz, 1976; White & Rosenthal, 1974). What seems clear is that learning results from cognitive processes and not sheer contiguity or classically conditioned bonds (Bandura & Jeffery, 1973; Langevin & Martin, 1975, Rosenthal & White, 1972). Thus, people perform intricate transformations on mental analogs of spatial inputs (Bundesen & Larsen, 1975; Cooper & Shephard, 1975). Color categories are represented by structural analogies (Rosch, 1975). Stimuli are flexibly encoded (Hawkins, Reicher, Rogers, & Peterson, 1976). A first representation may undergo multiple recombinations before grouping it into higher-order un-
its, and the microsegment's form can interact with molar organization (Spoehr & Smith, 1975).

Thus, modeled inputs are represented in diverse modes and frameworks. Imaginal and verbal mediators are prominent, but the format of cues does not fix the format of storage. Modeled events elicit visual images of serial acts and context stimuli; these can be held as iconic codes that maintain core features. Likewise, observers encode displays into condensed, summary verbal symbols. The same central processes operate in learning from overt experience. In both cases, acquisition stems from symbolic transformations of external information. Except for minimizing errors and backtracking, modeling surveys most cues perceived by performers. In both enactive and vicarious experience, the ongoing input can be too long or detailed for isomorphic storage. Some elements are promptly dismissed as irrelevant. Others are interpreted and revised into meaningful forms. Even when tasks invite rote learning, people redefine them and seek understanding (Bower, 1974; Goldberg, 1974; Rosenthal, White, & Rosenthal, 1975). Also, in both overt and vicarious learning, the representations of novel data will not long endure unless the learner evolves suitable memory codes.

Reductive memory codes maintain modeled events far better than isomorphic imagery. People who devise capsule labels to summarize complex demonstrations retain far more than those who seek to remember by duplicating the cue sequences as imaginal or verbal copies (Gerst, 1971). Memory codes may differ in form from their referents. Bandura and Jeffery (1973) taught one group to code modeled acts into number keys, and another to use a letter code. Both coding groups proved comparable, but surpassed observers who tried to improvise mnemonics. After delay, the systematic coders retained far more than the impromptu groups, which recalled little. Thus, retrieval depends on the power and availability of symbolic transforms to preserve information. Narrative and iconic facsimiles can lose data if not condensed but arbitrary codes will be forgotten unless tied to meaningful guidelines. Pictures, metaphors, analogies, and other salient illustrations bridge novel and familiar information, making it easier to store and retrieve new mediators (Royer & Cable, 1976). If observers first reduce modeled sequences to codes, and then devise intelligible acronyms to facilitate recall of the codes, they retain much more than people who use either component strategy alone (Bandura, Jeffery, & Bachicha, 1974). After delay, retrieval covaried closely with availability of the prior codes that the dual strategy preserved best. Hence, higher-order symbols, like other mediators, depend on organizing frameworks.

External organization involves the patterning and tempo of stimuli; this may differ from the subjective organization that learners covertly apply to the events. Input arrangements interact with people's expectations and organizing styles. Memory and transfer improve when overt and covert structures harmonize. Natural patterns, forming good gestalts that mesh with past rubrics, are easier to encode and store (Bell & Handel, 1976). Haphazard sequences create weaker conceptual learning and transfer than orderly displays, but maximum external structure may not optimize storage and retrieval (Rosenthal & Zimmerman, 1973: 1976). Some degree of uncertainty can prompt learners to think, and strive harder than with overly programed tasks. Cognitive challenge can deflect distracting influences.

The component processes of memory and retrieval are not rigid. Modeling new cognitive strategies and styles can alter processing habits (Zimmerman & Rosenthal, 1974). Momentary cognitive organization hinges on many factors like subjective priorities, cue salience, social demands, and which solution strategy is chosen. The familiarity and spatial configuration of inputs may interact to shift processing tactics (Ambler & Proctor, 1976). Readers actively parse and code to fit task goals. Asked to recall sentences, people read to emphasize syntactic structures (e.g., phrase boundaries); but if asked to comprehend prose, subjects instead dwell on key semantic units (Aaronson & Scarborough, 1976). Mnemonic strategies thus govern how knowledge is approached and cognized.

No magic is needed to improve covert processing by clients or students. Apt organizing schemes and memory aids can be demonstrated, their regularities distilled by discourse, and their correct use assured by practice and corrective feedback. To learn a new language, one group was taught to connect each foreign word with a familiar English
word that shared a common sound, and then to visualize the pair interacting. This cognitive rehearsal technique produced better language acquisition than having learners covertly pair words as contiguous associates (Rough & Atkinson, 1975). Modeling results are very similar. Observers who adopt organized retention schemes outperform peers who use associative rehearsal, or who lack mnemonic codes (Bandura & Jeffery, 1973; Bandura, Jeffery, & Bachicha, 1974).

Motoric Reproduction Processes. The third main determinant of modeling effects is motor reproduction competence. Some tasks require combining familiar, easy movements to enact very abstract plans; chess is an example. Symbolic representations and codes guide motor execution in those undertakings. Jeffery (1976) had observers watch a model assemble more and less complex structures. Then, learners rehearsed cognitively, or motorically with the building pieces, or had composite practice. On both structures, all symbolic organization and rehearsal surpassed purely motor practice, whose results were matched by unrehearsed controls. The outcome was unchanged after a week's delay. For such cases, once an abstract model is acquired, motor enactment is routine unless learners have physical deficits.

For other tasks, goal plans are simple but motor components demand great finesse, for example, hurling the javelin or discus. In such feats, response integration depends on proprioceptive and equilibratory cues, not readily conveyed by the distal senses that inform observers. Athletes report planning and rehearsing symbolically upcoming performances (Mahoney, 1974). Such organized imagery is not perceived by spectators, although the strategy could be taught. Thus, modeling takes a smaller role in the refinement of motor skills governed by movement-contingent feedback. Apt demonstrations confine overt trials to plausible bounds; augmented feedback of learners' errors though videotaped replays aid future attempts. But overt practice and its movement effects are essential for proficiency.

Many tasks join subtle strategies with intricate motor acts, as ballet or violin recitals. Efficiency rises if concept elements are first modeled, and then motor practice given for implementation. In Jeffery's (1976) study, symbolic-then-motor rehearsal led to somewhat faster performance than the reverse sequence. Since so many intricate deeds are guided by central representation, organized solution patterns aid clients. Then, complementary motor practice can refine component movements and motor response integration.

Motivation and Incentive Processes. The last main subprocess underlying modeling outcomes concerns motivational or reinforcement effects. Persons may attend to modeled activities, grasp their meaning, code the gist into durable symbols, retain the guidance in accessible form, and have the response competence to execute it adeptly. Yet, they will rarely perform behavior if they face unfavorable incentive conditions or expect negative sanctions for so acting. In such cases, providing positive incentives can promptly elicit overt enactment of observational learning (Bandura, 1965). Judgments about response consequences do not just dictate what acts to perform and when. Incentive expectations also steer acquisition by prompting selective attention, deliberate coding, and active rehearsal if the modeled patterns promise high utilitarian value (Masters, Gordon, & Clark, 1976).

Reward operations do not stamp in the behavior that precedes them, or assure better performance. Incentives have informative effects and, like other sources of information, are symbolized and weighted before they can guide action (Bandura, 1977a). Thus, depressives may have acquired deficits in aiming deeds at future rewards (Miller & Seligman, 1975). Cognizing response-reward contingencies often controls patients' behavior more strongly than applying reinforcers (Resick, Forehand, & Peed, 1974). If people accept task goals, and are not deterred by negative expectations, the offer or delivery of rewards may have little or no effect (Zimmerman & Rosenthal, 1974). Under special conditions, rewards may do harm. Communal incentives can prompt threats that further handicap laggards (Axelrod, 1973). When people are rewarded for undertaking activities irrespective of quality of performance, the rewards may lower elective persistence (Lepper & Greene, 1975; Ross, 1976). If tasks are redefined as toil, performance and demeanor can suffer (Garbarino,
Such anomalies may occur if attention fixates on incentive features, arousing consummatory sets that detract from instrumental activity.

In any case, rewards bear no absolute valence. Like other events they are weighed in reference to one's adaptation level. Contextual factors that provide standards for comparison, and social equity norms defining fair play, also decide the net worth of a reinforcer. Scarce or plentiful supply, and what partners earn for equivalent performance, will alter the value of raises and praise alike. Satisfaction with a given outcome is relative to others' payoffs and changes when attributed to skill versus chance (Brickman, 1975). Likewise, self-chosen reward schedules motivate stronger response than externally imposed wages in some task settings, but not others (Bandura, 1976b; Weiner & Dubanoski, 1975).

At times, no amount of structured guidance will sustain behavioral involvement unless inducements are provided (Miller, Hersen, & Eisler, 1974). But often rewards are the only source of feedback supplied. Then, performance gains mediated by informative value of reward may be attributed to incentive control. When informative and incentive functions of rewards are separated, clients may learn as well without tangible payoffs (Rosenthal & Kellogg, 1973), and cognitive supports can far exceed reinforcer effects (Zimmerman & Rosenthal, 1974). Such data, and the relativity of valence, should caution therapists against overreliance on incentive inducements. In most cases, far more than needing token points or weekend passes to reward specific performances, people whose lives seem a hopeless morass need (1) cognitive guides that depict their obstacles and options accurately, (2) solution routes that lead in attainable steps from their current status to a more effective level of functioning, and (3) the cognitive and social skills to implement such plans. The subprocesses governing modeled phenomena provide categories to identify deficits, and to suggest apt correctives by modeling and other procedures.

Guided Practice and Corrective Feedback. Demonstrations and instructions are fine means to impart informative rules and to illustrate their use. Therapy does not end when clients grasp exemplary principles or solutions. They need help to apply knowledge until they gain secure mastery in diverse situations, to assure transfer skills and to confirm positive self-expectations. Just as modeling prevents gross flaws in approach, and reduces trial-and-error fumbleings, so does guided practice. Before coping unaided, clients usually need guided practice with corrective feedback and encouragement. Errors are promptly corrected and not allowed to grow habitual or to alter clients' lives detrimentally. A problem with interview insights, even when cogent, is that people are not then aided to devise or execute applications. Clients may ignore them, or translate meanings into rash or clumsy acts that foster new stresses. Structured plans and rehearsal are called for. Typically, combining modeling with guided practice exceeds each method alone (Bandura, 1977b; Zimmerman & Rosenthal, 1974). Feedback can boost cognitive rehearsal, which is better than passive information-processing (Diamond, Steadman, Harada, & Rosenthal, 1975).

Further, therapists' corrective feedback and guidance aid clients' self-regulation on later independent attempts. With many hierarchical skills to integrate, neglecting early mishaps invites steep cumulative costs. So does inattention to personal factors. One does not promote more tolerant self-conceptions, nor inspire respect, by modeling stern fixation on technical milestones. Time gaps between developing and using new skills can long delay gratifications. Unless faith and trust in the therapist can bridge such strains, clients may exit before the fruits of a superbly conceived program grow visible.

Removing Fears and Inhibitions Through Modeling

Modeling techniques can reduce fears and overt avoidance in diverse phobias and related conditions. Once clients are willing to undertake formerly inhibited acts, graded exposures can diminish remaining doubts and instill the benefits of firsthand mastery.

Conditions Maintaining Avoidance

It was once axiomatic that traumatic learning created defensive, "neurotic" conduct. Noxious
events gave associated cues the capacity to elicit autonomic arousal which, in turn, was reduced by instrumental activities that kept one from the locus of fear. By stimulus generalization, anxiety spread on multiple dimensions to related events. By response generalization, avoidant acts fanned out from conduct originally punished to related behavior. This dual-process theory, hinging on physiological arousal and peripheral regulation, has been questioned on grounds discussed elsewhere (Bandura, 1977a; Rachman, 1976). First, much fear learning occurs from observation and not direct experience (Bandura, Blanchard, & Ritter, 1969; Bandura & Menlove, 1968; Fazio, 1972; Rachman, 1974). Second, anxiety and overt avoidance are not strongly linked (Orenstein & Carr, 1975; Riccio & Silvestri, 1973); changes in one system need not alter the other (Black, 1965; Schroeder & Rich, 1976). Third, surgical removal of autonomic feedback capability in animals has little effect on the acquisition of avoidance behavior. Maintenance of avoidance behavior is even less dependent on autonomic feedback (Rescorla & Solomon, 1967). Such cognitive regulators as expectations, social reactions, and situational clues are major influences on emotion (Calvert-Boyanowsky & Leventhal, 1975; Rogers & Decker, 1975). Since central events can activate and maintain bodily arousal, affective labeling, and defensive strategems, avoidance rests largely on semantic cues and symbolic inferences.

Thus, a family resemblance exists between the information-processing operations discussed earlier and the variables that maintain avoidance. The perceived locus of dangers will depend on what cues are selectively attended to and coded as threats, and on categorical similarities in form, function, or meaning that extend avoidance from initial instances to generalized classes. Sensitization effects—that is, weak response until several aversive exposures to a stimulus class have cumulative impact—may perhaps require grouping the inputs as allied.\(^1\)

People dwell on danger cues in order to fend them off. But in so doing, they rehearse worries and prepare escapes that validate and vivify the threats. Sharp distinctions are made among stimuli never encountered, which are often considered as the worst because multiple negative aspects logically demand additive effects. Clients envision their failures, panics, embarrassment, and physical distress. Such cognitive practice can raise autonomic arousal, further validating the avoidance and confirming self-appraisals of weakness or incompetence to cope with the avoided. Also, repeated rehearsal of anticipatory dangers can spur positive feedback cycles that magnify arousal (Eysenck, 1976).

Relearning that cognized threats are less formidable, and habituating to them, are precluded by active efforts to prevent contact. Corrective feedback is ruled out by avoidance. Negative perceptions, and beliefs that one cannot manage certain endeavors, may go unchallenged. If parents, peers, or spouses will not accept the defensive behavior, they may reduce the pattern by coaxing, coercing, and otherwise prompting approach. But if they defer to, encourage, or themselves share the avoidance tendencies, they may support it by special concessions to clients' limitations. Such sympathetic attention to the sufferer, easing of duties, and excuses to escape demands peripheral to the defensive pattern, can further reward avoidance. At times, truly aversive or hazardous fates are thus averted. Far more often, secondary gains are trivial compared to the impoverished experience, self-critical evaluation, social stigma, and convoluted detours imposed by avoidance behavior. In any case, the therapy task is to restore competence and a sense of personal mastery in dealing with feared events.

**Vicarious Procedures**

Because defensive behavior is largely maintained by cognitive preparations to ward off anticipated dangers, fear reduction depends on changing the sexuality. "When we were young and easily freudened." Cognitive slippage sometimes ascribed to "unconscious" phenomena may stem from similar causes, especially when intense arousal burdens subtle symbolic tuning mechanisms.

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\(^1\)Given the volume and complexity of informational traffic, some errors in grouping and retrieving information within and between classes is inevitable. Slips of the pen or tongue may hinge on extracting items, not entirely on the conceptual focus, from overlapping categories. So may wit, for example, James Joyce's quip about youthful
covert meanings that regulate response to overt events. When safe, successful approach steps are directly enacted, threatening stimuli are progressively redefined as harmless by performers. Events once construed as aversive become neutral (e.g., heights, small animals), or are viewed as means to satisfactions (e.g., driving, swimming, social interaction). Much of the information created by direct approach is available to observers who witness models engage in feared acts, or who cognitively practice equivalent symbolic facsimiles. Through observation, clients can rehearse symbolically the feared activities that share many features of direct approach. Such efforts are steps enroute to eventual performance, and weaken the customary inhibitory pattern. Clients can also provide themselves with positive feedback, similar to what is derived from overt action. For fear extinction to occur in any therapy, cognitive regulators must be altered. External danger is trivial compared to dire symbolic representations and their defensive effects. The physical features of writhing snakes, dark rooms, and steep mountain trails remain constant before and after treatment. Fear is eliminated when the perception, meaning, and anticipatory sets triggered by environmental events no longer signify threat. The nominal source of disinhibiting feedback counts far less than its impact on client’s cognitive processes. New information may stem from direct contacts, observation of models’ direct contacts, or purely imaginal rehearsal of contacts. But the locus of extinction is symbolic in each case. What changes is the predictive value of environmental events—their subjective meaning and judgments about their implications for action. When vicarious exposures lower avoidance enough that clients will attempt overt coping, direct experiences create further positive feedback until confident mastery is achieved.

Overt Modeling.
Fearful observers profit from viewing others perform threatening activities. Much research shows that observing live or filmed models can extinguish timorous conduct and affect, partly or totally, depending on the intensity of clients’ avoidant behavior. Instead of hoping for insights to transfer from consulting room to real life, or awaiting spontaneous encounters to elicit approach, the therapist fosters response enactment by structured demonstrations. With phobic children, live and filmed modeling in which peers interacted calmly with feared objects brought similar gains (Bandura, Grusel, & Menlove, 1967; Bandura & Menlove, 1968). Restored approach competence transferred to new test situations and was maintained in follow-up tests. Socially anxious, withdrawn toddlers viewed a film of peers who first watched and then gradually took part in enjoyable group activities. The observers later increased their level of interpersonal interaction, unlike matched controls who remained isolates (O’Connor, 1969). Next, contingent reward for social participation was contrasted with filmed modeling. Whether given rewards or not, the groups having the benefit of modeling commenced interaction faster, and maintained sociability at follow-up. The rewarded group reverted to withdrawal, interacting at the level of untreated, control isolates (O’Connor, 1972).

Adults and adolescents presenting various inhibitions have benefitted from similar overt modeling. Vicarious extinction of fears, and behavioral disinhibition, have been found with severe animal phobias (e.g., Bandura & Barab, 1973; Bandura, Blanchard, & Ritter, 1969; Blanchard, 1970), with examination anxiety (e.g., Jaffe & Carlson, 1972; Mann, 1972), with compulsive rituals (Rachman, Hodgson, & Marks, 1971), and with sexual underresponsiveness (Wincez & Caird, 1976). Other examples of overt modeling producing vicarious gains are given below, in studies comparing alternative modeling treatments. Recent trends suggest that modeling is being included in multicomponent, composite programs to successfully remove inhibitions, such as phobic reactions to air travel (Denholtz & Mann, 1975) and social communication (Wright, 1976).

Covert and Symbolic Alternatives.
If reduction in fears and inhibitions depends on the cognitive formulations and preparatory responses that people generate toward external events (rather than on automatic control by peripheral cues), symbolic counterparts of overt experiences should produce many of the same effects. In principle, if equivalent meanings result from direct, observed,
and imagined approach sequences, there should be no outcome differences among the alternative modes of exposure. Particular guidance formats may diverge in the vividness, plausibility, and clarity of the information they impart. Some messages will have greater impact than others. The organization of content, its personal appeal, and client characteristics may favor one mode over another. However, when variant forms of treatment have similar symbolic effects, clients should benefit equally despite differences in the vehicles conveying the information. Thus, cognitively visualizing a modeling episode, or properly interpreting directions that specify similar covert approach steps, should have consequences akin to scrutinizing a model's behavioral portrayals.

In fact, with cognitively sophisticated college samples, covertly imagining models enact approach scenarios has had salutary results. For example, Kazdin (1973, 1974a, 1974b) instructed snake-fearful students to imagine people engaging in progressive contacts with serpents. Approach behavior increased and fearfulness declined after the cognitive modeling. Differences in the status and demeanor of the symbolic models produced outcomes that paralleled those from comparable variations used with overt modeling. Similar covert modeling benefits have been obtained with socially timid, submissive clients. Those who visualized models deal forcefully with interpersonal situations reduced inhibitions more than untreated controls. When the performers and the response consequences for social expressiveness were varied in imagination, differential treatment outcomes were found (Kazdin, 1974c, 1975, 1976). A group that imagined modeled acts earning reward elaborated the content of scenes more than did a no reward condition, but qualitative nuances of imagery failed to alter extinction (Kazdin, 1976).

In direct comparisons to date, overt and covert therapeutic modeling arrays have yielded equivalent benefits with college samples. Cautela, Flannery, and Hanely (1974) report that imaginal modeling and observing live modeling produce comparable results, although the latter treatment reduced fear and achieved terminal performances more effectively. Functional equivalence of methods was found among women afraid to resist infringements of their rights. Although all conditions made gains, viewing overt demonstrations of protecting personal interests was no better than a group that imagined the same modeling scenes, or another group that imagined the scenes recast as individually tailored episodes (Rosenthal & Reese, 1976). Students proved readily able to represent cognitively the content of modeling scenarios in both foregoing studies.

Obviously, further confirmation that cognitive modeling compares favorably with overt demonstrations would argue for the covert technique on utilitarian grounds. Reliance on images is simpler and more efficient than are behavioral demonstrations. Also, difficult to arrange resources like access to airplanes, public speaking practice forums, or remote locales, could be reserved for direct mastery trials after vicarious extinction has made its contribution. Several boundary constraints on covert modeling need further checking. If clients' symbolic facility is poor, imagined activities may lack fidelity compared to overt demonstration. Thus, young children (Rosenthal & Zimmerman, 1972) and retardates (Forehand & Yoder, 1974; Rosenthal & Kellogg, 1973) have processed actual examples better than symbolic facsimiles. Likewise, many activities may be too intricate for people to address in fantasy (consider the skein of conditional rejoinders needed to aptly handle a stressful employment interview), or may be too threatening for very avoidant clients to represent accurately early in treatment. Such instances invite fantasy errors in adept enactment, but are also the cases where distortions seem hardest for therapists to monitor, detect, and rectify promptly. Hence, research is needed to clarify the problems and client characteristics that admit or discourage the use of covert modeling techniques. However, clinical evidence that overt and symbolic demonstrations can promote similar changes sheds light on how therapeutic outcomes are mediated.

Source of Information and Functional Redundancy

Observationally achieved gains illustrate that overt response is not required to diminish fear and avoidance. Covert modeling gains illustrate that useful guidance can be extracted from multiple informa-
tive channels. This further suggests that common central mechanisms underlie many externally distinctive brands of therapy. Therapist-defined procedures count less than client-defined meanings to determine functional similarities and differences among alternative methods. Not that procedural permutations are trivial—or that research comparing specific format variations is contraindicated! But until there is better understanding of the variables that control how clients interpret, and act on, therapeutic influences, it will not be surprising if plausible variations in method foster negligible outcome differences. For example, there is reason to doubt that the best organized task will necessarily surpass structuring that forces learners to make some active efforts to organize things for themselves (e.g., Battig, 1972). Moreover, the ordering of training sequences has complex effects on learning and transfer, depending on the specific task procedures (Rosenthal & Zimmerman, 1973, 1976). Thus, exclusive focus on presenting complaints need not be the optimal strategy for constructing modeling displays. Some groups of phobic clients only witnessed modeled episodes based on their respective problems. Other groups instead received one-third as many exposures drawn from handicaps, and on the remaining trials viewed approach scenes not of major concern to them. Yet both content variations produced equal vicarious extinction of the target complaints (Linehan, Rosenthal, Kelley, & Theobald, in press).

Such data exemplify the conceptual gap between intuitively plausible expectations and symbolic processes that govern behavioral progress. Sometimes variations in the sequencing of component steps will lead observers to adopt divergent standards. Those, in turn, can produce complex treatment outcomes that depend on which modeling variables are selected for study or are ignored (Feist & Rosenthal, 1973).

Related to the therapy impact of specific event structures is the puzzle of untangling causation if multiple interventions share common meanings. The assets and shortcomings of a treatment element will hinge not only on its virtues, but on the context in which it is introduced and its effects measured. The guidance value of a procedure administered by itself will differ from its worth if assessed relative to other options, redundant in information, which accompany, precede, or follow it. For example, clinical studies find that a first intervention usually promotes more change than procedures that follow afterward (Boulougouris, Marks, & Marset, 1971; Watson & Marks, 1971). This probably occurs because all the variance shared by related procedures will be preempted by the initially applied method. It will create the changes that could largely be prompted by any of its functional counterparts, thereby imposing a ceiling effect on their common contributions: later procedures that provide redundant information will only add appreciably if they also control variance not highly correlated with the common factor. Such primacy effects are especially likely in crossover designs, and when a narrowly defined element is placed after, or added to, another technique. In that case, operations that are helpful by themselves may appear weak, even though inverting the sequence of procedures might qualify or reverse the results (Blanchard, 1970; McFall & Twentyman, 1973; Mann, 1972). To prevent misleading conclusions, perhaps the simplest expedient would be to routinely counterbalance serial position among related procedures. But this will pose problems when the organization of treatment procedures is governed by logical, stylistic, or pragmatic constraints.

The issues discussed above are often neglected or misunderstood. For example, Marks' chapter in this handbook dwells on the element of exposure to threats in modeling therapies to reduce fear. No meaningful treatment of fearful behavior, whatever its form, can be applied devoid of exposure—whether it is direct, vicarious, or symbolic—to what people fear. Since it is impossible for a treatment to be directed at a void, the notion of exposure reduces to the simple observation that reduction of fearful behavior requires some commerce with fear-relevant stimuli. One can, of course, have fearful people engage in activities in which they are provided with no opportunities to interact with feared objects, to observe others do so, or to confront what they fear in imaginal representation. Such a procedure would be regarded as a handy control condition but a nonsensical treatment.

Both acquisitional modeling and disinhibitory
modeling serve as ways of transmitting information, but they alter behavior though different types of information. Acquisitional modeling informs observers on how response elements are synthesized into new patterns. From observing others, one forms a conception of how new behavior patterns are performed and on later occasions the symbolic construction serves as a guide for action. Disinhibitory modeling operates through the information it conveys about personal efficacy and the consequences of approach responses. Contrary to Marks, the term modeling has never been used as synonymous with exposure. Disinhibitory modeling has always been explicitly defined in terms of observing actions performed toward threatening objects without any untoward consequences to the model (Bandura, 1969).

Experiments can be performed to demonstrate that modeling nonsensical and irrelevant behaviors involving no commerce with threats does not reduce fearful behavior. Marks cites several studies of this type. The findings of such studies say more about the irrelevance of the research than about the effectiveness or processes of disinhibitory modeling. The substantial evidence already reviewed demonstrates that modeling provides an effective mode for transmitting information about personal efficacy and the likely consequences of approach responses. Such information reduces fear. Control conditions expressly designed to assess the effects of exposure to threatening objects that show that exposure alone has negligible effects (Bandura, Grusec, & Menlove, 1967; Kazdin, 1973, 1974a, 1975).

The judgments expressed by Marks regarding disinhibitory modeling rest heavily on arbitrary re-labeling of treatments. For example, two versions of modeling in which subjects observe either themselves or others successfully executing approach responses are transformed into "modeling" versus "nonmodeling" categories. Since the two versions yield comparable results, the arbitrary dichotomy is interpreted to show that modeling has no effects. The data, however, merely affirm that similar modeling treatments (visualizing approach responses without adverse consequences) produce similar outcomes. In other examples, modeling is arbitrarily wedded to irrelevant activities but divorced from relevant performances. In treating clients who are obsessed over dirt contamination, seeing a therapist relax is designated as modeling, whereas observing a therapist engage in soiling activities is labeled as "the therapist expose(s) herself to contaminating situations." Since observing irrelevances (e.g., relaxation or hearing former clients describe variable improvements) does not change obsessions or agoraphobias, modeling is again judged unhelpful. Other judgments of comparative efficacy are derived from studies of redundant treatments that confound order of administration or include modeling as unrecognized elements in the alternative formats. Arbitrary analytic practices create confusions, spurious disputes, and trivialize substantive issues of importance.

The issue of interest is not whether a viable treatment does or does not include exposure, but rather the form the transactions with the threats take, the information derived from those transactions, and the mechanisms by which the transactions produce changes in behavior. The descriptive concept of "interactional exposure" has no explanatory value and little predictive utility. No one would argue with the notion that duration of commerce with feared stimuli is a variable that can affect behavioral change. However, when one examines this conception for more specific predictions, it yields little.

According to Marks, approach to feared objects is the critical ingredient in interactional exposure. Actually, it is not the interactional exposure but the effects of interaction that form the critical factor in reducing fears and defensive behavior. Interactional exposures that produce injurious consequences create and reinforce fears and inhibitions; interactions that result in personal mastery and beneficial outcomes eliminate fears and inhibitions.

Gross variations in amount of exposure to threats without adverse consequences will ordinarily produce some differences at the group level. That is, participants who deal with threats for five hours will, as a group, usually achieve greater change than those who are treated for one hour. But "exposure" is of no value either in explaining or in predicting the wide variations in behavioral changes exhibited by clients who have received the same amount of exposure. Regardless of whether the treatment involves desensitization, flooding, ra-
tional emotiveness, cognitive restructuring, or any other method one might wish to insert, the standard finding is marked variation in behavior under the same duration of treatment. Nor is exposure of much help in predicting changes in behavior achieved through different forms of treatment. Enactive mastery produces substantially better results, in much shorter periods of exposure, than does symbolic mastery (Bandura, 1977b; Bandura, Blanchard, & Ritter, 1969). Although enactive and imaginal formats both involve “interactional exposure,” it is the modality through which self-efficacy and outcome information is conveyed, not exposure, that is the useful predictor. Exposure is best considered as a quantitative variable (e.g., the amount of time spent confronting threatening stimuli if therapies diverge in this respect) and not as an explanatory construct, or as a categorical basis to distinguish among treatment strategies.

Research conducted within the social learning framework, to be reviewed later, lends substantial validity to the theory that psychological influences alter defensive behavior by enhancing the level and strength of perceived self-efficacy (Bandura, 1977b). By encompassing all modalities through which efficacy information is conveyed (i.e., enactive, vicarious, exhortative, and emotive), this conceptualization provides a common theoretical framework for explaining and predicting behavioral changes accompanying diverse modes of treatment. Thus, efficacy expectations predict with high accuracy variations in improvement between and within treatments, and even the rate of improvement during the course of treatment.

Marks suggests that self-efficacy may reflect a “fearful attitude.” As we have previously noted, the findings of different lines of research lend little support to the view that fear regulates defensive behavior. Fear and avoidance are not closely related. Both are effects of some other cause. In the social learning theory of anxiety, it is mainly perceived lack of efficacy for managing potentially aversive situations that makes them fearsome. People are afraid of things they cannot cope with, but they do not find them fearsome if they believe they can manage them. A weak sense of efficacy can thus produce both fear and defensive behavior. Empirical tests support the view that perceived self-efficacy mediates fear (Bandura & Adams, 1977). High self-efficacy is associated with weak anticipatory fear and low fear arousal during performance of threatening activities.

Attributes of Models.
People are more likely to process and implement information transmitted by social sources who compel attention (Grusec & Skubiski, 1970; Yussen, 1974), who deserve trust (Beutler, Johnson, Neville, Elkins, & Jobe, 1975; McGarry & West, 1975; Raw, 1976), who appear realistic reference figures to compare with oneself (Brown, Brown, & Danielson, 1975; Festinger, 1954, Kanfer, Karoly, & Newman, 1974), who depict consensus in a sample of individuals (Bandura & Menlove, 1968; Kazdin, 1975, 1976), and whose conduct offers plausible standards to guide observers’ aspirations (Bandura, 1976b; Kazdin, 1974b; Rosenthal & White, 1972; Thelen & Kirkland, 1976). In essence, models’ impact will be positive functions of their relevance and credibility for observers.

However, the specific operations that determine models’ impact will vary with context, and depend on clients’ inferences and standards of comparison. Coping models, who begin by sharing some of clients’ fears or failings but progressively gain poise and confidence, typically surpass mastery models, who start with faultless expertise (Meichenbaum, 1971; Kazdin, 1973, 1974b). A coping model first mirrors clients’ own woes (more relevance), but also, people who overcome handicaps and shift toward success earn positive social judgments (Levine, Ranelli, & Valle, 1974). Exceptions occur if coping models display excessive distress, social distance from observers, or both.

To the extent that coping models facilitate boldness in others, the effects are probably achieved by increasing expectations of personal efficacy rather than by the modeled fearfulness. It is possible to capitalize on the benefits of model similarity without temporarily exacerbating fear arousal by exposure to frightened models. The similarity can be presented historically by depicting the skilled model as a person who had previously suffered similar fears that were successfully eliminated through treatment. In this type of approach, which is a common rehabilitation practice among self-
help groups, model mastery of problems is portrayed historically rather than enacted currently.

Within limits, model-client similarity (e.g., in age, sex, or needs) improves vicarious outcomes (Kazdin, 1974a; Kornhaber & Schroeder, 1975; Thelen, Dollinger, & Roberts, 1975). Such results suggest that peers who have solved, or share, common problems are effective tutors. Some efforts to test peer systems have worked well (e.g., Fremouw & Harmatz, 1975; Nelson, Worrill, & Polsgrove, 1973) and invite further extensions (Rosenthal, 1976), yet, diversity in social exemplars is helpful. Progress is greater if clients observe multiple models performing the feared activities (Bandura & Menlove, 1968; Marburg, Houston, & Holmes, 1976) and also when models occupy a range of positions relative to the client’s status (Kazdin, 1975, 1976).

In contrast, models’ personality styles have had negligible effects (Bandura, Blanchard, & Ritter, 1969; Mann & Rosenthal, 1969), unless harsh or otherwise inappropriate (Vernon, 1974). A warm, nurturant model elicited more incidental emulation by chronic psychotics, but no better task progress than a neutral model (Chartier & Ainley, 1974). In treatment with neurotics, warm, and neutral model roles proved equal, but both surpassed a cold model group that gained no more than untreated controls (Goldstein, Martens, Hubben, Van Belle, Schaaf, Wiersma, & Goedhart, 1973). Because models are usually perceived as assistants to the therapist, who is (or should be) warm and supportive, clients will extend trust to models if not clearly unmented. Thus, models’ personal traits seem less critical than how well their aptitudes and behavior provide cogent guidelines.

When models grossly depart from plausible conduct (Vernon, 1974), clients are more likely to define therapeutic influences in ways not intended by therapists. Because therapists’ social influence will depend on their credibility, and can count more in treatment than permutations of method (Russell, Armstrong, & Patel, 1976), the clients’ viewpoint must be taken into account. Ambiguity or doubt can raise people’s vulnerability to threats even if degree of perceived similarity to the model has no effect (Brown, 1974). The situational set or definition that clients adopt can greatly alter what the influences signify, and lead to different results, despite constancy in modeled performance. Thus, observers who empathized with their model reacted quite unlike others who took a detached, onlooker role (Adelman, Brehm, & Katz, 1974; Regan & Totten, 1975). As with the loose coupling between fearful affect and avoidant acts, the linkage between modeled events and observer response depends on the stance, interpretation, and expectancies that patients adopt.

**Common Features in Variant Symbolic Procedures.**

Similar information and meaningful inferences can be drawn from many permutations of input. Hence, it is not surprising if symbolic modeling produces much the same results as related guidance techniques bearing other labels like systematic desensitization, role-playing, and flooding. Nominal format differences may prompt contrasting brandnames that emphasize superficial distinctions but obscure basic commonalities. Ordinarily, all such methods share a number of important treatment features that overlap substantially in form, organization, substance, and functional consequences. These common aspects include: (1) **situational settings and goals.** Clients enter treatment with the aim of changing certain patterns of behavior. (2) **Encounters with beneficial feedback.** Clients observe, imagine, or simulate restored contact with threats, and gain appropriate performance skills, by symbolic rehearsal with corrective guidance under protected conditions. (3) **Organized presentation formats.** The treatment procedures are directed at actively developing or restoring competence, using orderly sequences of steps clients can grasp. Whether for symbolic, simulate, or actual practice, the essential components of the desired behavior are mapped and transmitted coherently, usually in graded stepwise progression. Therapists often supply guiding rationales to explain why treatment elements will assist the client. (4) **Inferential parallels for self-directed efforts.** Whatever the specific treatment procedures, similar core implications are conveyed: to increase contacts with the formerly avoided, to speak up for oneself, to converse with companions in ways that are mutually interesting, to negotiate compromises with partners about
budgeting, sexual conduct, childcare, and so on. All these features, and (5) social influence exerted by the therapist, occur in most behavioral psychotherapies. As with other types of information, a range of social sources and influence formats can lead to comparable molar effects (Simpson, Rosenthal, Daniel, & White, in press).

Sometimes, the special hallmark of one therapy is equally applicable to variant brands. For example, implosion rests on a strategy of presenting high intensity fantasy items at the outset. Within limits, this may be an efficient technique (e.g., Boudeyns, 1975; Emberle, Rehm, & McBurney, 1975), because stringent instances create judgmental displacement of the remaining items (i.e., "contrast effects"). After visualizing a jeering, hostile audience, clients will by contrast weight public speeches under usual classroom conditions as relatively innocuous, even if the more dramatic trappings of implosion fail to enhance progress (White, Rosenthal, & Gerber, 1975). However, the perceived contrast produced by intense items as standards are not specific to the implosion method. The same strategy can be adapted to desensitization hierarchies (as flooding), to modeled episodes, or to role-playing routines.

The difference between self and another as actor can be important, especially on overt trials where one’s own poise is far more relevant than a stranger’s. With symbolic trials, frightened clients may at times find it more plausible if a model meets the peak challenges than if they try to visualize themselves coping with terrifying events. However, videotaped models were no better than desensitization scenes for removing spider fears (Denney & Sullivan, 1976). Observing a performer overcome social inhibitions, imagining a model perform instead, and imagining oneself as the actor can produce the same changes (Rosenthal & Reese, 1976). Further, in actual clinical practice, many therapists elaborate desensitization items to generalize their content, increase their vividness, and expand clients’ perception of sustained, correct participation. Under such conditions, desensitization and symbolic modeling may not only yield indistinguishable benefits, but may involve substantially identical cognitive events. Research comparing direct with vicarious desensitization of test anxious students has found equivalent results whether observers watched videotapes or treatment given to live peers, and whether clients were treated individually or in groups (Denney, 1974; Mann & Rosenthal, 1969).

Although various studies (e.g., Borkovec, Kaloupek, & Slama, 1975) have confirmed the value of relaxation training, its inclusion or exclusion has not greatly altered comparative outcomes. Relaxation does not enhance the effects achieved by live modeling (Bandura, Grusec, & Menlove, 1967) or symbolic modeling (Bandura, Blanchard, & Ritter, 1968). Vicarious desensitization gains were unchanged if the relaxation component was omitted, and whether or not observers actively copied the model’s responses (Mann, 1972). In a test with small animal fears, symbolic modeling progress rose by slender margins if supplemented by relaxation (Denney & Sullivan, 1976).

Likewise, when modeled and role-played simulations were combined, improvement has been somewhat better than, or just equal to, desensitization, depending on which response measures are examined (e.g., Curran & Gilbert, 1975; Marzillier, Lambert, & Kellett, 1976). Similar marginal differences were found in comparisons between symbolic modeling and flooding (Rachman, Marks, & Hodgson, 1973). But adding versus omitting a modeling tape (Emmelkamp & Emmelkamp-Benner, 1975), or terminal response demonstrations (McFall & Twentyman, 1973), had no effect when largely redundant with other guidance procedures that were also given. Sometimes, related but competing procedures overlap in major themes, yet vary in so many details, that crediting an advantage to one or another approach becomes arbitrary (e.g., Lira, Nay, McCollough, & Etkin, 1975; McFall & Twentyman, 1973). However, when alternative methods provide distinct sources of influence, combining procedures will typically surpass each separate component. Videotaped playback of self-modeled behavior added to narrative commentaries was far more useful than the purely verbal feedback alone (Edelson & Seidman, 1975). Opposed response-prevention methods both improved when either was joined with modeling (Boersma, Den Hengst, Dekker, & Emmelkamp, 1976). If we had some means to compute
the coefficients of overlap among alternative methods, they might facilitate selecting elements for composite programs rationally. A simple, pragmatic hypothesis is proposed: unless procedures are structurally incompatible (e.g., imaginal flooding and desensitization), the less covariation between two effective treatments, the better their combination, and vice versa.

In related spheres, contingent and noncontingent covert (imagined) reward and fantasy exposure without reward were equally helpful but all exceeded an attention-placebo control group (Hurley, 1976). This again illustrates the weakness of incentive prompts if clients grasp treatment meanings and concur with their implications. Pitted against each other, contingent praise assisted much less than precise feedback for overcoming phobic avoidance (Leitenberg, Agras, Allen, Butz, & Edwards, 1975). Under naturalistic conditions, people's ability to benefit from new experience depends on being able to discriminate their performance by assessing its strengths and failings, and to apply that information to guide future efforts constructively. Thus, monetary loss or gain contingent on stuttering acts had trivial impact compared with training to use self-observation and recording as feedback devices (Lanyon & Barocas, 1975).

Equivocal at first blush, all the foregoing data taken together provide further evidence for the importance of human information-processing. Comparing covert, filmed, and live symbolic modeling, or any of those with desensitization, flooding, or simulated role-plays, one finds roughly equal outcomes. Those, in turn, reflect the functional overlap of information provided by the methods as well as commonalities in the mediating events that underlie client changes. What does appear to make a major difference is whether treatment is confined to facsimile conditions or, instead, is moved out into the natural contexts and provides clients with practiced skills to deal effectively with the problems they face in daily living.

**Participant Modeling**

"Nothing succeeds like success." Folk wisdom (The proof of the pudding . . .") has long asserted the hazards of extrapolating from the potential to the achieved. Clients who observe others or imagine themselves renewing contact with avoided situations must still put simulated progress to actual test. People often doubt that they can "really" tolerate enclosed spaces or mount steep heights unless actual trials confirm restored ability. Desensitization clients sometimes worry that fantasied advances will be refuted when they ultimately face what they fear (Karoly, 1974). Only direct confrontation, if performed adequately, can fully remove such concerns. Even taking a few overt contacts in stride may leave lingering doubts. Clients need evidence of some sustained mastery with a range of real instances before they can firmly accept that success in first encounters was not a fluke. Treatment is incomplete until clients are confident they will be able to perform adeptly on future occasions, when alone and unaided (Roper & Rachman, 1976).

Contrary to the widely accepted view that all forms of treatment are equally effective (Luborsky, Singer, & Luborsky, 1975), some treatment approaches are decidedly more powerful than others. Most of the behavioral treatments developed in recent years have been implemented either through performance or by symbolic procedures. Regardless of the methods involved, results of comparative studies attest to the superiority of performance-based treatments (Bandura, 1977b). Performance desensitization produces substantially greater behavioral change than does symbolic desensitization (LoPiccolo, 1970; Sherman, 1972; Strahley, 1966). Real encounters with threats are superior to imagined exposure (Emmelkamp & Wessels, 1975; Stern & Marks, 1973; Rabavilas, Boulougouris & Stefanis, 1976; Watson, Mullet, & Pillay, 1973). Participant modeling, which uses successful performance as the primary vehicle of change, is much more effective than modeling alone (Bandura, Blanchard, & Ritter, 1969; Blanchard, 1970; Lewis, 1974; Ritter, 1969; Roper, Rachman, & Marks, 1975), symbolic desensitization (Bandura, Blanchard, & Ritter, 1969; Litvak, 1969), and cognitive modeling (Thase & Moss, 1976). Further, clients who only make partial improvement after facsimile contacts promptly attain complete recoveries when subsequently administered modeling with guided participation (Bandura, Blanchard, & Ritter, 1969; Thase & Moss, 1976).
Participant modeling programs eliminate separation in time or context between demonstrations and guided practice elements. Clients and therapists work at a graded hierarchy of tasks that eventually leads to mastery of feared activities. At each step the therapist exemplifies the relevant activity while the client observes, then accompanies the client during performance until the client gains enough skill and self-assurance to attempt the task alone. Once clients can handle formerly threatening situations on their own with relative comfort, more difficult tasks are introduced. The same strategy is applied until the hardest steps are eventually completed. At that stage, further independent practice is supplied until clients have mastered several different instances by themselves, and expect they can tackle successfully any plausible future encounters (Bandura, Jeffery, & Gajdos, 1975). Treatment continues as long as needed for clients to confirm overt competence and a strong sense of personal efficacy.

A number of technical features allow therapy to commence in the natural setting. First, the presence of the therapist is a source of comfort and support (Epley, 1974). Even in a simplified situation, clients accompanied by the therapist are able to approach feared stimuli more closely than those who performed while the therapist, only a few feet distant, watched (Feist & Rosenthal, 1973). Second, pains are taken to reduce the client's inhibitions and distress during overt attempts by means of diversified response induction aids (Bandura, Jeffery, & Wright, 1974). Even profoundly inhibited acts can usually be elicited if their form, context, or duration is modified to meet clients' tolerance. Initially, claustrophobics might endure confinement for just seconds, with intervals gradually lengthening until minutes and later hours can be tolerated. Verbal or physical reassurance from the therapist can reduce avoidance and arousal during early trials, before clients are willing to attempt the subtask on their own (Ritter, 1968, 1969).

The severity and type of problem will determine the specific performance aids that may be required. A program to remove driving inhibitions might start with brief trips on secluded streets in minimal traffic, advance to longer drives on more active routes with scattered traffic, and culminate in lengthy excursions on crowded freeways under difficult weather conditions. The same dimensional principles are applied to graduating and structuring the components of active practice tasks. Some data suggest that stepwise increase in task difficulty has advantages over immediately facing the client with intensely demanding performances (Boersma, Den Hengst, & Emmelkamp, 1976; Emmelkamp, 1974), but this will depend on the severity of clients' handicaps and the range of situations spanned in the hierarchy (Kirsch, Wolpin, & Knutson, 1975; Rankin, 1976). Clients who abandon appealing careers, or deny themselves many social and recreational rewards because of incapacitating fears and inhibitions, will not likely achieve high competence without first mastering intermediate challenges, especially when skill deficits as well as inhibitions must be overcome.

In any case, treatment planning is constrained by the specific activities the client will or will not undertake (Rosenthal, 1976). Clients' attempting or refusing to perform a given task sets the limits on the momentary content of treatment. Therefore, various behavior supports are provided to facilitate coping efforts. Protective devices can be introduced and progressively faded out. Contact with feared animals can be prompted if their movements are first restrained, and if clients wear protective gear. Peering down from windy rooftops or sheer cliffs is eased if safety lines secure the client to firm anchorings. Other performance aids designed to overcome fearful avoidance during overt practice are illustrated elsewhere (Bandura, Jeffery, & Wright, 1974; Rosenthal, 1976).

When participant modeling is used to redress skill deficits, added kinds of behavior supports may be valuable. Thorough assessments that delineate concrete facets of interpersonal conflict will prepare the clinicians to deliver cogent guidance and feedback (e.g., Thomas, Walters, & O'Flaherty, 1974). Then, various cueing devices can be used to prompt appropriate behavior during complex social interactions (Carter & Thomas, 1973; Weathers & Liberman, 1973). Demonstrating self-regulatory strategies and providing cognitive mnemonics can guide conduct and help keep clients' attention from straying into futile or self-defeating channels. Unless information processing
activities are properly guided, an intervention may have variable or harmful effects (Kauffman, LaFleur, Hallahan, & Chanes, 1975). Many natural categories for representing events do not reflect a reasoned weighting of instances, but instead rely on subjective prototypes that can distort or ignore intended meanings (Rachman & Seligman, 1976, Rosch, 1975).

The advantages of performance aids for inducing requisite behavior should not be confused with their limitations for maintaining behavior. Put most simply, the more aids used to assure performance, the more that treatment departs from the real life conditions clients must eventually manage unaided. Once clients can endure participation, the supports are faded out until competence is sustained without any aids. Unless people end by attributing their gains to enhanced personal resources, they have reason to doubt the significance of progress and its predictive value for future challenges. One cannot assume that the more protective devices the better. When participant modeling outcomes were compared for clients given few, more, or many inductive aids, the minimally aided gained much less than both other groups, but maximally aided did not surpass moderately aided treatment. Yet the most extreme, refractory cases later profited from added therapy with unlimited response induction aids (Bandura, Jeffery, & Wright, 1974). In practice, therapists will use however many aids are needed to assure early successful performance, but will then withdraw supports as clients become skilled at the activities. At that point, independent practice in various situations is added to instill mastery. Providing opportunities for self-directed accomplishments after the desired behavior has been established further increases the level and generality of change and enhances perceived self-efficacy (Bandura, Jeffery, & Gajdos, 1975).

A Common Cognitive Mechanism of Operation.

Bandura (1977b) has proposed a theory to account for changes produced by alternative treatments that differ in external form. According to this theory, psychological procedures, whatever their format, serve as ways of creating and strengthening expectations of personal effectiveness. Expectations of efficacy affect people's choice of activities and behavioral settings, how hard they strive, and how long their attempts will persist despite barriers, adverse feedback, or other response costs.

Expectations of personal efficacy stem from four main sources of information. Performance accomplishments provide the most influential efficacy information because such information is based on personal mastery experiences. The other sources include the vicarious experiences of observing others cope and succeed; verbal persuasion, exhortation, and allied types of social influence; and states of physiological arousal from which people judge their level of anxiety and vulnerability to stress. A number of factors influence the cognitive processing of efficacy information arising from enactive, vicarious, exhortative, and emotive sources. Thus, for example, cognitive appraisals of the difficulty level of the tasks will affect the impact of performance accomplishments on perceived self-efficacy. To succeed at easy tasks provides no new information for altering one's sense of self-efficacy, whereas mastery of challenging tasks conveys salient evidence of enhanced competence. Momentary setbacks or advances count less than the conclusions clients draw from sequences of events. People who stumble and fail, but detect relative progress, may enhance self-judged efficacy more than those who succeed but interpret their efforts as deteriorating or stuck on a plateau compared to prior attempts. Perceived self-efficacy refers to people's conviction that they can engage in and successfully execute given deeds, not to short-run payoffs the behavior may earn. Obviously, although confident about their ability to perform, people withhold actions that are judged too costly or against their best interests.

Empirical tests of this theory (Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977) confirm that different treatment approaches alter expectations of personal efficacy, and the more dependable the source of efficacy information, the greater the changes in self-efficacy. Thus, treatments based on performance accomplishments through the aid of participant modeling produce higher, stronger, and more generalized expectations of personal efficacy than vicarious experi-
ences alone, or elimination of emotional arousal through systematic desensitization. Behavioral changes correspond closely to level of self-efficacy regardless of the mode of treatment. The higher the mastery expectations, the greater the likelihood that clients will cope successfully with threatening situations. The relationship is most precisely revealed by microanalysis of the congruence between self-efficacy and performance at the level of individual tasks. This measure is obtained by recording whether or not clients consider themselves capable of performing the various tasks and computing the percent of accurate correspondence between efficacy judgment and actual performance. Self-efficacy was an accurate predictor of performance in 89 percent of the behavioral tasks for participant modeling, in 86 percent of the tasks for mastery expectations instated by modeling alone, and in 89 percent of the tasks for increases in self-efficacy produced by desensitization treatment. When clients are tested at periodic intervals during the course of treatment, self-efficacy predicts with a high degree of accuracy how much the individuals will change in their behavior after receiving limited amounts of treatment.

In general, the efficacy analysis is able to account for performance variations both between and within therapeutic modes, and to predict behavioral approach on specific tasks during the course of treatment and after it is completed. The foregoing theory integrates the results of heterogeneous treatment approaches. It proposes a common cognitive mechanism that regulates overt behavior, and provides an explanatory framework for the impact of behavioral psychotherapies in general. Most of the treatment issues, already reviewed and to be discussed, gain coherence when viewed in these terms.

DEVELOPING SOCIAL SKILLS THROUGH MODELING

Personal problems often intermesh skill deficits with behavioral inhibitions. For inhibited ability, guided performance seems the intervention of choice. But to acquire new competence, observational methods offer special advantages (Bandura, 1976a). Development of skills would be exceedingly laborious, not to mention perilous, if learning were based solely on trial-and-error experiences without the guidance of models who exemplify the effective patterns. Shifting the balance between deficit and avoidance should alter the respective merits of exemplary and active options. In most complex problems, composite programs that include multiple forms of guidance serve clients best.

Profound Deficits

Major deficits arise if people have never acquired generalizable competencies, or if their living conditions have so encumbered once-learned behavior that it remains functionally void. When clients lack the rudiments of coping ability, demonstration is a key tool to instate skill. Modeling can convey needed information faster and better than other methods that rely on rewarding self-generated fragments of requisite patterns.

If a client cannot perform any segment of the appropriate activity, the first goal is eliciting some molecule of action to build on. Gross deficits are found in autistic children, who may only enact bizarre and self-injurious conduct, or in regressed, chronic psychotics who remain largely mute, in stupor, and unresponsive. For such cases, modeling first drew notice when operant researchers could not evoke rewardable acts unless imitative prompts combining modeling, guided performance, and reinforcement of progress were supplied. The basic strategy is much the same in treating adults (e.g., Sherman, 1965) and autistic children (Lovaas & Newsom, 1976, Risley & Wolf, 1967). The therapist first gains control over the child’s attending behavior. Complex behavior is gradually elaborated by modeling the activities in small steps of increasing difficulty. If the child fails to respond, verbal and manual aids are used to facilitate the behavior. Response induction aids are gradually withdrawn and reinforcement for prompted behavior is later withheld to counteract passive responding. As is typical, acquisition begins slowly but accelerates with continued participant modeling. After desired behavior is established, children are taught to generalize their new capabilities by rewarding appropriate responsiveness in a variety of settings toward a variety of people.

Sometimes vastly prolonged treatment is needed before the first few instances of a response
class are modeled. Once those responses gain meaning, progress is much faster and far exceeds waiting until impaired clients spontaneously emit rewardable acts. It is of interest that the more abstract the skill, the more exemplification has aided learning (Lovaas, Freitas, Nelson, & Whalen, 1967). Children whose parents continue the therapeutic practices maintain or expand skills at long-term follow-ups. If put in milieus that neglect sustained guidance, conduct reverts but relearning is fairly rapid (Lovaas, Kogel, Simmons, & Stevens, 1973).

Essentially the same principles and techniques apply to institutionalized retardates. Prompted demonstrations provide effective guidance to correct gross skill deficits. Robust gains are confirmed across variations in age, type of behavior, and putative nosology (Azrin, Gottlieb, Hughart, Wesolowski, & Rahn, 1975; Baer, Peterson, & Sherman, 1967; Bernal, Jacobson, & Lopez, 1975). Consistent with the findings of disinhibition through multiple modeling, seriously retarded clients generalized far better if taught by multiple than by single models (Marburg, Houston, & Holmes, 1976). When deficits are less severe, competence develops further and faster.

Verbal Expressiveness

Faithful carrier-waves do not censor the message they bear: ample research finds modeling helpful to promote more vivid affect and more intimate discourse during interviews. Prior reviews (e.g., Marlatt, 1972; Rosenthal, 1976) summarize much of this evidence; current studies continue the tradition. Often, subjects first observe exemplary self-revelations via alternative modeling formats whose impact is then assessed in an interview. Thus, an “expert” model evoked more self-disclosure than a peer (Doster & McAllister, 1973), but positive versus negative content led to equal candor (Doster & Brooks, 1974). Compared to controls, audiotaped strangers raised frank self-references, but less than filmed models (Stone & Stebbins, 1975) or the interviewer’s live examples (Davis & Skinner, 1974). Yet as taped models, another person described as a “colleague” surpassed the interviewer and verbally describing self-disclosure proved weak unless exemplary tapes were added (McAllister & Kiesler, 1975). Demonstration was more helpful when joined to longer sets of specific instructions than when briefer, global directions were supplied (Stone & Gotlib, 1975). Varying time and narrative versus exemplary guidance, longer demonstrations aided most, but short directions exceeded scantly illustrations (McGuire, Thelen, & Amolsch, 1975). Demonstration, instructions, and rehearsal were compared to enhance empathic talk; strongest by itself, demonstration was bolstered if either other method was added (Stone & Vance, 1976). In practice, mode of conveying information should count less than ability to discern relevant cues, and to organize them into cogent classes (Hersen & Eisler, 1976; Hersen, Eisler, & Miller, 1974).

Although caution is needed in judging when and how to stimulate intimate disclosures (Shimkunas, 1972), exemplary frankness can promote clinical gains. Exemplary disclosures raised intimate talk but also suspicion in nonpsychotics, and elevated delusions and autism in psychotics. Self-modeled practice before conversation reduced incoherent statements more than monitoring by self or other during conversation (Cavior & Marabotto, 1976). Resolute, involuntary counselees were more communicative after peer demonstrations (Smith & Lewis, 1974), as were asocial clients given modeling aids (Gutru, Goldstein, & Hunter, 1973). Contrasts between coping and mastery models expressing positive versus neutral affect did not alter skill judged in simulated job interviews; but psychotics’ self-rated arousal was less with coping than mastery models (Bruch, 1975). A starkly constricted man grew and remained more animated after his therapist exemplified spontaneity for just one session (Wexler & Butler, 1976). Modeling, role-playing, and rehearsal were given to reoriented stilted clients; their social behavior, as rated by friends, improved significantly (Cabush & Edwards, 1976). In all, modeling options seem promising tools to rectify constricted, rigid styles of personal conduct.

Assertiveness.

People who cannot behave assertively and express their legitimate rights will suffer considerable aversive control by others. Their satisfactions in living and self-regard may be chronically meager. Fortunately, modeling can rectify submissive patterns in
samples ranging from timid students (McFall & Lillesand, 1971; Rathus, 1973) to hospitalized psychotics (Goldstein et al., 1973; Hersen & Bellack, 1976a). Earlier work is capsules elsewhere (Hersen & Eisler, 1976; Rosenthal, 1976). Typically, demonstrations, instructions, prompting, and role-playing are joined to simulated or actual practice. Exemplary plus narrative guidance surpasses either method alone (Hersen, Eisler, & Miller, 1974; Hersen, Eisler, Miller, Johnson, & Pinkston, 1973). Such composite guidance has created stable long-term gains (Galassi, Kostka, & Galassi, 1975). To date, structured rehearsal of assertiveness in natural situations is skimp. That lack may explain many failures on new, transfer demands (McFall & Lillesand, 1971; McFall & Twentyman, 1973, Rosenthal & Reese, 1976; Young, Rimm, & Kennedy, 1973).

To assess severity, handling social situations requiring assertiveness may tax clients more than responding to simulated situations presented on audiotape (Galassi & Galassi, 1976). But content medium counts less in promoting change. Audio and videotapes proved equal (McFall & Twentyman, 1973); covert modeling works well, especially if multiple models are visualized (Kazdin, 1975, 1976); and imagining self or other perform was as good as a live peer (Rosenthal & Reese, 1976). Incentive inducements hinge on their cognitive effects (cf., Moore, Mischel, & Zeiss, 1976). Praising clients' practice did not boost gains (Young, Rimm, & Kennedy, 1973). Yet if assertive fantasy models earn reward, progress improves (Kazdin, 1974c, 1976) because clients elaborate on favorable performances more (Kazdin, 1975).

Assertive guidance as a behavioral aid, or supplement, can facilitate changes in other problems like inept social behavior (Hallam, 1974) and sexual difficulties (Stevenson & Wolpe, 1960; Yulis, 1976). The treatment strategy can bring enduring advances, and is helpful when applied to related complaints. Its ultimate potential needs testing in formats that assure sustained practice of assertiveness in the natural environment (Bandura, 1973).

Social Competencies
Perhaps the most prevalent and critical adjustment problems stem from deficits or deviance in relating to others. Whether deprived of opportunity, or handicapped by dysfunctional development, clients' prospects for adept relearning are hopeful. Although still an infant realm, treatments based on social learning principles have made strides in promoting cognitive and social skills.

Withdrawal.
A combination of modeling, repeated role-playing, and feedback was compared with desensitization to assist socially inadequate outpatients. Both methods increased social contacts relative to non-treated controls, but composite guidance produced a wider range of new interpersonal behavior than did desensitization (Marzillier, Lambert, & Kellett, 1976). Videotaped or narrated behavioral guides, plus rehearsal, were given to elicit appropriate social conduct from psychotics who averaged over 20 years in hospitals. Each modeling format surpassed an attention-placebo group, with no differences based on treatment medium (Jaffe & Carlson, 1976). Social gains achieved through demonstrations, instructions, and feedback transfer to new situations and are maintained over time (Bellack, Hersen, & Turner, 1977).

In a milestone study, Goldsmith and McFall (1975) devised and validated a treatment program in a hospital setting. First, they carefully assessed interpersonal deficits on comparable wards to locate exemplary coping behavior, and to specify principles for later guidance. Then a new sample was assigned to skill development, pseudotherapy, or assessment-only conditions (balanced for schizophrenic and neurotic or character disorders). Treatment spanned the following explicit sequence: (1) narrative description; (2) coaching on principles of effective conduct; (3) observing competent styles of behavior demonstrated; (4) review of the prior content; (5) check on clients' understanding, and willingness to role-play; (6) simulated rehearsal: followed by (7) audio-taped playback, first judged by client and then by the therapist. The guided group exceeded the controls on simulated role-playing, in self-reported change, and in a structured situational test. The treated group also achieved slightly lower readmission rates. These gains held across diagnoses, although just three hours' guidance was supplied! Such data confirm the utility of their strategy. It is hard to gauge how psychotics treated for three hours compared in
severity with some chronic schizophrenics who, for example, required 20 to 30 sessions (Edelstein & Eiser, 1976; Hersen & Bellack, 1976b). To what extent did briefer treatment rest on more efficient therapy, on less deviant participants, or both? Growth of systematic programs will magnify the need for shared and valid criteria of social skills, to allow comparisons among studies.

Marital and Dating Problems.
Efforts have begun to devise methods for assessing dating skills. Peer-ratings, self-reports, and speech during verbally simulated interactions separated high from low male daters, but tests in natural situations did not (Arkowitz, Lichtenstein, McGovern, & Hines, 1975). Distinct patterns were later found in women, who mainly lacked familiarity with social guidelines, while poor self-appraisals most hampered men (Glasgow & Arkowitz, 1975). Diverse composites of role-playing, demonstration, coaching, and group feedback have aided shy males; grasping generalizable dating strategies seems more crucial than rehearsing discrete acts (Curran, Gilbert, & Little, 1976; Macdonald, Lindquist, Kramer, McGrath, & Rhyne, 1975; McGovern, Arkowitz, & Gilmore, 1975; Twentyman & McFall, 1975). Thus, desensitization was as good as repeating modeled responses (Curran, 1975). When instructions and group discussion clarified events, skill development surpassed desensitization (Curran & Gilbert, 1975). Likewise, fear of dating was reduced best if simulated practice was joined to role-playing and feedback by partners, but adding desensitization brought no extra gain (Bander, Steinke, Allen, & Mosher, 1975).

Analogous guidance can resolve spouse discord. Demonstrations taught dyadic feedback rules to couples with faulty interaction styles, who then showed clear progress (McLean, Ogston, & Grauer, 1973). Modeling and discussion followed by structured home practice with feedback improved spouse communication (Ely, Guernery, & Stover, 1973). Exemplary modeling to clarify reciprocal reward patterns aided a reinforcement-oriented marital skills approach (Azrin, Naster, & Jones, 1973). An ambitious stepwise program spanned four stages: (1) identifying dyadic conflicts and strengths; (2) role-playing with feedback to improve joint efforts; (3) contracting to negotiate compromises, assisted by therapist demonstrations and bargaining rules; and (4) implementing prior learning and agreements. The couples made rapid gains on several measures, and continued feedback might have aided still further (Tsoci-Hoshmand, 1976). Symbolic modeling has also helped in programs to enhance sexual competence (Ober, 1973; Serber, 1974). As skill dimensions in conjugal dysharmony are better specified, a host of vicarious applications should have treatment value (Jacobson & Martin, 1976).

The foregoing research suggests that many social competencies are best taught by programs organized along the following lines: (1) the learning task is structured in an orderly, stepwise sequence to effectively communicate the needed skill guidance. (2) Generalizable rules of effective conduct are explained and demonstrated, and clients' understanding is checked to permit clarification if necessary. (3) Guided simulated practice is provided with feedback that rewards clients' successes and corrects their errors. (4) Once the desired behavior has been established, less structured opportunities for self-directed accomplishments are given so that people can authenticate a sense of personal efficacy. (5) During this transition to independent mastery, consultation and feedback by the therapist can further enhance provisional gains. (6) As a final step, clients test their newly acquired skills in the natural environment, at first under conditions likely to produce favorable results, and then in more demanding situations. (7) Transfer performance assignments are progressively adjusted to clients' capabilities at the given time, to enhance and reward their developing competence.

Cognitive and Self-Control Competencies
The evidence so far reviewed suggests this trend: As requisite skills grow more abstract or demand conditional judgments, guidance in strategic principles gains value, but repetition of discrete acts loses efficiency. Much human endeavor depends on the plans that govern the organization of already available component behavior. Problem-solving rules, self-regulatory standards, and habit change regimens that clients execute on their own are examples. A comprehensive discussion of this realm is given in Mahoney and Aronkoff's chapter of this
handbook. Our analysis, instead, concentrates on the vicarious elements in symbolic control.

**Problem-solving.**

Substantial research, elsewhere reviewed (Rosenthal, 1976; in press; Zimmerman & Rosenthal, 1974), confirms that modeling techniques are prime channels to convey abstract rules. Demonstrations can, for instance, transmit difficult principles (White & Rosenthal, 1974), subtle decision criteria (Macri, 1976), and elaborate concepts far better than instructions (Tumblin, Gholson, Rosenthal, & Kelley, 1977) or overt practice options, with excellent transfer despite major changes in physical cues (Rosenthal & Zimmerman, 1976). If learners’ prior repertoires are limited, or the content highly novel, exemplary methods excel. Regardless of their level of ability, children acquire a new concept far better taught by example than by narration (Rosenthal, in press; Rosenthal & Kellogg, 1973). Conceptual progress is often best if information is exemplified and a summation of its guiding principles also given. Vicarious techniques are hence among the methods of choice to teach abstract competence. In applied settings, modeling becomes a versatile tool to convey new strategies and guidelines for living.

Although viewing treatment as problem-solving is hardly new (D’Zurilla & Goldfried, 1971), programmatic research is limited. Isolated papers, however, span a wide range of preliminary applications. Those run from role reversals between therapist and clients to prompt their devising new solutions for old problems (Alperson, 1976), to using peer norms as performance standards that helped depressives on anagrams tasks (Klein, Fencil-Morse, & Seligman, 1976). Test-anxious learners usually validate the Yerkes-Dodson law by scoring less well on abstract tests than calmer peers. Yet anxious students solved puzzles as well as normals if a model both demonstrated solutions and commented on guidelines to be followed (Sarason, 1973): they surpassed normals on a memory task if shown a coping model who acknowledged test fears but shared tactics to abate emotionality (Sarason, 1975). Modeling boosted clients’ questions to aid personal problem solving, and videotaped feedback of own efforts most increased judicious queries (Arnkoff & Stewart, 1975). A modeling tape, used to orient clients about vocational guidance, led to more solicitation of career data than did control methods (Fisher, Reardon, & Burck, 1976). Exemplifying a painful act reduced pain for people taught a cognitive coping plan, but raised distress for unguided observers (Chaves & Barber, 1974). The lion’s share of benefit in a program to lower alcoholism resulted from combining videotaped playback of own drunkenness with guidance to discern and control blood alcohol level; behavioral counseling (demonstrations, role-playing, and social feedback), alcohol education, and competing response practice to setting cues further enhanced outcomes (Volger, Compton, & Weissbach, 1975). Academic guidance (by study manuals, cognitive and participant modeling, and programmed instruction) plus desensitization for test worries best aided students with scholastic problems (Mitchell, Hall, & Piatrowska, 1975). Guided group discussions that illustrated rationales to explain fear helped phobics more than desensitization (Wein, Nelson, & Odom, 1975). The foregoing medley of problem-solving themes invites further recitals.

**Self-regulation.**

The ultimate therapy goal is to replace handicaps with effective conduct, independently guided and maintained. Research on means to give clients control over changes, by altering covert regulators, is moving forward. Since laboratory studies clarified the processes by which people acquire standards of self-reward through modeling (Bandura, 1971, 1976b) the realm has burgeoned. Standards displayed by others may alter observers’ phenomenology and deeds in subtle ways (Coyne, 1976; McGarry & West, 1975; Piliavin, Piliavin, & Rodin, 1975; White, 1975). Modeled standards also modify the satisfactions and future goal aspirations people extract from performance attainments (Fry, 1976; Masters & Christy, 1974; Masters, Gordon, & Clark, 1976) as well as the impact of therapy procedures (Rosenthal, Hung, & Kelley, 1977; White, Rosenthal, & Gerber, 1975).

The growth of treatments combining cognitive modeling with self-instructions has been an especially interesting development. First proposed by
Meichenbaum (1973), and kin to other cognitive behavior therapies (Beck, 1976; Goldfried, Decenteceo, & Weinberg, 1974), this approach combines recursive cycles of demonstration, cognitive modeling of action strategies, guided practice, and self-rehearsal planning to resolve problems in stepwise fashion. During treatment, the locus of guidance by external displays is faded into covert ultimate self-regulation. Thus, hospitalized schizophrenics moved from serial progress in conceptual tasks and reasoning, to mastering social communication skills (Meichenbaum & Cameron, 1974; Meyers, Mercuratoris, & Sirota, 1976). Similar programs have helped shy people become more openly expressive (Cabush & Edwards, 1976), have aided hyperaggressive youngsters to develop self-control, (Goodwin & Mahoney, 1975) and to improve their cognitive functioning by adopting reflective styles of behavior (Bender, 1976; Debus, 1976). The content of self-directions and the event-structure of therapy dictate precise outcomes. Omitting a guiding rationale can impair results (Bender, 1976). As noted earlier, the more abstract the self-regulatory skill, the less that teaching by actual toil on component acts seems to offer; in contrast, guides to strategic, executive principles grow more valuable. This is probably because repeating fairly simple elements is a poor means to recode and integrate information, but reviewing summary rules or cognitive strategies is efficient. Time and future data will tell best. From such investigations into modeling of cognitive processes, and self-directed, symbolic regulation, we will learn better how to organize, sequence, and combine elements of information that vary in difficulty and abstractness.

POTENTIAL DIRECTIONS

The bulk of the literature, already discussed, suggests that vicarious guidance has come of age to alleviate dysfunctional fears and inhibitions and to teach new competence. A shift from retrospect to prospect is eased by recalling that a growing family of information-producing and social influence tools can generate similar molar outcomes and cognitive mediators. Separate routes may differ in speed of clinical gain, or have special merits for defined tasks and samples, but still reach the same goal. Also, methods may interact well or poorly if conjoined, but rarely will one procedure yield outcomes as good as with an array of tools. Not sheer utility but cost criteria—reckoned in time, staff, “side-effects,” attrition, and success rates—will decide whether and which modeling procedures are called for, and how diverse techniques should be hybridized. We can only hope that the best is yet to come.

Education and Preventative Possibilities

Educating parents or teachers to manage conduct problems in their children offers several advantages beyond savings in staff time. Since the model mediating change is a natural member of the milieu, access is automatic, gains from improved practices can extend to other children not initially referred, and the adult’s prior role in creating deviance can be altered without stigma as part of lessons. Modeling aids are prominent in many such guidance programs. Benefits have come to families with aggressive and autistic children (Glogower & Sloop, 1976; Lovaa & Newsom, 1976; Patterson & Reid, 1973). Children improve more, because parents learn better, from a performance composite (including demonstration and role-playing) than from “reflective” counseling (Tavormina, 1975). Positive changes at home, designed to help a particular child, can generalize to other kin. Siblings not specifically treated as clients reduced their rates of deviant conduct, and maintained progress after new modeling patterns were instated (Arnold, Levine, & Patterson, 1975). Reciprocally, sibs (Laviguer, 1976) and parents who excel as learners (Butler, 1976) become ideal models to teach the less adept. Mothers’ videotaped demonstrations surpassed several other parent education methods, such as lectures (Nay, 1975). There is evidence that social deficiencies characterize children who later become schizophrenic (Watt & Lubensky, 1976), and that derogatory self-reactions underlie much chronic maladjustment (e.g., Meichenbaum & Cameron, 1974). Given such data, various kinds of hazardous naturalistic modeling deserve concern, including: (1) withdrawn, or grossly aberrant parental interaction styles; (2) chronic patterns of demeaning negative feedback from adults to child;
and (3) excessive, deviant, or niggardly self-reinforcement by parents that may transmit harmful frames of reference across generations. There are substantial benefits to warding off developmental casualties as early as possible. Outreach projects are one solution. College students, serving as visiting models, were able to improve the parenting skills of mothers from disadvantaged backgrounds (Goodman, 1975).

With teachers, exemplary group guidance via modeling and role-playing led to better grasp of behavior principles than a manual; more important, student conduct was more improved in classrooms taught by the guided modeling group than by teachers given other methods (McKeown, Adams, & Forehand, 1975). Similar outcomes emerged in comparisons of counselor education programs (Eskedal, 1975). Such results argue that courses on advanced topics (White & Rosenthal, 1974), or social skills (Springer, Springer, & Aarsonson, 1975), should adopt exemplary formats rather than lectures. Modeling applications to schoolroom pedagogy remain largely unexplored. Videotaped demonstration has primed observers to seek career information (Fisher, Reardon, & Burck, 1976). Disadvantaged adults in a basic education course watched coping models advance in study skills and attitudes favorable toward schooling; these observers showed better test grades, attendance, and eventual continuance of studies than did control classmates (Kunce, Bruch, & Theilen, 1974).

Preventative health offers great possibilities. Videotaped modeling of people undergoing dental procedures plus relaxation enabled more dental phobics to successfully complete dental treatment than did desensitization (Shaw & Thoresen, 1974). Shown to youngsters facing surgery, films of coping peer models reduced fear arousal both before and after surgical operations, and prevented the rise in home adjustment problems found for unprepared controls (Melamed & Siegel, 1975). Many of the above examples lend themselves to mass media formats, but the potential of televised education and prophylaxis remains scarcely tapped. In a rare exploration, weekly programs on local public television sought to teach self-control techniques, with some evidence that unselected viewers profited (Mikulas, 1976).

In an innovative program of research, Maccoby and Farquhar (1975) have successfully used mass media procedures on a community-wide basis to inform the public on how personal habits (e.g., dietary habits, smoking, overeating, exercise) affect the risk of premature heart disease and to change longstanding risk-related behaviors. Multi-media campaigns are used to create interest in the health program; instructional manuals and personal influence relying on modeling, guided practice, and reinforcing feedback are used to change habits injurious to health. Medical examinations of people selected from the community reveal that media influences produce significant reduction in risk-related behavior. Personal guidance in conjunction with mass media achieves more extensive and rapid changes than the media alone. Results of this exemplary project illustrate how personal habits conducive to health can be promoted on a community-wide basis with minimum involvement of health professionals.

Applications to Communal and Residential Settings

For some people, extent of deficit or the nature of their deviance thwarts early return to fully independent living as a proximate treatment goal. Lack of adequate resources, irreversible handicaps based on physical debility, social abandonment by family and friends, or legal sanctions facing the person require that treatment must maximize clients’ potentialities within circumscribed or institutional boundaries. Often, those narrower aims can later be refocused toward wider horizons. But sometimes client and therapist must seek to optimize coping under sheltered conditions. In such cases, social learning principles offer a gamut of strategies that have yet to be harnessed at large.

Programs designed to help social offenders develop broadly useful skills that enable them to participate successfully in the larger society face related problems. They must overcome distrustful reactions if new aspirations and styles of living are to be developed in the confined milieu. They must also bridge between a restricted treatment setting and the freer environment in which beneficial changes will need to be maintained. Often, staff may be viewed with distrust. In contrast, peers who have advanced in a program, and have achieved
positive changes, are much harder to dismiss as exemplars. Their testimony and precedents will carry more weight. Few models seem as plausible or relevant as people who have shared but overcome clients’ own problems. This is critical if a client rejects staff members as reference figures because they appear too remote in age, education, status, ethnicity, and so on, for suitable comparisons with self, or are perceived as outsiders, lacking vivid conversance with the client’s burdens and viewpoint. Although positive interaction styles can raise staff credibility and influence (Jesness, 1975), delinquents may gain more from constructive peer modeling. Even brief videotapes have some favorable impact (Thelen, Fry, Dollinger, & Paul, 1976). If youngsters observe advanced peers in the same milieu demonstrate prosocial changes, more pervasive gains may follow (Etizen, 1975). Graduates from a reeducation program have helped newer arrivals by exemplifying functional skills (Silver, 1976).

Transitions from confined settings to more natural milieux can be harder to accomplish than provisional change in protected contexts. Maintenance and transfer of gains cannot be left to the vagaries of fate without inviting recidivism (Fairweather, Sanders, Maynard, & Cressler, 1969; Hill, Hops, & Johnson, 1975; Lovaas, Koegel, Simmons, & Stevens, 1973). Peer role models can develop self-presentation and practical judgment skills. For example, practice in group discussion, decision-making, and planning was introduced. Once begun, mutual modeling, feedback, and choice of solutions aided hospitalized clients; they improved their social interactions and spent more time working in the community or at home than did people given a conventional token economy program (Greenberg, Scott, Pisa, & Friesen, 1975). Even teaching humble skills like how to shop, to cook, or to sustain audible conversations, can boost family acceptance of a deviant member compared with unguided visits at home or in the hospital (O’Brien & Azrin, 1973). Sometimes, modeling can defuse communal crises to prevent the spread of fears and of symptoms by group exemplification and consensual validation (Shelton, 1973). More often, modeling principles can help discharges or other clients with common plights to regain meaningful community roles.

Transition programs are starting to be tested. In one, guided planning assisted unemployed clients find jobs, using a clublike setting. There, clients shared information, skills, and social support while seeking employment. Their families and friends were enlisted to supply leads for jobs. Mutual modeling and feedback prompted job-seeking efforts, guided members to improve their dress and grooming, and helped them organize career resumes. Demonstrations and role-playing prepared clients before employment interviews. Compared to matched controls, the club members found jobs much more often, started work sooner, and earned significantly higher salaries (Azrin, Flores, & Kaplan, 1975).

Programs of these sorts are called for to harvest the progress that can start during institutional treatment. In a longitudinal scheme, new recruits would receive guidance from proficient models, including advanced or graduate peers, as well as vocational and social skill consultants. Clients would witness a stepwise structure that exemplifies and rewards progressive levels of competence. As people achieve beneficial changes, they would be called on as tutors for neophytes, and the best models could eventually win staff positions. Upon discharge, the client would move to a transition phase where realistic needs and problems were met through group support, feedback, and cooperation, and by modeled guidance as needed, until clients earned stable and useful roles in the community. This strategy fosters multiple benefits; it helps assure relevant models; incoming clients can see the milieu strive to promote and reward progress toward independent success, not passive compliance for institutional convenience; group efforts and resources are used to ease transition stresses on each member; and jobs are created for discharges in which their background invites hiring, not stigma. It should be possible to devise and implement sequential rehabilitation programs that capitalize on the foregoing social system guidelines. Such projects promise to more fully realize the educative and therapeutic potentialities of modeling influences.

Conclusion
The above potentialities encourage wider sociocultural horizons for social learning approaches, and
imply optimism about people's capacity for change. In a real sense, the current and future directions of psychological modeling mirror those in our discipline generally. From peripheralistic focus on observable acts, one sees reorientation toward symbolic processes and social guidelines that regulate overt acts. From chain-link views of causation exemplified by the S-R metaphor, we are moving toward more explanatory prototypes whereby personal meanings and thought integrate diverse information to arrive at observable patterns of behavior. Our view of reality is changing from exclusively experimenter-defined to largely person-constructed. We are devising new research paradigms to open up the "black box" and are finding predictive and explanatory contents within. New frontiers for vicarious processes and applications depend on progress toward improved understanding of human organization and intricacy. Let us hope these developments bring better models of mankind to serve observers—both in the role of clients and as interpreters of human nature.

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