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CHAPTER 3

Social-Learning Theory Of Identificatory Processes

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Among the various processes involved in socialization, identificatory learning is generally assigned a prominent role regardless of whether explanatory theories favor psychological or sociological variables. There are several reasons for this emphasis. It is evident from informal observation that the complex repertoires of behavior displayed by members of society are to a large extent acquired with little or no direct tuition through observation of response patterns exemplified by various socialization agents. This is particularly true of behavior for which there is no reliable eliciting stimulus apart from the cues furnished by the responses of others.

The provision of social models is also an indispensible means of transmitting and modifying behavior in situations where errors are likely to produce costly or fatal consequences. Indeed, if social learning proceeded exclusively on the basis of rewarding and punishing consequences, most people would never survive the socialization process. Even in cases where nonsocial stimuli can be relied upon to elicit some approximation of the desired behavior, and errors do not result in perilous outcomes, people are customarily spared exceedingly tedious and often haphazard trial-and-error experimentation by emulating the behavior of socially competent models. In fact, it would be difficult to imagine a socialization process in which the language, mores, vocational and avocational patterns, the familial customs of a culture, and its educational, social, and political practices were shaped in each new member by selective reinforcement without the response guidance of models who exhibit the accumulated cultural repertoires in their own behavior. To the extent that people successfully match the behavior of appropriate societal models, the social-learning process can be greatly accelerated and the development of response patterns by differential reinforcement can be short-circuited.

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DEFINITION AND MEASUREMENT OF IDENTIFICATION

Although wide differences of opinion exist among personality theorists in what they consider to be the most suitable reference events for identification, it is generally agreed that identification refers to a process in which a person patterns his thoughts, feelings, or actions after another person who serves as a model. The present chapter deals mainly with the conceptual scheme, strategies of research, and major findings based on a social-learning theory of identification. However, some consideration will be given to other theoretical approaches, particularly in instances where several alternative explanations of specific modeling phenomena are indicated.

Measures of Identification Based on Actual or Assumed Similarity

In empirical investigations of modeling processes, the degree of similarity between a subject's self-description on some type of personality questionnaire and his description of his parents on the same or a similar test is occasionally employed as an index of parental identification (Heilbrun, 1965; Sopchak, 1952). A more commonly used variant of this procedure operationally defines identification in terms of the degree of correspondence in self-description scores on an inventory completed independently by the subject and the person who presumably is taken as the model (Cass, 1952; Gray & Klaus, 1956; Helper, 1955; Lazowick, 1955; Payne & Mussen, 1956). In other instances identification scores are obtained by comparing ratings of the participants' personality characteristics by one or more observers who are well-acquainted with the persons under study (Hetherington, 1965).

The interpretation of these types of difference scores and the various possible combinations of actual and assumed resemblances as valid measures of identification has been seriously questioned on numerous grounds by Bronfenbrenner (1958) and Cronbach (1955). First, self-descriptions and ratings by observers are susceptible to response biases which may artificially inflate or diminish identification scores. The issue of rater contamination is particularly serious in cases where the same person evaluates both himself and the model. Second, questionnaire techniques measure similarity only in self-descriptive responses which, in many cases, may have little relationship to respondents' actual social behavior. Accuracy of self-definition is affected not only by response sets and item ambiguity, but also by adequacy of self-observation. Third, the use of global indices, in which responses to a heterogeneous set of test items are combined into a single identification score, assumes a high degree of generality between modeling outcomes presumably mediated by a unitary identification process. Contrary to the unitary theory, evidence to be cited later in this chapter clearly indicates that persons are quite discriminative in the types of behaviors they select to reproduce. Con-

sequently, intercorrelations among different classes of matching responses tend to be relatively low. Fourth, measures derived from difference scores involving self-ratings are affected by statistical artifacts such as the lack of independence of errors of measurement, regression effects, and treatment of data measured in ordinal scales as though the points had equivalent meaning and represented equal intervals to different raters.

Even if ingenious procedures could be devised to overcome the numerous psychometric problems, measures of real or assumed similarity as indices of identification would still have serious limitations. All parent-child resemblances in attitudes or behavior do not necessarily represent outcomes of a modeling process. Many behavioral similarities undoubtedly result from direct tuition, selective exposure to environmental settings and activities, and the influence of common reinforcement contingencies in specific cultural subgroups.

Sex-role behavior, for example, which is generally attributed to identificatory processes, provides an excellent example of active parental training in sex-appropriate interests and modes of behavior before young children have much opportunity to observe and to discriminate accurately the sexual appropriateness of response patterns displayed by adult males and females. Sex-role differentiation usually commences immediately after birth when the baby is named and both the infant and the nursery are given the blue or pink treatment depending upon the sex of the child. Thereafter, indoctrination into masculinity and femininity is diligently promulgated by adorning children with distinctive clothes and hair styles, selecting sex-appropriate play materials and recreational activities, promoting associations with same-sex playmates, and through nonpermissive parental reactions to deviant sex-role behavior. In view of the extensive discrimination training, peer modeling, and frequent maternal demonstrations of masculine activities at times when the father is absent, it seems highly improbable that a three-year-old child looks and behaves like a boy primarily as a result of identifying with a 35-year-old man whom he can observe for relatively brief periods mainly during leisure-time activities if the commuting schedule happens to be favorable.

In most instances behavioral similarities are attributable in large part to modeling processes. The problem of identifying the sources of emulated behavior, however, is complicated by the fact that children are repeatedly exposed to multiple models including teachers, other adults in the immediate neighborhood, peer companions, and a host of prestigeful models presented mainly through television and films. It is therefore extremely doubtful that children rely exclusively on parents as models for the diverse response patterns that are characteristically displayed at different periods of development. Moreover, the findings of Lazowick (1955) and Helper (1955) that people show no greater similarity to their actual parents than to randomly matched parental figures suggest that measures of identification based on personality questionnaires primarily assess general culturally conditioned patterns of behavior basic to all members of the same sex, or to raters' sex-linked stereotypes.

Identification Measured in Terms of Adult-Role Behavior, Sex-Typing and Behavioral Manifestations of Self-Control

A second major approach to the study of modeling processes focuses attention on hypothesized products of identification rather than on actual behavioral similarities between parent and child. According to this theoretical formulation, which is most clearly explicated by Sears and his associates (Sears, Rau & Alpert, 1965), a single mediating process of identification governs the development of diverse types of responses including sex-role behavior, prosocial aggression, adult-like attitudes and conduct, resistance to deviation, and guilt reactions following transgression. Research guided by this point of view attempts to link child-rearing antecedents supposedly determining the hypothetical process of identification to their presumed behavioral manifestations. Various measures of identificatory behavior are typically employed in these studies including use of male or female dolls as agents of doll-play actions (Levin & R. R. Sears, 1956; P. S. Sears, 1953), choices between responses portrayed by doll models in doll-play situations (Hartup, 1964), projective tests of sex-role preference (Mussen & Distler, 1959), and responses to vocational interest tests (Mussen, 1961). Identification is also frequently inferred from the presence of adult-like attitudes and behavior, sex-typed characteristics, and indices of self-control based on behavioral observations, projective tests, parental interviews, and semi-structured parent-child interactions (Sears et al., 1965).

Both the conceptual structure and the dependent variables of psychodynamically-based approaches to identification are beleaguered by serious problems, not the least of which is evidence that the myriad behaviors presumably generated by the single mediating process are not positively intercorrelated to any appreciable degree (Bandura & Walters, 1963; Sears et al., 1965). A single unitary mediator cannot possibly account for the remarkable variety of heterogeneous responses and changes in their occurrence under different stimulus conditions, toward different persons, and at different times. It would seem that a considerably more complex theory of modeling is required.

As in the case of similarity measures, the major methodological difficulties with most of the popular indices of identification arise from failure to establish the source of children's responses, or to demonstrate that they are in fact products of a modeling process. There is substantial evidence from laboratory studies (Aronfreed, 1967; Bandura & Walters, 1963), for example, that reinforcement variables can be influential in establishing resistance to deviation and self-punitive responses following transgression. Moreover, the reinforcement contingencies required for the acquisition of these two modes of response differ markedly. Therefore it is not surprising that no consistent relationships between resistance to temptation and guilt have emerged from numerous studies in which both variables have been measured, and that the

child-rearing antecedents of these indices of moral development are somewhat different (Hoffman, 1963).

The evidential value of linkages between child-rearing practices and behavioral qualities attributed to identification for a theory of modeling is difficult to evaluate when the most critical set of variables—namely, the actual content of the attitudes, values, and social behavior displayed by parental models—is not directly and intensively assessed, as is often the case. Thus, a boy who deviates readily and experiences little or no guilt over violation of prohibitions would be considered deficient in identificatory behavior even if this resulted from emulating antisocial attitudes of a deviant parental model. Similarly, the presence of feminine interests, mannerisms, and personality characteristics in a boy who identified strongly with an effeminate father would receive low scores on paternal identification. It is apparent from these examples that identificatory behavior has no intrinsic defining properties and consequently, it cannot be identified or validly measured independently of the behavior of the persons who have been emulated. The specific origin of social behavior is further obscured by the fact that after particular responses have been acquired observationally, they may later be evoked by a variety of models and appropriate situational cues. When there exists considerable homogeneity in the behavior displayed by societal models, there is no reliable means of determining whether a given pattern of behavior was originally adapted from parents, peers, teachers, other adults or even from influential televised characters.

Definition and Measurement of Identificatory Processes in Social-Learning Theory

In social-learning theory an identificatory event is defined as the occurrence of similarity between the behavior of a model and another person under conditions where the model's behavior has served as the determinative cue for the matching responses.[1] Although the matching process frequently involves reproduction of specific patterns of behavior, in many instances a common attribute abstracted from diverse responses is modeled. It should be noted that both the characteristics of the behavior and its antecedents are the principal defining properties of identification. The reason for considering the stimulus source of behavior is that two or more persons may exhibit identical responses to the same environmental cues without the occurrence of any identification (e.g., when several motorists stop their automobiles the moment a red signal light flashes).

Pseudo-identification is also involved in cases where differential situational cues independently elicit similar patterns of behavior in different participants.

[1] The term "behavior" is employed in the broad sense to include motoric, cognitive, and physiological classes of response.

This point is dramatically illustrated in a story, definitely apocryphal, about a big-game hunter who, after many days of fruitless search for wild animals, finally came face to face with a ferocious lion. As he prepared to shoot the onrushing beast, the gun jammed. Helpless and terrified, the hunter promptly closed his eyes and began to pray rapidly. Moments passed and, much to his surprise, nothing happened. Puzzled by this unexpected turn of events, the hunter cocked his head, and slowly opened his eyes to find the lion also bowed in prayer. The jubilant hunter loudly exclaimed, "Thank God, you are responding to my prayers!" The lion promptly replied, "Not at all, I'm saying grace."

In dealing with naturally occurring events it is exceedingly difficult to establish precisely the stimulus sources of a person's social behavior. Consequently, laboratory studies in which models exhibit novel responses that do not exist in observers' behavioral repertoires can provide the most definitive information about the conditions regulating identificatory learning. Moreover, to the extent that investigators can successfully generate and modify identificatory behavior by systematic manipulation of variables considered germane to the phenomenon by their theory, one can place considerable confidence in the validity of the guiding theoretical principles.

Regardless of how identification may be defined, the actual behavioral phenomenon encompassed by the construct (i.e., the occurrence of matching behavior as a function of exposure to modeling cues) is no more complicated nor elusive than most other psychological events. Even a cursory review of the relevant literature discloses, however, that the phenomenon has become hopelessly entangled in semantics as a result of efforts to differentiate various forms of matching behavior. For example, on the basis of numerous arbitrary criteria, one finds distinctions among "identification," "imitation," "introjection," "incorporation," "internalization," "copying," and "role-taking," to mention only a few of the more popular varieties.

Identification has been most frequently differentiated from imitation in terms of outcome variables on the assumed basis that imitation involves the reproduction of discrete responses whereas identification involves the adoption of either diverse patterns of behavior (Kohlberg, 1963; Parsons, 1955; Stoke, 1950), symbolic representations of the model (Emmerich, 1959), or similar meaning systems (Lazowick, 1955). Sometimes the distinction is made in terms of differential antecedent or maintaining variables as illustrated in Parsons' (1951) view that a "generalized cathectic attachment" is a necessary precondition for identification but is unessential or absent in the case of imitation; Kohlberg (1963), on the other hand, reserves the term identification for matching behavior that is presumed to be maintained by the intrinsic reinforcement of perceived similarity and the construct imitation for instrumental responses supported by extrinsic rewards. Others define imitation as matching behavior occurring in the presence of the model, while endowing identification with the performance of the model's behavior in the latter's absence (Kohlberg, 1963; Mowrer, 1950). Not only is there little consensus with respect

to differentiating criteria, but some theorists assume that imitation produces identification, whereas others contend, with equally strong conviction, that identification gives rise to imitation.

Unless it can be shown that vicarious learning of different classes of matching behavior is governed by separate independent variables, distinctions proposed in terms of forms of emulated responses are not only gratuitous, but breed unnecessary confusion. Limited progress would be made in elucidating behavioral change processes if, for example, fundamentally different learning mechanisms were invoked, without adequate empirical basis, to account for the acquisition of one social response and ten interrelated social responses that are designated as various aspects of a given role. Results of numerous studies to be reviewed later demonstrate that the acquisition of isolated matching responses and entire behavioral repertoires is determined by the same antecedent conditions. Further, retention and delayed reproduction of even discrete matching responses require representational mediation of modeling stimuli. There is also little reason to suppose, either on empirical or theoretical grounds, that different principles and processes are involved in the acquisition of matching responses that are subsequently performed in the presence or in the absence of the model. Indeed, if the diverse criteria enumerated above were seriously applied, either singly or in various combinations, in categorizing modeling outcomes, most instances of matching behavior that have been labelled imitation would qualify as identification, and much of the naturalistic data cited as evidence of identificatory learning would be reclassified as imitation.

Although it is possible to draw distinctions among descriptive terms based on antecedent, mediating, or behavioral variables, one might question whether it is advantageous to do so, since there is every indication that essentially the same learning process is involved regardless of the content and generality of what is learned, the models from whom the response patterns are acquired, and the stimulus conditions under which emulative behavior is subsequently performed. Therefore, in the interests of clarity and parsimony the terms "identification," "imitation," and "observational learning" will be employed interchangeably to refer to behavioral modifications resulting from exposure to modeling stimuli.

LEARNING MECHANISM UNDERLYING MODELING PROCESSES

In evaluating theories of identification or modeling phenomena, it is essential to distinguish between *acquisition* and spontaneous *performance* of matching behavior because these events are determined by different sets of variables. Traditional theories of identification devote a great deal of attention to familial conditions that may be conducive to modeling performance, but these formulations rarely specify the basic learning mechanisms by which persons acquire response patterns through exposure to the behavior of models. An adequate theoretical account of identification must designate the variables regulating

observational response acquisition, the factors influencing long-term retention of previously learned matching responses, and the conditions affecting degree of behavioral reproduction of modeling stimuli.

A number of theorists, in their efforts to explain imitation, have offered detailed analyses of modeling phenomena in terms of instinctual propensities (Morgan, 1896; Tarde, 1903; McDougall, 1908), associative and classical conditioning mechanisms (Allport, 1924; Holt, 1931; Humphrey, 1921; Mowrer, 1960; Piaget, 1951), or reinforcement theories of instrumental conditioning (Miller & Dollard, 1941; Skinner, 1953; Baer & Sherman, 1964). As discussed at length elsewhere (Bandura, 1965a), the latter theoretical formulations account satisfactorily for the control of previously learned matching responses. However, they fail to explain how new response patterns are acquired observationally, particularly under conditions where an observer does not overtly perform the model's responses during the acquisition phase, reinforcers are not administered either to the model or to the observer, and the first appearance of the acquired response may be delayed for days, weeks, or even months. Since observers can acquire only perceptual and other symbolic responses resembling the sequences of modeling stimuli while they are occurring, internal representational processes which mediate subsequent behavioral reproduction obviously play a prominent role in observational learning.

Mechanisms of Observational Learning

Recent theoretical analyses of observational learning (Bandura, 1962, 1965a; Sheffield, 1961)—which is the basic learning process underlying identification, however defined—assign a prominent role to representational mediators that are assumed to be acquired on the basis of a contiguity learning process. According to my formulation observational learning involves two representational systems—an *imaginal* and a *verbal* one. After modeling stimuli have been coded into images or words for memory representation they function as mediators for response retrieval and reproduction.

Imagery formation is assumed to occur through a process of sensory conditioning. That is, during the period of exposure, modeling stimuli elicit in observers perceptual responses that become sequentially associated and centrally integrated on the basis of temporal contiguity of stimulation. If perceptual sequences are repeatedly elicited, a constituent stimulus acquires the capacity to evoke images of the associated stimulus events even though they are no longer physically present (Conant, 1964; Ellson, 1941; Leuba, 1940). These findings indicate that, in the course of observation, transitory perceptual phenomena produce relatively enduring, retrievable images of modeled sequences of behavior. Later, reinstatement of imaginal mediators serves as a guide for reproduction of matching responses.

The second representational system, which probably accounts for the notable speed of observational learning and long-term retention of modeled contents by humans, involves verbal coding of observed events. Most of the

cognitive processes that regulate behavior are primarily verbal rather than visual. To take a simple example, the route traversed by a model can be acquired, retained, and later reproduced more accurately by verbal coding of the visual information into a sequence of right-left turns (e.g., RRLRLL) than by reliance upon visual imagery of the itinerary. After modeled sequences of responses have been transformed into readily utilizable verbal symbols, performances of matching behavior on later occasions can be effectively controlled by covert verbal self-directions.

The influential role of symbolic representation in observational learning is disclosed in a study (Bandura, Grusec & Menlove, 1966) in which children were exposed to complex sequences of modeled behavior on film during which they either watched attentively, verbalized the novel responses as they were performed by the model, or counted rapidly while watching the film to prevent implicit coding of modeling cues. A subsequent test of observational learning disclosed that children who generated verbal equivalents of modeled stimuli reproduced significantly more matching responses than those in the viewing alone condition who, in turn, showed a higher level of acquisition than children who engaged in competing symbolization.

Further supporting evidence for the influence of symbolic coding operations in the acquisition and retention of modeled responses is furnished by Gerst (1968). Subjects observed a filmed model perform motoric responses varying in the ease with which they can be verbally coded and they were instructed to transform the items into either vivid images, concrete verbal descriptions of the response elements, or convenient summary labels that incorporate the essential ingredients of the responses. Compared to the performance of controls who had no opportunity to generate symbolic mediators, all three coding operations enhanced observational learning. Concise labeling and imaginal codes were equally effective in aiding immediate reproduction of modeled responses and both systems proved superior in this respect to the concrete verbal form. However, a subsequent test for retention of modeled responses showed concise labeling to be the best coding system for memory representation. Subjects in the latter condition retained most of what they learned, whereas those who relied upon imagery and concrete verbalization displayed a substantial loss of matching responses.

Results of a program of research utilizing a nonresponse acquisition procedure (Bandura, 1965a) indicate that the organization of behavior elements into novel patterns resembling modeled stimulus compounds can occur at a central level without motoric responding. The present theory assumes, however, that *stimulus contiguity is a necessary, but not a sufficient, condition for acquisition and performance of modeled patterns of behavior.* Modeling phenomena, in fact, involve complex interactions of numerous subprocesses each with its own set of controlling variables. A comprehensive theory of identification must therefore encompass the various subsystems governing the broader phenomena. The subprocesses that markedly influence the degree and content of observational learning are discussed next.

Attentional processes. At the sensory registration level, it is exceedingly unlikely that a person could reproduce modeling stimuli if he did not attend to, recognize, and differentiate the distinctive features of the model's responses. Considerable research is needed to evaluate the effects on observational learning of visual exposure variables including the frequency, duration, rate, saliency, multiplicity, and complexity of modeling cues.

In the case of highly intricate response systems such as linguistic behavior, children encounter considerable difficulty in acquiring linguistic structures because the identifying characteristics of different grammatical constructions cannot be readily distinguished within extremely diverse and complex utterances. Given high occurrence of observing responses and the presence of adequate discriminative cues, relatively complicated response patterns can be acquired observationally (Bandura & Harris, 1966; Sheffield & Maccoby, 1961).

Simply exposing persons to distinctive sequences of modeling stimuli is no guarantee that they will attend closely to the cues, that they will necessarily select from the total stimulus complex only the most relevant stimuli, or that they will even perceive accurately the cues to which their attention has been directed. Motivational conditions, prior training in discriminative observation, and the presence of incentive-oriented sets may strongly determine those features of the social environment which will be of greatest interest and to which the person will pay closest attention. In addition, observer characteristics and other social factors that affect association preferences will determine to a large degree the types of models who are selected for observation and consequently, the modes of behavior that will be most thoroughly learned.

Retention processes. Another basic component function involved in observational learning, but one that has been virtually ignored in theories of identification, concerns the long-term retention of coded modeling events. This is a particularly interesting problem in cases where children, for example, acquire patterns of behavior observationally and retain them over extended periods even though the response tendencies have rarely, if ever, been activated into overt performance until the persons reach the age or social status that makes the activity appropriate and permissible.

Among the numerous variables governing retention processes, rehearsal operations effectively stabilize and strengthen acquired responses. The level of observational learning can be considerably enhanced through overt practice or rehearsal of modeled response sequences (Margolius & Sheffield, 1961). Of greater import is evidence that covert rehearsal, which can be readily engaged in when overt participation is either impeded or impracticable, may likewise enhance retention of acquired matching responses (Michael & N. Maccoby, 1961).

The influential function of covert role-practice of modeled behaviors has received greatest emphasis in E. E. Maccoby's (1959) account of the identification process. According to this view, controlling, nurturant, and caretaking activities require explicit reciprocal behaviors on the part of parents and

children. Consequently, in the course of frequent mutually dependent interactions, both participants learn, anticipate, and covertly rehearse each other's customary responses. In addition to the frequency and intimacy of social interactions, the degree of power exercised by the model over desired resources is considered to be an important determinant of the frequency of fantasy role-playing. In this theory, vicarious role-rehearsal primarily serves a defensive function; that is, in an effort to guide his behavior toward models who possess controlling power, a person will imagine different courses of action for receiving help or avoiding censure, and he will try to anticipate as accurately as possible the model's probable responses to these approaches. On the other hand, there would be little incentive to prepare oneself for, or to practice covertly, the behavior of models who command no rewarding or punishing power.

Anticipatory implicit rehearsal of modeled responses may be supported by role reciprocity and threat from resource controllers, but it should be noted that persons will also be inclined to practice modeled responses that are effective in producing rewarding outcomes. Moreover, according to social-learning theory, the behavior of powerful models will be attended to, rehearsed, and reproduced even though observers have had no direct interaction with them (Bandura, Ross & Ross, 1963b), because their behavior is likely to have high utilitarian value. This is particularly true in the case of models who possess expert power in particular specialties. It would be unnecessary, for example, for a novice to establish a complementary role relationship with a qualified automobile mechanic in order to master his skills through observation during apprentice training. Rehearsal processes are undoubtedly governed by different types of incentive conditions, some of which may be entirely independent of the model whose behavior is being emulated.

Symbolic coding operations, to which reference was made earlier, may be even more efficacious than rehearsal processes in facilitating long-term retention of modeled events. During exposure to stimulus sequences observers are inclined to recode, classify and reorganize elements into familiar and more easily remembered schemes. These coding devices may take various forms such as representing stimulus events in vivid imagery, translating action sequences into abbreviated verbal systems, or grouping constituent patterns into larger integrated units.

Motoric reproduction processes. The third major component of modeling phenomena involves the utilization of symbolic representations of modeled patterns in the form of imaginal and verbal contents to guide overt performances. It is assumed that reinstatement of representational schemes provides a basis for self-instruction on how component responses must be combined and sequenced to produce new patterns of behavior. The process of representational guidance is essentially the same as response learning under conditions where a person behaviorally follows an externally depicted pattern or is directed through a series of instructions to enact novel response sequences. The

only difference is that, in the latter cases, performance is directed by external cues whereas, in delayed modeling behavioral reproduction is monitored by symbolic counterparts of absent stimuli.

The rate and level of observational learning will be partly governed, at the motoric level, by the availability of necessary component responses. Responses of high-order complexity are produced by combinations of previously learned components which may, in themselves, represent relatively intricate compounds. Modeling outcomes are most readily achieved when they primarily involve the synthesis of previously acquired behavioral elements into new patterns exhibited by models. On the other hand, observers who lack some of the necessary components will, in all probability, display only partial reproduction of a model's behavior. In such cases the constituent elements are first established through modeling and then in a stepwise fashion increasingly complex compounds are acquired imitatively.

The above modeling procedure is frequently employed in the treatment of gross behavioral deficits, such as autism, childhood schizophrenia, and severe social or mental retardation. A model may repeatedly exhibit desired patterns of behavior, but these displays often have relatively little impact on the children (Baer, Peterson & Sherman, 1967; Lovaas, Berberich, Perloff & Schaeffer, 1966). This lack of responsivity often results from such great inattention to social stimuli that the children fail to observe adequately the modeled events. Even on occasions when the children attend closely to modeling cues, given an impoverished behavioral repertoire their reproductions of the therapist's behavior are deficient because many of the required components for the modeled responses are lacking. In addition to the use of graduated modeling, powerful incentives are employed to enhance attentiveness and to activate into performance the responses that have been acquired as a function of exposure to the modeling cues.

In many instances modeled responses have been acquired and retained in representational forms but they cannot be enacted behaviorally because of physical limitations. Few basketball enthusiasts could ever successfully match the remarkable performance of a Wilt Chamberlain regardless of their vigilance and dutiful rehearsal.

Accurate behavioral enactment of modeling cues is also difficult to achieve under conditions where the model's performance is governed by subtle adjustments of internal responses that are unobservable and not easily communicable. An aspiring operatic singer may benefit considerably from observing an accomplished voice instructor; nevertheless, skilled vocal reproduction is hampered by the fact that the model's laryngeal and respiratory muscular responses are neither readily observable nor easily described verbally. The problem of behavioral reproduction is further complicated in the case of highly coordinated motor performances (e.g., golf) in which a person cannot observe many of the responses he is making and must therefore primarily rely upon proprioceptive feedback cues.

Incentive or motivational processes. A person may acquire, retain, and possess the capabilities for skillful execution of identificatory behavior, but the learning is rarely activated into overt performance due to negative sanctions or inadequate positive reinforcement. When favorable incentives are introduced, observational learning promptly emerges in action (Bandura, 1965b). As noted earlier, incentive conditions can, of course, affect learning and retention as well as performance. Since most theories of identification are built around performance-related variables, the factors presumed to control identificatory performances will be discussed at length in succeeding sections.

It is evident from the foregoing discussion that observers do not function as passive video-tape recorders which register indiscriminately and store symbolic representations of all modeling stimuli encountered in everyday life. Identificatory learning constitutes a multiprocess phenomenon that is determined by factors regulating sensory registration of modeling stimuli, their transformation to representational forms, subsequent stabilization and retrieval of modeling contents, response capabilities, and motivational processes.

VARIABLES GOVERNING PERFORMANCE OF IDENTIFICATORY RESPONSES

A thorough review of the literature on theories of identification discloses a remarkably narrow range of conditions that supposedly regulate spontaneous performance of modeling behavior. According to psychoanalytic theory, which has provided the most widely accepted explanation of modeling phenomena, there exist two sets of familial conditions, both frustrative or aversive, that induce a child to identify with his parents (Bronfenbrenner, 1960; Freud, 1923, 1925). These hypothesized processes, labeled *anaclitic* and *defensive* identification, are discussed, along with pertinent experimental findings, in the sections that follow.

Nurturance Withdrawal

Anaclitic identification (Freud, 1925) is believed to occur during the first few years of life when a nurturant adult, usually the mother, to whom the child has developed a nonsexual attachment withdraws affectional gratifications. The resulting threat of loss of love then motivates the child to "introject" the parent's behavior and attributes. This general formulation has been reinterpreted and elaborated in terms of learning theory by Mowrer (1950, 1958) and Sears (1957) to furnish more empirically verifiable implications.

According to Mowrer's reformulation (1950), when a parent mediates the child's primary gratifications her behavior gradually takes on secondary reward value as a function of repeated contiguous association with rewarding experiences. On the basis of stimulus generalization, responses that resemble those of the parent generate positively reinforcing effects in proportion to

their similarity when performed by the child. Consequently, the child can produce self-rewarding experiences when the parent is absent or withdraws her attentions simply by reproducing as closely as possible the parent's positively valenced behavior.

Sears (1957; Sears et al., 1965) likewise considers a nurturant interaction between a caretaking adult and a child as a necessary precondition for identification. Through this basic relationship the child learns to want and to value the maternal behaviors that have accompanied rewarding caretaking activities and, by the end of the first year of life, the child acquires a dependency motive. However, for reasons of social necessity and the need to develop the child's independence, the mother begins reducing or withholding affectionate interaction and nurturance. The consequent dependency frustration leads the child to adopt the method of role practice as a means of reinstating the maternal nurturant responses. The child thus secures self-rewards by imitating or role-playing maternal behaviors that possess conditioned reward value. In the earlier formulation (Sears, 1957) it was further hypothesized that, as a function of repeated association of imitation with direct or self-produced rewards, identification becomes an acquired drive for which the satisfying goal response is behaving like another person. More recently, however, Sears (Sears et al., 1965) has conceptualized identification as a generalized habit of role practice rather than as a secondary drive.

There is evidence from naturalistic studies of child-rearing antecedents of identification that, compared to boys whose fathers were relatively nonnurturant, boys of warm affectionate fathers display a higher degree of male-role preference (Mussen & Distler, 1959), stronger masculine vocational interests (Mussen, 1961), and greater father-son similarity in response to items on a personality inventory (Payne & Mussen, 1956); more often assume the father role in doll-play activities (P. S. Sears, 1953); and more frequently perceive themselves as thinking and acting like their fathers (Bandura & Walters, 1959).

In naturalistic relationships nurturance may exert its effects upon modeling through means other than the endowment of self-reinforcing properties to modeled behavior. Warm affectionate parents are more likely than cold aloof ones to engage in frequent and extensive interactions with their children thus providing them with more opportunities to observe and to learn parental patterns. Moreover, influence processes are typically bidirectional, in which case children who express parental values and emulate their behavior might be expected to increase the level of both parental affection and interpersonal contact. Several modeling studies have been conducted in which the rewarding quality of the model is manipulated experimentally, the amount of exposure to the modeling cues is controlled, and the influence of reciprocal reinforcement is eliminated (Bandura & Huston, 1961; Henker, 1964; Mischel & Grusec, 1966). In accord with correlational findings, these experiments have generally shown that an adult who is warm and nurturant elicits considerably more imitative behavior from children than a model who lacks rewarding qualities. Similar results are also obtained when parents, preselected on the basis of high

or low nurturance, serve as models for their children on imitation performance tasks (Hetherington & Frankie, 1967; Mussen & Parker, 1965).

Although the available data generally support the hypothesized relationship between nurturance and identification, finer analyses of matching performances indicate that the theory of anaclitic identification may require substantial qualification. First, modeling outcomes are considerably less generalized or pervasive than the theory assumes. Mischel and Grusec (1966), for example, found that a prior nurturant interaction with the model enhanced children's spontaneous reproduction of the model's socially neutral behaviors, but it did not increase their willingness to perform matching responses that possessed aversive qualities. Some further evidence of the differential effects of nurturance on reproduction of different classes of modeling behavior is provided in a study by Bandura and Huston (1961). Whereas the model's rewarding quality facilitated imitation of verbal and stylistic responses, children readily adopted aggressive responses regardless of the degree of the model's nurturance. The foregoing results, and data that will be cited later, demonstrate that the rewarding property of a model is often a facilitative but not a necessary condition for imitation, and that children typically display imitative response specificity rather than a generalized disposition to emulate the behavior of others.

The problem is further complicated by the fact that a high degree of nurturance may, in fact, *diminish* identification, depending upon the pattern of behavior that is being transmitted. This is clearly illustrated in an experiment (Bandura, Grusec & Menlove, 1967b) designed to identify conditions under which children willingly adopt high standards of achievement that result in negative self-evaluations and self-denial of available rewarding resources.

Most learning interpretations of the socialization process emphasize the role of extrinsic reinforcement in the modification and maintenance of social behavior. A highly important, but largely ignored, reinforcement phenomenon is evident when a person adopts a standard of what constitutes a worthy performance and rewards himself when he attains his self-imposed standard, but engages in self-critical or self-punitive behavior when his performances fall short of self-prescribed norms.

It has been shown in a series of studies that self-monitoring reinforcement systems can be readily transmitted to children through exposure to the self-reinforcement patterns displayed by adults and peers (Bandura & Kupers, 1964). However, children are inclined to reject superior models who set themselves relatively high standards (Bandura & Whalen, 1966). In order to determine whether the rejection process could be counteracted, we introduced, in a subsequent experiment, social variables that would be expected to enhance modeling. One group of children experienced a highly rewarding interaction with an adult model who subsequently exhibited high criteria for self-reward and was praised for adhering to high standards. With other groups of children the model assumed a nonnurturant attitude or received no social recognition for high standard-setting behavior. In addition, half the children in each con-

dition also observed a peer who displayed a low standard of behavior in order to determine the effects of exposure to conflicting modeling cues.

This experiment disclosed, among other things, that children who had experienced a highly nurturant and rewarding interaction with the adult model were more inclined to accept the low standards set by the peer than if the adult were less beneficent. In this case, high nurturance was conducive to ready self-gratification rather than to modeling the stringent achievement demands self-imposed by the rewarding adult.

Finally, it should be noted that the experimentation establishing a covariation between nurturance and identification is based almost entirely upon modeling studies utilizing two-person groups. There is some evidence (Bandura et al., 1963b) that developmental principles based upon a two-person paradigm may be subject to stringent limitations, since the introduction of additional social variables can produce significant changes in the functional relationships between the rewarding properties of a model and children's matching behavior.

In the experiment referred to above, which employed triads, one adult served as a controller of highly rewarding resources, and another adult and a child were placed in a competitive situation so that rewards given to one person precluded their availability for the other. Children who were treated generously by the controller subsequently exhibited more total imitation (i.e., the number of characteristics of both adult models that were reproduced) than children who lost out in the competition and were ignored. However, the effect of combining direct gratification of the child with resource ownership by the female model was primarily to increase imitation of the neglected male, rather than to enhance imitation of the model who generously provided the child with food, attractive toys, and a great deal of positive attention. In fact, boys who were the recipients of the generous treatment from the female model tended to favor slightly the ignored male as their object of imitation. Post-experimental interviews revealed that the rewarded boys felt sympathetic toward the neglected male and were mildly critical of the controller for not being more charitable with her bountiful resources. However, children exhibited a marked preference in imitating the behavior of the rewarding model under conditions where they received the same nurturant treatment but the other adult was excluded by choice rather than through competitiveness. Thus, the same absolute level of the model's rewarding quality exerted a differential effect upon children's degree and pattern of imitation, depending upon whether they were provided gratifications within a competitive or a nonrivalrous interpersonal setting. These findings indicate that modeling may be affected to a greater extent by interpersonal contrast of rewarding treatment in interaction with other social variables than by the absolute magnitude of reward.

It would appear from the over-all evidence based on research conducted within a social-learning framework that the developmental or anaclitic theory of identification, which assumes that nurturance promotes modeling, may be valid only under certain limiting conditions. The findings of other studies also raise questions concerning the interpretation of the process of defensive

identification, or identification with the aggressor, which is frequently invoked to account for modeling outcomes.

Fear of the Aggressor

The theory of defensive or aggressive identification (Freud, 1923) presumably applies only to boys. This form of identification is viewed as the outcome of the resolution of the Oedipus complex, in which the boy reduces anxiety deriving from anticipated punishment by castration for his incestuous wishes toward his mother, and rivalrous feelings toward his father, by emulating the characteristics of the threatening father. Although this theory suggests an incentive, other than feared loss of love, for identification, it provides no satisfactory explanation as to why modeling the behavior of a threatening competitor should reduce anxiety. Indeed, it is highly probable that the reproduction of aversive modeled behavior would generate negative effects and, except for adoption of paternal prohibitions, behaving like a menacing antagonist would accent the rivalry and thus augment rather than attenuate anticipatory fear of punishment.

Whiting (1959, 1960) has recently proposed an extension of Freud's defensive identification hypothesis in which envy and vicarious gratification rather than anxiety reduction are presumed to be the major motivational and reinforcing mechanisms for identificatory behavior. In his status-envy theory, Whiting depicts identification as an outcome of a rivalrous interaction between the child and the parent who occupies an envied status. While Freud presents the child as competing with the father primarily for the mother's sexual and affectional attention, Whiting regards any forms of reward, maternal or social, as valued resources around which rivalry may develop. This theory further assumes that the more strongly a child envies the status of another person in respect to the consumption of desired resources of which he feels himself to be deprived, the more he will enact the role of that person in fantasy. Hence, when a child competes unsuccessfully with an adult for affection, attention, food, and care, he will envy the adult consumer and consequently identify with him.

In contrast to the status-envy interpretation of modeling, a social power theory of identification (Maccoby, 1959; Mussen & Distler, 1959; Parsons, 1955) would predict that the controller, rather than the consumer, of rewarding resources would be selected as the primary model for emulation.

In order to test predictions derived from these opposing theories of identification, an experiment was conducted (Bandura et al., 1963b) with the use of three-person groups representing prototypes of the nuclear family. In one condition of the experiment an adult assumed the role of controller of highly rewarding resources including attractive play materials, appetizing foods, and high status objects. Another adult was the recipient of these resources, while the child, a participant observer in the triad, was seated at a distant table and totally ignored. In a second experimental condition one adult controlled the

resources; the child, however, was the recipient of the positive attention and rewarding resources, while the other adult, who was assigned the subordinate role, was neglected.

An adult male and an adult female served as models in each of the triads. For half the boys and girls in each condition the male model controlled and dispensed the rewarding resources, simulating the husband-dominant family; for the remaining children, the female model mediated the positive resources as in the wife-dominant home. Following the experimental social interactions, the two adult models performed several tasks in the presence of the child, during which they exhibited divergent motoric and verbal patterns of behavior, and differential preferences for colors, pictorial items, and apparel. The child then performed the same tasks in the absence of the two adults, and measures were obtained of the degree to which he patterned his behavior after that of either model.

The results of this experiment reveal that children tend to identify with the source of rewarding power rather than with the envied competitor for rewards. Moreover, power inversions on the part of the male and female models produced cross-sex imitation, particularly in girls. These findings suggest that the distribution of rewarding power within the family may be a major determinant of the development of both sex-appropriate behavior and deviant sex-role tendencies.

Whiting's reformulation of the defensive identification process stresses the envy aspects of the psychoanalytic interpretation. However, the original theory (Freud, 1923) and supporting anecdotal evidence presented by Anna Freud (1946) and Bettelheim (1943) emphasize the anxiety-provoking and aggressively threatening qualities of the model. It is evident from the illustrative case data provided by Anna Freud and Bettelheim that the conditions under which identification with the aggressor is presumed to occur differ from those originally proposed by Freud. Moreover, most of the examples of aggressive behavior can be adequately accounted for without invoking a mediating identificatory process.

In a number of Anna Freud's cases, for example, the person who supposedly serves as the model in fact displays no aggression and the therapist simply assumes that the aggressive child is expecting physical attack. While the child's anticipatory aggression could be interpreted as a defensive maneuver, it could hardly represent identification with the aggressor any more than swatting a mosquito represents insect identification on the part of a threatened adult. In others of Freud's illustrations a child who was accidentally hurt by a games-master in an outdoor game at school wears military apparel the following day, and a boy who had undergone dental treatment subsequently displays aggressively demanding and destructive behavior during a therapeutic session. It is, of course, entirely possible that the boys' behavior and the previous experience of being hurt are totally unrelated and, even if a contingency were involved, it is unclear from the illustration why the boys failed to reenact the behavior of the dentist or the games-master. The clearest example that Freud gives of actual imitative behavior involves the case of a boy who

mimicked his teacher's angry grimaces while the latter was punishing or reproving him. Freud's interpretation that the boy "through his grimaces was assimulating himself to or identifying himself with the dreaded external object" (p. 118) is complicated by the fact that the boy's imitative grimaces provoked bursts of laughter from his classmates, thus providing strong social reinforcement for the matching facial expressions. It is therefore doubtful, even in the latter case, that the imitative behavior was maintained by anxiety-reducing mechanisms.

It is likewise apparent in Bettelheim's (1943) account of prisoners' behavior in a Nazi concentration camp, which is also frequently cited as evidence for the occurrence of identification with the aggressor, that most of the behavioral outcomes described may not, in fact, have involved identificatory processes. For example, Bettelheim reports that many of the older prisoners were verbally and physically aggressive toward newcomers and potential troublemakers, sometimes behaving more aggressively than their guards when placed in charge of others; they enforced nonsensical rules that the Gestapo had at one time or another imposed on the group; some of the older captives even modified their uniforms to resemble those of the guards and resented sympathetic foreign correspondents who criticized the Germans.

It is true that the old prisoners often imposed on their fellow captives aversive controls similar to those that they themselves had endured, but it is by no means clear whether their behavior represented identification with the aggressor, in the sense that the concept is employed in psychoanalytic theory. The Gestapo consistently imposed group-oriented punishments in which the transgressions of any individual resulted in brutal torture of the entire group. When two prisoners attempted to escape, for example, all the prisoners were punished by being forced to stand at attention in a snow storm without overcoats for hours, during which many died from exposure, and several hundred later had to undergo amputations of their badly frozen extremities. Since the group consequences were generally extremely aversive and the demands of the guards highly capricious, it is not surprising that, in order to escape brutal and degrading treatment, experienced prisoners often enforced demands that were unpredictably imposed by the Gestapo officers. The prisoners' punitive rule enforcement may thus represent straightforward avoidance behavior designed to suppress transgressions that would endanger the whole group, rather than emulative behavior. Indeed, the explicit purpose of the hostage and group-punishment system was to make every prisoner feel responsible for the acts committed by other group members.

Similarly, antagonism toward foreign correspondents and former fellow-prisoners who had publicly reported cruelties perpetrated in the concentration camps, also interpreted by Bettelheim as an example of identification with the aggressor's ideology, may have been due simply to the fact that newspaper accounts written by these persons brought severe punishment on the prisoners.

Bettelheim does provide evidence that, in some cases, prisoners went to great lengths to emulate the guards. Some of the old captives, for example, collected pieces of Gestapo uniforms and sewed their own uniforms so as to

resemble those of the guards. However, such imitative behavior was punished by the guards and therefore could hardly have served as anxiety-reducing or defensive functions. Indeed, since this particular modeling behavior persisted in spite of the explicit negative sanctions, it seems to furnish disconfirmatory evidence for the defensive identification hypothesis and perhaps to suggest that the prisoners were, in accordance with social-power theory, emulating the Gestapo elite who possessed potent rewarding and coercive power. Based on experimental evidence provided by Epstein (1966), that persons who display high authoritarianism are prone to imitate punitive behavior of aggressive models, one might expect that prisoners who had developed authoritarian attitudes before their imprisonment (some were formerly prominent politicians) would be predisposed to admire and imitate these attributes in the guards. Striving to emulate the elite who possess control over desired resources is a characteristic also of upwardly mobile persons who, like the prisoners in question, tend to persist in their imitative behavior in spite of rebuffs that they incur from their peers and admired models.

The case material discussed above, and empirical investigations of aggressive identification (Sarnoff, 1951), illustrate the vague and loose criteria that are typically employed in designating aggressive response patterns as outcomes of a defensive identificatory process. Even in cases where aggression is clearly imitative, findings of controlled experiments present some basis for questioning whether the matching behavior is maintained by anxiety-reducing mechanisms.

There is considerable evidence that both children and adults readily imitate aggressive models presented on film who obviously constitute no threat whatever (Bandura, Ross & Ross, 1963a; Hartmann, 1965; Hicks, 1965; Walters & Thomas, 1963). Moreover, studies in which the model's aggressive behavior incurs either rewarding or punishing consequences (Bandura, 1965b; Bandura, Ross & Ross, 1963c) demonstrate that the success of the model's behavior is a crucial factor in determining the degree to which an aggressive pattern of behavior will be spontaneously reproduced by observers. On the basis of the response-consequences interpretation of modeling effects, it would be predicted that if the behavior of an aggressive model is highly effective in gaining control over rewarding resources, observers will identify with the aggressor, even though they may dislike the model's attributes (Bandura et al., 1963c). If, on the other hand, the aggressor's behavior fails to gain power and control over persons and their resources, or in fact produces punishing outcomes, identification with the aggressor will not occur.

In most naturalistic situations the possible influence of the threat value of modeled aggression and its effectiveness in producing rewarding outcomes are confounded. That is, an aggressor may not only be fear-provoking, but he provides repeated demonstrations that by dominance through physical and verbal force he can gain possession of material resources, he can change rules to fit his own needs and wishes, he may gain control over and extract subservience from others, and he can level barriers which impose blocks or delays in gratification. Evidence that the behavior of domineering models is extensively

emulated (Bandura et al., 1963c; Hetherington & Frankie, 1967; Hoffman, 1960) does not necessarily establish anxiety reduction as the underlying mechanism governing the identificatory performances. An alternative explanation can be offered in terms of the utilitarian value of power-assertiveness. Although it has been shown that fear of a punitive model is not a necessary condition for identification with aggressors, the question of whether fear is a facilitative, impeding, or irrelevant factor in the identification process can be best answered through laboratory studies in which threat and rewarding and punishing consequences to the model are independently manipulated.

According to the theories of identification reviewed in the preceding sections, in order to get a boy to emulate a baseball player such as Mickey Mantle, it would be necessary for the youngster to develop an intense attachment to the brawny model, who would then withhold affectional responsiveness, thereby motivating the child to incorporate the modeled stylistic behavior. Or the athletic youngster would have to develop strong incestuous desires toward Mrs. Mantle, hostile rivalrous feelings toward the baseball slugger, and, as a way of reducing anxieties generated by his libidinal feelings and the anticipated threat of castration, the boy would begin to swat home runs and otherwise behave like his threatening competitor.

It is evident from informal observation that youngsters emulate athletic models extensively without any direct personal contact or Oedipal entanglements with them. One would predict from the social-learning theory of vicarious reinforcement (Bandura, 1965a) that boys will strive to duplicate the roles and stylistic performances of baseball players who maintain an impressive batting average and are therefore the recipients of public adulation. If, on the other hand, the players' athletic achievements and social applause should wane, they would quickly be abandoned as models for emulation.

A social-learning theory of observational learning is not confined to imitation of models to whom the observer has a cathectic attachment, but is designed to encompass a diversity of modeling outcomes based upon direct and vicarious experiences with actual and symbolic models. In this formulation the incentive conditions impinging upon the model and imitative response feedback variables, as well as the model's competence, rewarding quality, and social power, are regarded as important determinants of overt expression of identificatory responses. These incentive variables, and other parameters governing the performance of modeling behavior, are considered next.

Reinforcement Control of Identificatory Behavior

The extent of utilization of identificatory response patterns is greatly influenced by the reinforcing consequences and the social sanctions associated with imitative behavior. Thus, for example, in a series of studies by Kanareff and Lanzetta (1958, 1960; Lanzetta & Kanareff, 1959), in which the functional value of imitative responses was systematically varied, the level of matching behavior was found to increase with increasing probability of positive rein-

forcement. Conversely, when matching responses are consistently nonrewarded (Baer & Sherman, 1964; Miller & Dollard, 1941) or negatively sanctioned (De Rath, 1964; Kanareff & Lanzetta, 1958), imitative behavior is extinguished or inhibited.

Positive reinforcement of specific identificatory responses may not only increase the spontaneous performance of rewarded matching behavior, but it can, under certain conditions, also establish a generalized imitative response tendency. The phenomenon of generalized imitation has been interpreted by Baer and his associates (Baer & Sherman, 1964) in terms of self-reinforcing mechanisms. It is assumed that if accurate reproduction of modeling stimuli is consistently rewarded, behavioral similarity per se acquires secondary reinforcing properties. Thereafter a person will tend to display a high incidence of precisely imitative behaviors which, due to their acquired reward value, will be strengthened and sustained in the absence of extrinsic reinforcement.

In one study (Baer & Sherman, 1964) designed to demonstrate reinforcement control of generalized imitation, three imitative responses (head nodding, mouthing, and novel verbalizations) were established in young children by social reinforcement from a puppet who had explicitly instructed the subjects to match his modeling behavior. For a subgroup of children who showed an increase in imitative responding the puppet displayed nonreinforced bar-pressing interspersed among the other three rewarded matching responses. Under these circumstances, some of the children imitated bar-pressing in varying amounts even though this particular response was never positively reinforced. In order to further demonstrate the dependence of generalized imitation on direct reinforcement of other matching responses, social approval for imitative head nodding, mouthing and novel verbalizations was discontinued with two children. This extinction procedure resulted in decreased imitative bar-pressing in one of the two children; when reinforcement of the other three modeling responses was reinstated, imitative bar-pressing also reappeared.

The frequent references to the above study as providing dramatic evidence of reinforcement control of generalized imitation overlook the fact that, even under the strong situational demands, the imitative behavior of one-third of the children was unaffected by the reinforcement operations, and of the remaining children whose data are presented, half of them showed increments in reinforced imitative behavior, but they failed to perform the nonreinforced modeled response to any significant degree. Since reinforcement exerted no clearly predictable effects on the occurrence of generalized imitation it must have been largely determined by other unmeasured and uncontrolled variables.

Using similar reinforcement procedures with social models and more powerful incentives, Baer, Peterson and Sherman (1967) were able to establish generalized imitativeness in three severely retarded children who initially displayed a very low level of matching behavior. After an extensive period of imitation-contingent reinforcement had markedly increased modeling behavior in these children, some matching responses could be effectively maintained without reinforcement by randomly interspersing them among positively rein-

forced imitations. However, both types of matching responses rapidly declined when social approval and food were given to the children on a temporal basis rather than contingent upon imitative behavior (Figure 3.1). It was further shown that both types of matching responses could be quickly restored to their previously high level by reintroduction of response-contingent reinforcement.

In testing the efficacy of modeling procedures for establishing language in mute schizophrenic children, Lovaas and his coworkers (Lovaas et al., 1966) likewise demonstrated that the children could acquire and maintain Norwegian words imitatively without any reinforcement as long as they were rewarded for English words when correctly reproduced.

A generalized disposition to model the behavior of others can be developed by having different persons reinforce diverse types of responses in a variety of situations. However, the hypothesis that behavioral similarity becomes inherently endowed with reinforcing properties through rewarding practices requires more direct verification. If this were in fact the governing mechanism, matching responses should not undergo such abrupt and marked extinction (Figure 3.1) the moment that reinforcement for the larger subclass of imitative

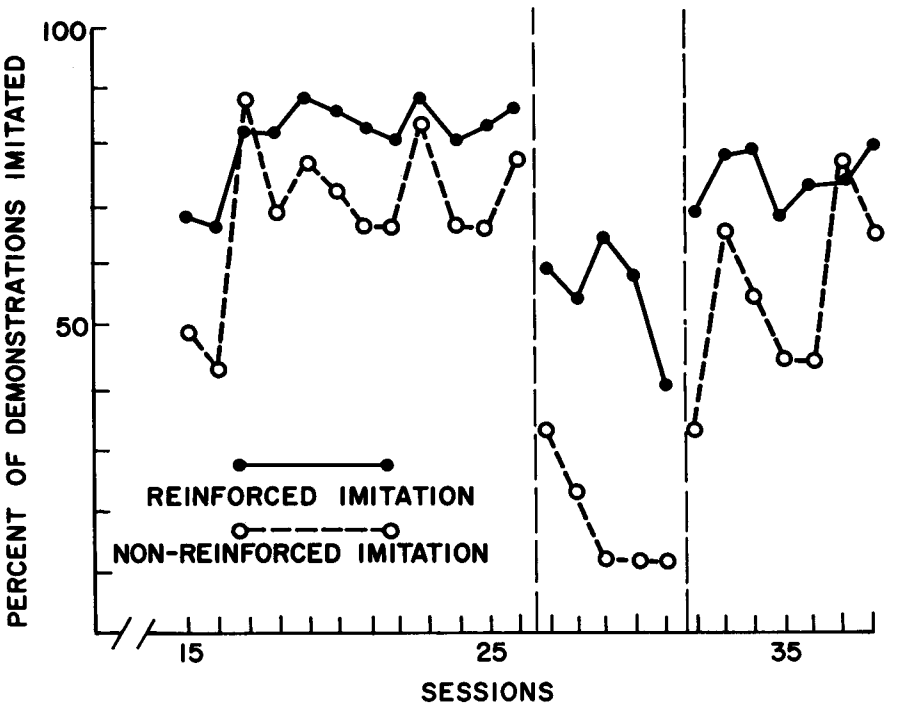

FIGURE 3.1. Per cent of reinforced and nonreinforced modeled responses reproduced by one child during periods when rewards were made contingent upon either the occurrence of matching responses or after a certain period of time had elapsed. Adapted from Baer, Peterson and Sherman, 1967.

responses is withdrawn, since one would not expect similarity cues to lose their reinforcing properties that suddenly. Rather, the intrinsic rewards arising from precise response duplication should sustain imitative behavior for some time in the absence of externally administered reinforcers.

An alternative explanation for the occurrence of generalized imitation can be offered in terms of discrimination rather than secondary reinforcement processes. When a few nonrewarded modeled responses are randomly embedded in a large number that are consistently reinforced, the two sets of modeling responses cannot be easily distinguished and are therefore likely to be performed with similar frequency. If, on the other hand, the discriminative complexity of the modeling task were reduced by having the model portray a series of reinforced responses, followed by the set of readily discriminable responses that are never rewarded, the observer would eventually recognize that the latter responses never produce positive consequences and he would, in all likelihood, discontinue reproducing them. A discrimination hypothesis thus leads to a prediction which is opposite to that derived from the principle of secondary reinforcement. According to the acquired reward interpretation, the longer imitative responses are positively reinforced, the more strongly behavioral similarity is endowed with reinforcing properties, and consequently, the greater is the resistance to extinction of nonrewarded matching responses. In contrast, discrimination theory would predict that the longer the differential reinforcement practices are continued, the more likely the observer is to distinguish between rewarded and nonreinforced imitative behaviors resulting in rapid extinction of nonreinforced imitative responsivity.

The occurrence of generalized modeling is also probably determined in part by the invariant conditions under which laboratory tests are conducted. Reinforced and nonrewarded responses are typically exhibited by the same model, in the same social setting, during the same period of time, and after subjects have been strongly urged to behave imitatively. On the other hand, under naturally occurring conditions which are highly variable and more easily distinguishable, there appears to be considerable specificity to modeling behavior. If close matching does in fact become self-reinforcing, then its occurrence should not be as restricted in generality. The issue would appear to be one of performance rather than learning, since persons do know how to match. Performance is primarily a function of anticipated outcomes which, in turn, is partly determined by the degree of similarity between new situations and situations in the past in which the particular response has been reinforced.

Although the influential role of reinforcement in maintaining the modifying identificatory behavior has been amply demonstrated, the major determinants of generalized modeling have not been adequately established.

Influence of Vicarious Reinforcement on Modeling

In social-learning theory special consideration is given to the role of vicarious reinforcement, as evidenced by changes in the behavior of observers as a

function of witnessing reinforcing stimuli administered to performers. There is considerable experimental evidence (Bandura, 1965a) that observation of rewarding or punishing consequences to a model can substantially affect the extent to which observers willingly engage in identificatory behavior. Indeed, comparative investigations of the relative efficacy of vicarious and direct reinforcement reveal that the behavioral changes displayed by observers are generally of the same magnitude as those achieved by reinforced performers (Kanfer & Marston, 1963) or, under certain conditions, may even exceed them (Berger, 1961). Moreover, vicarious reinforcement effects are governed by such variables as the percentage (Kanfer, 1965; Marston & Kanfer, 1963), intermittency (Rosenbaum & Bruning, 1966), and magnitude (Bruning, 1965) of reward in essentially the same manner as when they are applied directly to a performing subject.

The effect of observing response consequences to a model on the acquisition and spontaneous performance of matching responses is illustrated by a study (Bandura, 1965b) in which children observed a film-mediated model who exhibited a number of novel physical and verbal aggressive responses. In one condition the model was severely punished following the display of aggressive behavior; in a second treatment the model was generously praised and rewarded; the third condition depicted no response consequences to the model. A post-exposure test for spontaneous imitation revealed that the reinforcement contingencies applied to the model's aggression produced differential degrees of matching behavior. Children who had observed the model rewarded, or having suffered no adverse consequences, for his behavior displayed a significantly greater variety of imitative responses than children who saw the model punished. Moreover, boys emulated substantially more of the model's behavioral repertoire than girls; these differences were particularly marked when modeled aggression resulted in punishing consequences (Figure 3.2).

Some additional findings of this study again highlight the necessity for distinguishing between identificatory learning and spontaneous performance of matching behavior. Following the performance test, children in all three groups were offered highly attractive incentives contingent upon their reproducing the model's responses, in order to counteract the inhibiting effects of vicarious punishment and thus to actualize the modes of behavior that the children had acquired observationally. As shown in Figure 3.2, the introduction of positive incentives completely eliminated the previously observed performance differences, revealing an equivalent amount of identificatory learning among children in the model-rewarded, model-punished, and the no-consequences conditions. Similarly, the initially large sex difference in imitative aggression also was virtually eliminated.

Discrepancies between extent of response acquisition and performance level are most likely to obtain under conditions where behavior is negatively sanctioned. Thus, the children who displayed significant increments in imitation when the behavior was positively reinforced were boys who had observed the aggressive model punished, and girls for whom, in our culture, physically

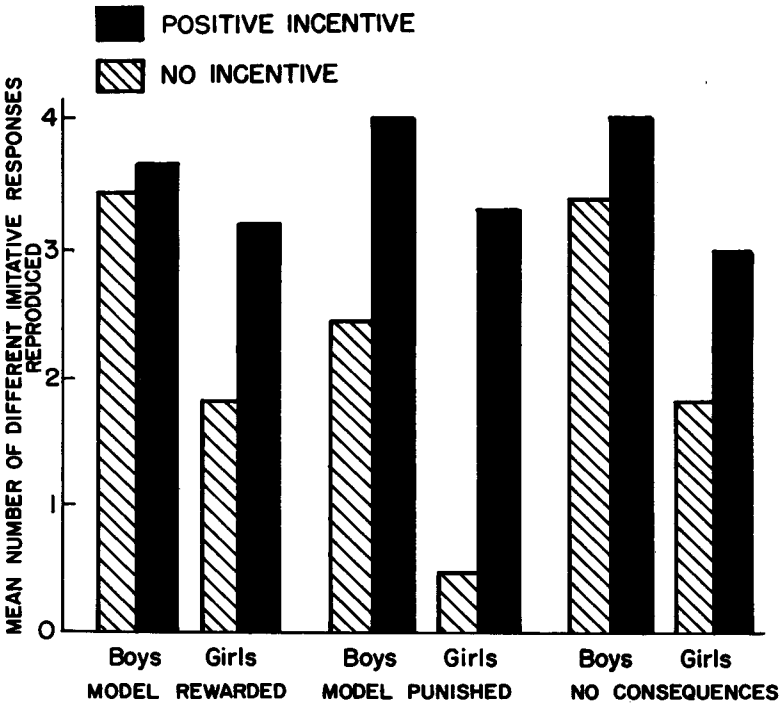

FIGURE 3.2. Mean number of different matching responses reproduced by children as a function of response consequences to the model and positive incentives. Bandura, 1965b.

aggressive behavior is typically labelled sex-inappropriate or is negatively sanctioned.

Most differences existing in the behavior of boys and girls are often explained in terms of differential masculine and feminine identification. It would appear from evidence that positive incentives essentially eliminate sex disparity in performed aggression, that most sex differences may primarily reflect differences in willingness to exhibit observationally-learned behavior because of the nature of prevailing social sanctions, rather than deficits in identificatory sex-role learning.

Under most conditions people readily adopt appropriate modeled responses. However, in some problem-solving and achievement-like situations they display strong counter-imitation tendencies for fear that matching behavior will be considered cheating, copying, or subservience and, therefore, socially disapproved (Lanzetta & Kanareff, 1959; Luchins & Luchins, 1961; Schein, 1954). The inhibiting effect of anticipated negative sanctions for imitation can be overcome in observers through positive reinforcement of the model's responses (Clark, 1965). Further evidence that imitative behavior can be enhanced or inhibited by observation of reinforcing consequences to a model's responses is provided by Walters and his associates (Walters & Parke,

1964; Walters, Parke & Cane, 1965). In the latter studies children who witnessed a peer model transgress with rewarding or no adverse consequences deviated more readily and more often than those who saw the same model punished for engaging in the socially disapproved behavior.

In cases where a model displays reprehensible behavior, it is interesting to note that the nonoccurrence of anticipated punishing consequences may influence the observer's responses to the same degree as witnessed rewarding outcomes. These findings suggest that nonreaction to formerly prohibited activities may take on, through contrast, positive qualities. Similar contrast-of-reinforcement effects have been demonstrated in studies of direct reinforcement (Buchwald, 1959a, 1959b; Crandall, 1963; Crandall, Good & Crandall, 1964) in which nonreward following punishment had functioned analogously to a positive incentive, whereas the occurrence of nonreward subsequent to a series of rewards had operated as a negative reinforcer. In fact, even a weak positive incentive, when contrasted with more rewarding prior events, may acquire punishing properties (Buchwald, 1960). The reinforcing effects of witnessed outcomes on matching behavior may therefore be determined to a large extent by the context in which the events occur and the customary sanctions associated with particular modeled response patterns.

Because previous studies have utilized deviant modes of behavior, which may be readily disinhibited through omission of negative consequences, the results provide no clear evidence for the occurrence of positive vicarious reinforcement. However, findings of a recent experiment (Bandura, Grusec & Menlove, 1967b) involving modeled behavior that is usually positively sanctioned reveal that social rewards dispensed to a model can have a strong impact on observers' identificatory behavior. Children who had observed an adult model adopt high achievement standards for self-reward, and receive social recognition for adhering to such exacting norms, subsequently imposed on themselves higher achievement demands than children who had witnessed the model portray the same stringent pattern of self-reward with no socially rewarding consequences. The enhancement of modeling through vicarious social reinforcement is particularly striking in this case, considering that the self-imposition of exceedingly high standards occurred in the absence of any social agents, and the emulative behavior resulted in increased negative self-evaluation and considerable self-denial of freely available rewards.

The discussion so far has been primarily concerned with the extent to which other persons are affected by rewards or punishments administered to the performing model by external social agents. Results of investigations concerned with the social transmission of self-reinforcing behavior (Bandura & Kupers, 1964; Bandura & Whalen, 1966) disclose that discriminative patterns of inhibition of self-rewarding responses can be acquired through observation of achievement-contingent rewards and punishments self-administered by the model. These findings suggest that observers' self-controlling responses can be modified and reinforced by models' self-evaluative and self-punitive reactions to deviation.

Although the influence of vicarious reinforcement on identificatory behavior is well-established, the behavioral changes displayed by observers may be interpreted in several ways (Bandura, 1965a). Response consequences experienced by another person undoubtedly convey information to the observer about the probable reinforcement contingencies associated with analogous performances in similar situations. Reinforcing stimuli presented to the model may therefore serve to facilitate or inhibit emulative behavior through their discriminative or informative function. Knowledge gained from witnessing the outcomes experienced by models would be particularly influential in regulating behavior under conditions where considerable ambiguity exists about what constitutes permissible or punishable actions, and where the observer believes that the model's contingencies apply to himself as well. It is highly unlikely, for example, that witnessing social approval for physical aggression exhibited by a person occupying a unique role, such as a policeman, would evoke imitative aggressiveness in observant citizens to any great extent. If the predictability of social-learning theory is to be further increased, experiments are needed that test the magnitude of vicarious reinforcement effects as a function of comparability of social sanctions customarily applied to models and observers.

A model's responses are often differentially reinforced depending upon the persons toward whom the behavior is directed or the social settings in which it is expressed. When differential consequences are correlated with different stimulus conditions, observation of the pattern of reinforcement associated with the model's responses helps the observer to identify the social or environmental stimuli controlling the model's behavior. These may be difficult to distinguish without the observed informative feedback. Hence, through repeated exposure to the outcomes of others, an observer not only acquires knowledge of predictable reinforcement contingencies, but may also discern the cues for the model's correct responses. The resultant discrimination learning can later facilitate the performance of appropriate matching responses in the presence of the cues to which the model previously had been responding with favorable consequences (Church, 1957; McDavid, 1962).

Observation of reinforcing outcomes and the model's concomitant reactions may also have important activating or motivational effects on an observer. The mere sight of highly valenced reinforcers can produce anticipatory arousal which, in turn, will affect the level of imitative performance. Similarly, variations in the magnitude of observed reinforcers, although providing equivalent information about the permissibility of matching responses, have different motivational effects on observers (Bruning, 1965). As in the case of direct reinforcement, incentive-produced motivation in observers is most likely to affect the speed, intensity, and persistence with which matching responses are executed.

The affective expressions of models undergoing rewarding or punishing experiences generally elicit corresponding emotional responses in viewers (Dysinger & Ruckmick, 1933). These vicariously aroused emotional responses can readily become conditioned, through repeated contiguous asso-

ciation either to the modeled responses themselves, or to environmental stimuli (Bandura & Rosenthal, 1966; Berger, 1962) that are regularly correlated with the model's affective reactions. Similarly, the nonoccurrence of anticipated aversive consequences to a model can extinguish in observers previously established emotional responses that are vicariously aroused by threatening modeled displays (Bandura, Grusec & Menlove, 1967a; Bandura & Menlove, 1968; Bandura, Blanchard & Ritter, 1967). It is therefore possible that the facilitative or suppressive effects of observing the affective consequences accruing to the model may be partly mediated by the vicarious arousal or extinction of emotional responses.

Finally, reinforcements administered to another person may have important social evaluative consequences. Punishment is apt to devalue the model and his behavior, whereas models who are recipients of praise and admiration tend to be attributed high prestige, status, and competence (Hastorf, 1965). Model status changes, in turn, can significantly affect observers' subsequent performance of matching responses. A particular vicarious reinforcement event, depending on its nature and context, may thus produce behavioral changes in observers through any one or more of the five processes outlined.

Further research is needed to separate the relative contribution of cognitive, emotional, and other factors governing vicarious reinforcement effects. The available evidence nevertheless presents some basis for assuming that the principle of vicarious reinforcement, together with the stabilizing effect of covert rehearsal, can explain the persistence of identificatory behavior in observers without overt responding or the support of direct reinforcement. Indeed, children frequently acquire and retain on a long-term basis adult-rewarded but child-prohibited behavior patterns that are not reproduced until the child has reached the age or social status that makes the activity appropriate or acceptable.

Influence of Model Status Cues Signifying Differential Reinforcing Outcomes

Overt performance of identificatory behavior is influenced not only by immediate response consequences to the model, but also by distinctive status-conferring symbols and model attributes; these are usually dealt with by social psychology in terms of such variables as prestige, power, competence, socioeconomic status, and expertise (Asch, 1948; Campbell, 1961).

The strong control exercised by discriminative characteristics of a model on imitative behavior is well-documented in social-psychological research. For example, models who have demonstrated high competence (Gelfand, 1962; Mausner, 1954a, 1954b; Mausner & Bloch, 1957; Rosenbaum & Tucker, 1962), who are purported experts (Mausner, 1953) or celebrities (Hovland, Janis & Kelley, 1953), and who possess symbols of socioeconomic success (Lefkowitz, Blake & Mouton, 1955) are imitated to a considerably greater degree by both children and adults than models who lack these qualities. Other discriminative

properties of the model, such as age (Bandura & Kupers, 1964; Hicks, 1965; Jakubczak & Walters, 1959), sex (Bandura et al., 1963a; Rosenblith, 1959, 1961), social power (Bandura et al., 1963b; Mischel & Grusec, 1966), and ethnic status (Epstein, 1966), which are generally associated with predictable reinforcing outcomes, likewise influence the degree to which social attitudes and behavior will be reproduced by others.

In learning analyses of modeling phenomena as a function of status variables (Miller & Dollard, 1941), stimulus generalization and differential reinforcement are utilized as the main explanatory principles. According to this interpretation, social models differ in the extent to which their behavior is likely to be successful in producing favorable outcomes. Hence, persons are most frequently rewarded for matching the behavior of models who are intelligent, who possess certain social and technical competencies, and who, by virtue of their adroitness, occupy high positions in various status hierarchies. On the other hand, the behaviors of models who are ineffectual, uninformed, and who have attained low vocational, intellectual, and social status, are apt to have considerably less utilitarian value. As a result of repeated differential reinforcement for matching models who possess diverse attributes, the identifying characteristics gradually come to serve as discriminative stimuli that signify the probable consequences associated with behavior modeled by different social agents. Moreover, through the process of stimulus generalization, the effect of a model's prestige carries over from one area of behavior to another (an effect that is exploited in advertising), and imitative responses tend to generalize to unfamiliar persons to the extent that they share similar characteristics with past reward-producing models.

The foregoing theoretical assumptions have been verified by a series of studies (Miller & Dollard, 1941) in which the history of differential reinforcement for matching the behavior of models possessing diverse characteristics was experimentally manipulated. However, questions of the generality of the theory in its present form arise from the fact that only a relatively narrow range of social conditions has been investigated, the models characteristically display socially neutral behaviors, and negative sanctions are not imposed for emulation of high-status persons. As Miller and Dollard (1941) point out in another context, subordinate individuals are more inclined to imitate the social patterns and linguistic styles of models who occupy adjacent, rather than the most prestigeful, positions in a status hierarchy, because of social barriers against marked upward mobility, and lack of the resources necessary for long periods to acquire proficiency in the elaborate customs and mannerisms of highly discrepant social groups. Under the latter conditions one would expect to find a nonmonotonic relationship between prestige level of the model and amount of matching behavior.

Also, some recent evidence (Epstein, 1966) suggests that characteristics of the recipients of the model's actions may be highly influential in defining probable response consequences and thus attenuating the effects of prestige generalization. Epstein found that white college students displayed more imitative

punitiveness toward a Negro after they had observed an aggressive Negro model than when the punitive behavior was initially exhibited by a Caucasian. Since it seems reasonable to assume that people would have been rewarded most often for imitating ethnically similar models, the latter findings are not explainable in terms of generalization from prior differential reinforcement associated with model attributes alone. It is highly probable that an attack on a minority-group member by one of his own group implies greater culpability of the victim, and thus signifies to the observer more justification and permissibility for aggression than a similar assault by a representative of a majority outgroup whose actions would more likely be viewed as prejudicial and censurable. Without independent ratings of the target of aggression, and diversity in the ethnic status of observers and victims, it is not possible to determine the validity of this interpretation. The available data, however, indicate the need for systematic variation of the attributes of both the models and the targets of their behavior in order to determine the manner in which more complex relational cues and other aspects of the social situation govern generalization of imitation to unfamiliar models.

The preceding discussion has been primarily concerned with the influence of status variables on modeling of socially neutral or prosocial response patterns. There is some evidence (Lefkowitz et al., 1955) that prohibited or socially disapproved behavior can likewise be increased by exposure to high-status deviant models. Traffic signal violations by a high-status person attired in a freshly pressed suit, shined shoes, white shirt and tie produced a higher pedestrian violation rate than the same transgression performed by the same model when dressed in soiled patched trousers, scuffed shoes, and a blue denim shirt. The differential reduction in restraints is probably attributable to the fact that violations by persons who occupy a high position in a prestige hierarchy are likely to be punished less frequently and less severely, due to earned gratitude or their power to counter-aggress, than prohibited acts performed by low-status transgressors. The differential leniency is apt to be extended temporarily to the imitator as well, provided that he displays the matching behavior at the same time the protective model is disregarding the prohibition.

If, in fact, model status facilitates imitative transgression through assumed protection from punishment, the findings of a study by Wiggins, Dill and Schwartz (1965) suggest that the latter variables are not related in a simple linear fashion. Compared to individuals of intermediate status, high-status persons tend to receive less punishment for minor deviations, but are treated more severely when their transgressions produce serious consequences for group members. These findings are somewhat analogous to naturalistic situations in which severe and well-publicized punishments are administered for major transgressions by models who occupy prestigeful positions in society in an effort to deter similar behavior in observers.

The prestige qualities of a model may not only increase the probability of matching behavior, but also produce stable value changes through the process of higher-order vicarious conditioning (Bandura, 1965a, 1968b). If a model

who elicits positive affective responses in viewers expresses strong preference for certain stimulus objects and makes pleasant evaluative statements about them, the positive reinforcing value of the objects is likely to be increased. Conversely, negative valences may become strongly conditioned to objects that are habitually associated with unpleasant evaluations portrayed by highly esteemed models.

The process of value modification through prestigeful modeling is strikingly illustrated in an ingenious experiment by Duncker (1938). In an initial test of food preferences nursery school children chose powdered chocolate with a pleasant lemon flavor over a very sweet sugar with a disagreeable medicinal taste. Later, a story was read to the children in which a stalwart astute hero abhorred a sour-tasting foodstuff similar to the children's preferred food and enthusiastically relished a sweet-tasting substance. The reactions of the admired hero reversed the children's initial food preference, as measured immediately after the story session and in six successive tests in which the children chose between powdered chocolate and sugar. Moreover, brief recall of the story reinstated the experimentally induced value change that had declined gradually over time. Although there is reason to believe, from findings cited earlier, that the prestigeful properties of the model were a significant determinant of changes in preferences, in the absence of data based on a low-status model its contribution in the present study cannot be evaluated.

More recently, Bandura, Blanchard and Ritter (1967) found that negative attitudes of long duration were drastically altered by having phobic adults observe modeled positive responses toward the repugnant attitude object without any adverse consequences accruing to the performing model. And Carlin (1965) demonstrated that young children showed a greater preference for deferred gratification after having observed an adult model display positive affective reactions while waiting for delayed rewards than when the model expressed negative emotional reactions during the imposed delay period and devalued the goal object. Results of these studies are sufficiently promising to warrant further investigation of the modification of evaluative meanings of objects and activities through their contiguous association with affective modeling cues.

Modeling as a Function of Observer-Model Similarity

The research reviewed in the preceding section examined generalization of matching responses to unfamiliar persons on the basis of their similarity to past reward-producing models. Under certain conditions, modeling can also be significantly influenced by real or assumed similarity between the observer and the model.

Stotland and his coworkers (Burnstein, Stotland & Zander, 1961; Stotland & Hillmer, 1962; Stotland & Patchen, 1961; Stotland, Zander & Natsoulas, 1961) have conducted a series of experiments on the process of identification, in each of which some subjects are initially led to believe that they are similar

in one or more attributes to a model, while other subjects are given information suggesting that they are dissimilar to the model in social background, preferences, or personality characteristics. The subjects are later informed of the model's preferential choices on a new task, and the number of matching responses induced in high and low similarity groups are compared. The results generally show that persons told they have some qualities in common with a model are more inclined to imitate additional new responses portrayed by the model than subjects who initially share no common characteristics. Moreover, within the range of conditions tested, generalized matching behavior has been found to occur without any prior acquaintance or direct social interaction with the model, and even when the relationship between the classes of modeled responses is entirely arbitrary, the possession of the initial similar attributes is a matter of chance, and the new modeled responses have no inherent rewarding properties.

According to Stotland's theoretical interpretation of identification, generalization of similarity results from a cognitive process that is characterized as follows: Individuals have a strong need to achieve cognitive consistency in their self-concepts. Therefore, when a person conceives of himself as having some characteristics in common with a model, he will introject other attributes of the model into his self-concept in order to maintain cognitive or perceptual consistency.

Although the studies by Stotland furnish some suggestive evidence for generalization of similarities, this cognitive theory of identification receives weak empirical support even in the limited conditions under which it has been tested. Several of the studies include significant attributes, but in most cases the symbolically modeled responses are of a relatively inconsequential nature (e.g., preference for musical selections, nonsense syllables or diving styles) and, following a widely accepted tradition in social psychology, the dependent measures generally involve simple self-ratings that are highly subject to response biases, rather than changes in actual social behavior. Moreover, the elusiveness of the phenomenon itself is revealed in studies (Burnstein et al., 1961; Stotland & Hillmer, 1962) that include a control condition in which no attempt is made to induce interpersonal resemblance. Whereas in many comparisons subjects in high and low similarity conditions display differential self-ratings, the two groups usually do not differ significantly from the controls. Considering that both the similarity induction and the identification model are typically presented in verbal form by the same researcher in the same situation, the relatively weak response-generalization effects may be a function of an experimentally induced set for agreement, rather than internal pressures for cognitive consistency.

It should also be noted, in this connection, that the experiments simply demonstrate generalization of imitation across different classes of modeled responses. Interpretations of these data in terms of cognitively induced motivations, perceptual processes, introjective mechanisms, and self-concept reorganization appear superfluous because, except for self-evaluative ratings which yield

equivocal results, the hypothesized mediating processes are never assessed. An alternative interpretation is that similarity facilitates modeling primarily through interpersonal attraction rather than as a consequence of striving for cognitive consistency. Byrne (1968) has shown in a series of experiments that perceived similarity between a given individual and a stranger increases attraction toward the stranger. Conversely, dissimilarity manipulations that portray the divergent model as favoring contrary interests may reduce matching behavior by arousing antipathy toward the model. Data from a condition in which the model is clearly dissimilar but possesses attributes that the subject admires and aspires to have would be particularly relevant to these alternative formulations. The cognitive consistency and the attraction hypotheses lead to opposite predictions regarding imitation of admired dissimilar models.

Even if empirical findings had strongly substantiated the cognitive-consistency interpretation of modeling, a more inclusive theory of identification would still be needed to account adequately for both the generalization of similarity across a wide range of socially significant responses and the absence of generalized matching when high initial similarity exists between observers and a model. In Stotland's theory it is assumed that new modeled responses will not be acquired through identification if they are contradictory to, or incompatible with, already existing attributes in the observer. Since this condition may obtain only rarely in socially significant areas of behavior, this theoretical formulation places severe limitations on the behavioral changes that can be achieved through the influence of models. The theory also implies that individuals would be continually reorganizing their self-concepts and changing their behavior on the basis of casual contacts with unfamiliar models who happen to share some common characteristics. Finally, there are numerous studies (Bandura & Kupers, 1964; Hicks, 1965; Jakubczak & Walters, 1959) in which children are more imitative of adults than peers—who obviously display a considerably greater number of common attributes—and adults may be more inclined to match some behaviors of ethnically dissimilar models than those of similar ethnic and socioeconomic status (Epstein, 1966). These types of findings are not explicable in terms of a cognitive theory which assumes prompt generalization of similarities.

The diverse results discussed above can be encompassed within the framework of social-learning theory in terms of stimulus generalization from prior experiences involving *analogous* reinforcement contingencies. One would expect people who possess similar characteristics to share many experiences and outcomes in common. Results of experiments with infrahuman subjects reveal that the experience of repeated common consequences is an important determinant of matching responsivity. Church (1959), for example, found that animals subjected to paired aversive consequences subsequently displayed more emotional responsivity to the pain cues emitted by another animal than a group of subjects that had received the same amount of aversive stimulation, but unassociated with the pain responses of another member of their species. Moreover, Murphy, Miller and Mirsky (1955) employing a cooperative avoidance

conditioning procedure, demonstrated that emotional responses in monkeys could be vicariously elicited not only by the sight of affective cues from their experimental counterpart, but also through stimulus generalization to another monkey who was never involved in the original aversive contingencies. Findings of these laboratory studies indicate that repeated association of similarity cues with analogous reinforcing outcomes would establish likeness as a discriminative stimulus for generalized identificatory behavior.

On the other hand, if people who share common characteristics rarely experience concordant outcomes, but emulation of dissimilar models produces favorable consequences, one would predict high imitation of new attributes portrayed by a divergent model. These are precisely the conditions under which children in Miller and Dollard's (1941) experiments learned to match the behavior of an adult rather than a peer model, and subsequently generalized this differential identificatory preference to other unfamiliar adults. This process would, of course, eventually result in high observer-model resemblance.

In either case, whether initial similarity or dissimilarity facilitates generalized matching behavior may primarily depend on the extent to which these cues have been associated in the past with paired consequences or paired opposing outcomes for models and observers. The relative influence of similarity and analogous outcomes on identification could be best evaluated by an experiment in which similar people experience opposite consequences prior to the test for imitation, whereas dissimilar people encounter identical outcomes. It would be predicted from social-learning theory that discrepant outcomes would override previously established discriminative functions of modeling stimuli. The highest level of identification would be expected to occur under conditions of high subject-model similarity and common consequences.

Role of Social-System Variables and Other Extra-Familial Influences in Identification

Traditional psychological theories of socialization would lead one to believe that social behavior can be acquired vicariously only through identification with real-life models; that interpersonal relationship factors are necessary preconditions for identificatory learning; that parents serve as decisive role models and, at least during the early developmental period, siblings, peers, and nonfamilial adults are minor sources of social behavior; that the behavioral transmission process is unidirectional (i.e., children adapt behavior exhibited by parents, but not vice versa) ; and that social organizational systems do not exist as sources of values and conduct. Research based on social-learning theory and analyses of behavior as a function of social-structure variables indicates that a broad range of modeling influences, both actual and symbolized, must be incorporated in a comprehensive theory of behavioral transmission.

The peer group is perhaps one of the most neglected sources of social learning in psychological accounts of the identification process. In training their children parents frequently demonstrate specific skills and desired child-

appropriate behaviors, and they may also furnish play materials suitable for enacting adult roles. However, because of the wide age disparity most of the social-response patterns spontaneously portrayed by parental and other adult figures can serve, at the most, as general guides for young children in their daily social interactions. Children must, consequently, rely to some extent on older siblings and peers as models for specific modes of behavior that parents do not ordinarily provide. Indeed, in some cultures (Bronfenbrenner, 1962) peers supersede parental figures as the principal models and agents of socialization.

The identification process becomes more complicated under conditions in which children are exposed to both parental and peer models who display conflicting standards in the same areas of behavior. Thus, in the experiment mentioned earlier (Bandura, Grusec & Menlove, 1967b), children who simultaneously observed an adult set himself high standards of achievement and a peer adopt low norms subsequently imposed less stringent standards on themselves than children who were exposed only to the behavior of the adult model. The influence of the peer's self-indulgent pattern could be effectively counteracted, however, by social reinforcement of the model's high standard-setting behavior.

The deleterious effect of conflicting identifications arising from incompatible value systems of parents and peer reference figures has received considerable attention in theories of adolescent socialization. It should therefore be emphasized in passing that selection of peer models is greatly influenced by the values prevailing in the home. Children tend to choose friends who share similar values and who are therefore more likely to reinforce familial standards of conduct than to serve as sources of conflict (Bandura, 1964; Bandura & Walters, 1959; Elkin & Westley, 1955).

As children grow older, they must draw even more heavily upon peers and other extra-familial models for several reasons. In the first place, under conditions of rapid social and technological change, many parental interests, attitudes, and role behaviors that were serviceable at an earlier period may have little functional value for members of the younger generation. New complex patterns of behavior must therefore be learned from other social agents whenever major disruptive changes introduce wide disparities among age groups. One suspects that fox-trotting parents will not necessarily prove to be the most idolized or effective models for Watusi-swinging adolescents. Indeed, in many instances, adolescents function as models for their parents, especially in a culture like ours which sets a high value on the activities and symbols of youth.

Social mobility also places severe limitations on the extent of familial transmission of behavior patterns. This is most clearly evident in studies (Ellis & Lane, 1963; Krauss, 1964) investigating the sources of high educational aspirations among lower-class children. In these families the parents themselves cannot provide satisfactory models for class-typed habits of speech, customs, social skills, and attitudes that are required for successful upward mobility. The

parents usually initiate the mobility process by encouraging and supporting high educational aspirations; admired teachers further reinforce, by approval and example, college ambitions in lower-class youths; and selective association with college-oriented middle-class peers provides the social-learning conditions for the gradual development of attitudes, belief systems, and complex behavioral repertoires necessary for achieving the desired status.

During later periods of development people must continue to draw extensively upon a variety of nonfamilial models in preparing themselves for new vocational, professional, and social roles that cannot be transmitted within the family no matter how versatile its members may be. Identification should therefore be viewed as a continuous process involving multiple modeling, rather than a phenomenon that primarily occurs in relationship to parents during early childhood, producing enduring and pervasive changes in personality characteristics.

Another neglected influential source of social learning is the abundant and diverse symbolic modeling provided in television and other audio-visual displays. Since response patterns can be acquired on a purely observational basis, it is not surprising to find in comparative studies that models provided by filmed displays can be as influential as their real-life counterparts in shaping children's behavior (Bandura et al., 1963a). In fact, many of the experiments reviewed earlier, demonstrating extensive modeling effects in both children and adults, utilized pictorially presented models.

In view of the efficacy of symbolic modeling and the large amount of time that most young people spend watching televised productions (Schramm, Lyle & Parker, 1961), mass media may play a more important part in shaping behavior and in modifying social norms than has generally been assumed. To the extent that conduct norms modeled by parental transmitters are contradicted by those exemplified by prestigeful televised transmitters, the socialization influence of the family is attenuated for better or for worse, depending on the types of behavior that are repeatedly portrayed. It is highly probable that with further advances in communication technology, parents, teachers, and other socialization agents may become relatively less influential role models as increasing use is made of symbolic models. Some changes in this direction have already occurred in educational practice.

Much social learning is fostered through exposure to *behavioral modeling cues* in actual or pictorial forms. However, after adequate language development is achieved, persons rely extensively upon *verbal modeling cues* for guiding their behavior. Thus, for example, one can usually assemble relatively complicated mechanical equipment, acquire rudimentary social and vocational skills, and learn appropriate ways of behaving in almost any situation simply by matching the responses described in instructional manuals. If the relevant cues are specified clearly and in sufficient detail, verbally symbolized models may have effects that are quite similar to those induced by analogous behavioral displays. Bandura and Mischel (1965) found that children's willingness to defer gratification could be modified to an essentially comparable degree by having

them either observe an adult model exhibit delay behavior that was counter to the children's orientation, or read a verbal account of his delay pattern. The use of verbal forms of modeling makes it possible to transmit an almost infinite variety of values and response patterns that would be exceedingly difficult and time-consuming to portray behaviorally.

Normative systems that describe in detail appropriate conduct in given situations and the consequences for deviation also represent a prevalent means of influencing and regulating the social behavior of both parents and children. The interpretation of normative injunctions as a special case of symbolic modeling provides a link between conceptualizations of behavioral control favored by sociologists and those that predominate among psychologists.

FAMILIAL AND SOCIAL-SYSTEMS TRANSMISSION OF BEHAVIORAL PATTERNS

In a provocative paper Reiss (1966) contrasts theories of behavioral transmission based upon the family unit with those emphasizing institutionally organized systems, and he enumerates several reasons why the former model cannot adequately explain socialization outcomes.

As noted earlier, most personality theories maintain that values, attitudes, and patterns of behavior are primarily transmitted through the parent-child relationship. Assuming a 20-year difference between generations, a relatively long period intervenes between parental input of social values and the time when the supposedly internalized contents can be passed on to succeeding descendants. Under these conditions the rate of social change would be exceedingly slow whereas, in fact, extensive society-wide shifts in normative behavior often occur within a single generation. Reiss therefore argues that the parent-child relationship cannot be the major agency of cultural transmission. Rather, standards of conduct are disseminated by institutionally organized systems (e.g., religious, political, legal, and educational agencies) and regulated by collectively enforced sanctions. Innovation, according to Reiss's view, originates at the social organization level, whereas changes emerging within the family are of minor social consequence. Thus, for example, discriminative practices in schools, public accommodations, and voting rights are more effectively eliminated by invoking Supreme Court decisions than by waiting for bigoted parents to inculcate in their children tolerant attitudes which might result in more compassionate behavior towards Negroes when the offspring become members of school boards or motel operators twenty years later.

In general agreement with Reiss's main thesis, the theory of behavioral transmission outlined in the present chapter and elsewhere (Bandura, 1968a) assumes that social behavior is, in large part, developed through exposure to modeling cues and regulated by reinforcement contingencies, many of which are prescribed by one's organizational affiliations. Because social agencies are given a great deal of power to administer potent rewarding and punishing consequences to their members, collectively enforced sanctions can produce rapid

and widespread changes in behavior. However, a systems theory alone is insufficient to explain the varied socialization outcomes that typically exist even in relatively homogeneous sub-cultures. These differences occur because organizational prescriptions for conduct must be implemented by parents and other societal agents. Parents who, for whatever reason, do not subscribe to organizationally sanctioned codes of behavior, and who themselves display deviant characteristics, generally produce children who are also socially deviant. In addition, the child-rearing practices employed by socially conforming parents can affect indirectly the success of group control. Parental methods of training may fail to endow social and symbolic cues with the reinforcing functions required for effective socialization, and establish in children strong defiant, avoidant, or overinhibited response tendencies that serve as barriers to societal influences (Bandura & Walters, 1959; McCord, McCord & Zola, 1959). Finally, in cases where strong sanctions are not employed by governing agencies to enforce advocated changes, parents generally resist adoption of new customs, technologies, and values for some time.

In discussing the limitations of personality theories of socialization, Reiss states that, in such approaches, social changes can arise only through failures in transmission between generations. This criticism may apply to radical theories that assume that parental characteristics are introjected by children *in toto* and later passed on in unmodified forms to their progeny. In fact, social learning is a continuous process in which established patterns of behavior are often extinguished or extensively elaborated, and new modes of response are adopted. The behavioral contents transmitted by parents to children therefore include not only some aspects of their social heritage, but also response tendencies acquired from numerous sources during later periods of development. Hence, considerable modifications in characteristic patterns of behavior can emerge across generations on the basis of a familial transmission process.

The limitations regarding intergenerational changes that Reiss attributes to personality theories of socialization also imply certain assumptions about modeling phenomena (i.e., homogeneity of modeling cues, extremely narrow selection of models, unmodifiability of matching responses, etc.) that are not confirmed by recent findings from research in social-learning theory. According to the observational-learning interpretation of modeling, children have repeated opportunities to observe and to learn the behavior and values not only of parents, but also of siblings, peers, and other significant persons. Consequently, when a child is exposed to a variety of models, he may select one or more of them as the principal sources of social behavior, but he rarely reproduces all elements of a single model's repertoire or confines his imitation to that person. In the experiment (Bandura et al., 1963b) that utilized three-person groups, for example, although children adopted many characteristics of the model who possessed rewarding power, they also reproduced some of the attributes exhibited by the model who occupied a subordinate role. The children therefore displayed a relatively novel pattern of behavior representing amalgams of elements from both models. Moreover, the specific admixture of behavioral ele-

ments varied from child to child. Thus, within the same family even same-sex siblings may exhibit quite different personality characteristics resulting from having selected for imitation different elements of parental and sibling behavior. It may seem paradoxical, but under conditions of high diversity of modeling patterns, much innovation of social behavior can occur entirely through identification. On the other hand, in homogeneous cultures in which models display essentially similar patterns of behavior, and deviants are ostracized, placed in confinement, or otherwise punished, one would expect little change across successive generations. Although questions can be raised about the validity of some of the criticisms levied by Reiss against the family transmission model, nevertheless his major contention that perpetuation and change of behavioral norms are primarily controlled by social-system conditions, and not by parental agents, appears to be well-grounded.

GENERALITY OF MODELING INFLUENCES

It is widely assumed, on the basis of evidence that people often produce new responses which they have never formed or seen before, that innovative behavior cannot be accounted for on the basis of learning theory principles. This limitation may apply to theoretical formulations that depict the learning process exclusively in terms of selective reinforcement of spontaneously emitted variations in behavior. However, theories employing modeling principles have often been similarly criticized on the mistaken assumption that exposure to the behavior of others can produce, at the most, mimicry of specific modeled responses.

In most experimental investigations of identificatory processes a single model exhibits a limited set of responses, and observers are subsequently tested for the amount of precise response duplication under similar or identical stimulus conditions. These restricted experimental paradigms can yield only specific imitative outcomes that do not extend beyond the particular responses demonstrated. On the other hand, studies employing more complex procedures indicate that innovative behavior, generalized behavioral orientations, and principles for generating novel combinations of responses can be transmitted to observers through exposure to modeling cues. As has been shown earlier, under conditions in which children are provided opportunities to observe the behavior of heterogeneous models (Bandura et al., 1963b), observers typically display novel patterns of behavior representing diverse combinations of elements from the different models. Illustrations of the efficacy of modeling procedures for developing generalized conceptual and behavioral propensities are provided in studies designed to modify moral judgmental orientations (Bandura & McDonald, 1963) and delay-of-gratification patterns of behavior (Bandura & Mischel, 1965). In these experiments the models and observers respond to entirely different sets of stimuli in the social-influence setting, and tests for generalized identificatory effects are conducted by different experimenters in differ-

ent settings with the models absent, and with different stimulus items. The results disclose that observers respond to new stimulus situations in a manner consistent with the models' dispositions even though the subjects had never witnessed the model's behavior in response to the same stimuli.

In the higher-order form of modeling described above the observer acquires a common verbally labelled attribute or a rule exemplified in a variety of modeling responses that may differ in many other aspects. Subsequent responses generated by the subject that embody the observationally derived rule are likely to resemble the behavior that the model would be inclined to exhibit under similar circumstances. The abstraction of rules from modeling cues is achieved through vicarious discrimination learning (Bandura & Harris, 1966) in which the responses of models that contain the relevant attribute are reinforced, whereas those that lack the critical feature are consistently nonrewarded.

Although modeling variables play an important role in the development of most social behaviors, their position with respect to language learning is almost unique. Since children cannot acquire words and syntactical structures without exposure to verbalizing models, it is obvious that some amount of modeling is indispensable for language acquisition. However, because of the highly generative character of linguistic behavior, it is usually assumed that imitation cannot possibly play much of a part in language development and production. The main argument, which is based on the mimicry view of modeling, is as follows: Children can construct an almost infinite variety of sentences that they have never heard. Consequently, instead of imitating and memorizing specific utterances that they may have heard at one time or another, children learn sets of rules, on the basis of which they can generate an unlimited variety of grammatical sentences.

It is obvious that rules about grammatical relations between words cannot be learned unless they are exemplified in the verbal behavior of models. An important question therefore concerns the conditions that facilitate abstraction of rules from verbal modeling cues. The principle underlying a model's varied responses can be most readily discerned if its identifying characteristics are repeated in responses involving a variety of different stimuli. If, for example, one were to place a series of objects on tables, chairs, boxes, and other places, and simultaneously verbalize the common prepositional relationship between the objects, a child would eventually discern the grammatical principle. He could then easily generate a novel grammatical sentence if a toy hippopotamus were placed on a piano and the child were asked to describe the enacted stimulus event.

Unlike social responses which are often readily acquired, language learning is considerably more difficult because sentences represent complex stimulus patterns in which the identifying features of syntactic structures cannot be easily discriminated. The influential role of both modeling and discrimination processes in language development is shown by findings of an experiment (Bandura & Harris, 1966) designed to alter the syntactic style of young children who had

no formal grammatical knowledge of the linguistic features that were manipulated. The grammatical constructions chosen to be modified were the prepositional phrase, which has a high base rate of occurrence, and the passive voice, which is grammatically more complex and rarely displayed by young children.

As might be expected, social reinforcement, even when combined with a strong attentional set to identify the characteristics of "correct" sentences, was ineffective in increasing the use of passives in sentences generated by the children in response to a set of simple nouns. The majority of subjects did not produce a single passive sentence, and consequently, no responses occurred that could be reinforced. Nor were the children able to discern, within the relatively brief exposure period, the critical syntactic category simply from observing a model construct a series of passive sentences. In contrast, children generated significantly more passives when verbal modeling cues were combined with procedures designed to increase syntactic discriminability. The most powerful treatment condition was one in which the attentional set was induced, modeled passive constructions were interspersed with some sentences in the active voice so as to enhance differentiation of relevant grammatical properties, and both the model and the children were rewarded for passive constructions. In the case of a syntactic category as common as prepositional phrases, reinforcement together with an active attentional set were effective in altering children's usage of prepositions, but modeling cues were not a significant contributory factor.

Children who show gross behavioral deficits, and whose discriminative and attentive capacities are limited, may benefit little from repeated exposure to verbal modeling cues alone, even though they may be easily discriminable. In such cases, highly explicit and concrete modeling procedures must be utilized, as is well-exemplified in the therapeutic program devised by Lovaas (1966) to establish grammatical speech in schizophrenic children.

The program consists essentially of rewarding the child's discriminative responsivity to verbally or behaviorally modeled events. Whenever the child fails to respond or responds incorrectly he is aided by verbal and physical prompts which are gradually faded out on succeeding trials. Prepositional training will serve to illustrate the three basic discriminations that are developed. Initially the adult gives a verbal instruction involving a preposition (e.g., "Put the block inside the box") and the child is promptly rewarded for performing the motor response appropriate to the verbal stimulus. If the child fails to execute the response correctly, the therapist moves the child's hand with the block to the box while repeating the corresponding verbal response. In the second discrimination, objects are arranged in a particular way and the child verbally describes the relationships between the objects, using the proper preposition. In the third step, the child gives grammatical verbal responses to sentences spoken by the adult. Children are later taught to generalize the linguistic rule by modeling a variety of objects in a variety of prepositional relationships. Essentially the same modeling procedures have been

successfully employed by Lovaas to establish other types of syntactic patterns in mute schizophrenic children.

CONCLUDING COMMENTS

The theory of identification outlined in the present chapter assigns a prominent role to observational learning, which is assumed to mediate identificatory outcomes. According to this theoretical formulation, matching behavior is acquired on the basis of contiguity of modeling stimulus sequences and symbolic verbal coding of observational inputs. These representational symbolic events, in conjunction with appropriate environmental cues, later guide overt enactment of appropriate matching responses. Performance of observationally learned identificatory responses, on the other hand, is primarily governed by reinforcing events that may be externally applied, self-administered, or vicariously experienced. Moreover, emphasis is given to the differential consequences of emulating the behavior of models possessing distinctive characteristics. These come to function as discriminative stimuli for regulating generalization of identificatory responses toward unfamiliar models, in different social situations, and across different classes of behavior displayed by the same model.

The conceptualization of modeling processes in terms of social-learning principles differs in several important respects from most personality theories of identification. Traditional approaches generally depict identification as a pervasive and more or less unitary modeling outcome that is firmly established early in a child's life, and which results from nurturant and threatening interactions with parental figures. In contrast, social-learning theory not only posits a different type of learning process, and a different set of controlling variables for identification, but also assumes a considerably more complex model of behavioral transmission. Identification, according to this view, is a continuous process in which new responses are acquired and existing repertoires of behavior are modified to some extent as a function of both direct and vicarious experiences with a wide variety of actual or symbolic models, whose attitudes, values, and social responses are exemplified behaviorally, or in verbally coded forms. Although a family can provide general prescriptions for conduct, parental models cannot possibly serve as primary sources of the elaborate skills and modes of behavior required at different stages of social development. Complex cultural patterns of behavior are, in large part, transmitted and regulated at a social-systems level.

The conceptual scheme presented here appears to be sufficiently inclusive to encompass a large set of variables that have been shown to influence identificatory phenomena. Moreover, if the worth of a psychological theory is judged by the efficacy of the behavioral modification procedures that it produces, as theory ultimately should be, then preliminary results from clinical applications of modeling techniques based on social-learning principles indicate this approach holds considerable promise.

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