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Social Interaction

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The study of social interaction is a central concern of the behavioral and social sciences (Allport, 1968; Jones, 1985). Social interaction is commonly explored by social and personality psychologists, who place particular emphasis on individual cognitive, emotional, motivational, and behavioral processes. Sociologists investigate many of the same phenomena: their emphasis on the influence of social structures, roles, and institutions external to the individual complements the psychological emphasis on internal factors. In a very real sense, the study of social interaction is an interstitial discipline, linking fields such as sociology, anthropology, economics, and political science, which analyze larger social structures, with fields such as psychology, linguistics, biology, and artificial intelligence, which are concerned with processes that occur within the individual. Although social interaction typically refers to the relations between two or more humans, the continuity between species is represented by links to ethology and behavioral biology. In short, the study of social interaction links the psychological and biological concern with structures and processes located within the individual with the anthropological, sociological, and economic concern with structures and processes located outside the individual in the dyad, group, society, and culture.

Traditionally, the disciplines of psychology and sociology have taken a special interest in the study of social interaction, and it is within these fields that important and exciting theoretical and empirical advances have occurred in the last decade or so. These advances represent a shift away from the simple identification and listing of the probable causes implicated in certain *products* of social interaction—a happy or unhappy marriage, a productive or unproductive work group, a successful or unsuccessful negotiation—toward an understanding of the *process* by which several causal factors meet in a particular social setting, mix with each other, and feed back upon themselves over time to produce the phenomena of interest (Darley and Fazio, 1980; Kelley et al., 1983).

To illustrate: a good deal of traditional research indicates that dissimilarity in attitudes is an important factor in producing feelings of enmity and disaffection between two people. This fact has been documented in numerous studies using the conventional experimental paradigm to

study social influence. That paradigm focuses upon one-step causal sequences between two strangers, one of whom provides the independent variable (an attitude, revealed as a questionnaire response) and the other of whom provides the dependent variable (liking or disliking, also expressed as a questionnaire response). Other possible causes (e.g., physical attractiveness) are eliminated from consideration, and actual interaction between the parties is severely restricted if it is permitted at all.

Of course, the traditional design has been expanded to include multiple causal factors and their interactions, as well as multiple dependent variables. In keeping with the precepts of traditional experimental design, however, the causal elements have not been allowed to vary freely, and therefore interact as they might in the real world. Most important, traditional experimental designs—however complex they may be in their consideration of the interactions among independent variables—do not encourage investigators to explore events occurring beyond the one-step, independent variable–dependent variable sequence, to examine the manner in which an initial effect alters the subsequent relations among the independent variables and affects other events occurring later in the causal sequence.

In contrast, the emerging social interaction paradigm attempts to discover the processes by which a known causal variable interacts with other known causal variables to produce an initial effect on some aspect of behavior in a realistic interpersonal interaction (whether between strangers, acquaintances, or intimate friends). Equally important, it goes on to study the manner in which these initial effects are amplified or dampened over time. Thus, perceived attitude dissimilarity, in the presence of strong demands for courtesy and an annoying physical environment, may produce a subtly derisive remark by one party, followed by a sharp retort by the other, leading to a spiral of hostility that can produce many different kinds of untoward effects, including physical violence.

To summarize, the shift in emphasis characteristic of the emerging social interaction paradigm involves the simultaneous study of many elements, freely varying in naturalistic settings, assessed over time, in a manner that is open to discovering reciprocal causal relations. This manifests itself concretely in the following tendencies among researchers:

1. They confront the fact that pertinent causal factors producing any interaction phenomenon are located not only within the individuals but also in the social environment in which they are embedded, as well as in emergent properties of the interaction itself (Bowers, 1973; Magnusson and Endler, 1977).

2. They recognize that these causal factors often interact with each other over time in a nonlinear and reciprocal fashion (Bandura, 1978).
3. They study larger temporal units of interaction, and conduct analyses of sequences of events within an interaction setting.
4. They perform multimodal assessment of interaction processes using self reports, observer ratings, behavioral codings, and psychophysiological measures.
5. They study interaction in naturalistic settings where the participants have both a history and an anticipated future together.

It should be emphasized that behavioral and social scientists have *always* construed the study of social interaction as the playing out, over time, of complex interactions and reciprocal causal relations. What has happened is that research in the discipline has come to reflect more closely the reciprocal, cyclical nature of social interaction, and its theories have become increasingly precise and mathematical in their expression. This evolutionary trend has been made possible by a number of historical events:

1. Technological advances including high-fidelity videotape, psychophysiological recording, and high-powered microcomputers.
2. Advances in statistics, including the invention of techniques for time-series analysis, curve-finding, and path analysis, as well as refinements in multiple regression and analysis of variance (Kenny and LaVoie, 1984; Thomas and Malone, 1979).
3. Advances in theory formulation, including computer simulation as a medium for writing formal quantitative theories of social interaction processes (Abelson, 1968).

As a result of these advances, the field now has in hand, or at least clearly in sight, the paradigms and analytical tools that will enable it to advance beyond current formulations. What has been accomplished so far has been done with extremely modest levels of funding. The increase in understanding that will come with widespread adoption of the new approaches carries a higher price, in terms of new hardware, personnel, and institutional structures. Yet the higher price remains modest compared to other sciences, even those in the behavioral and social realm. The benefits to be had, in terms of our increased understanding of ourselves and our place in the social world, and our ability to improve social relations, would appear to be well worth the expense.

Conceptual and Methodological Advances

Although the interactive, reciprocal nature of social interaction has often been assumed at the conceptual level, these features have not always survived translation of theories and hypotheses into empirical tests. Many studies of social interaction focused on only one element at a time—analyzing the structure of attitudes, for example, or the features of social roles. Other studies encompassed two elements, examining the influence of attitudes or social norms on behavior, or the effect of environmental variables on emotional or motivational states. Rarely was analysis extended to encompass three or more elements, and even more rarely was there any attempt to analyze reciprocal causation. Much was learned from such two-element, one-step studies, and much still can be learned from them. At the same time, advances in laboratory technology and statistical methods now permit investigators to analyze multiple causation in extended sequences and to examine many variables and the dynamic relations among them observed over time.

Analysis of Interaction over Time

The increasing focus on social interactions as they unfold over time can be observed in expansions of the traditional two-element design to designs that cover relations among three or more elements. Good examples of this kind of research may be found in recent attempts to reveal the processes underlying the self-fulfilling prophecy, attempts that permit at least one full interaction sequence to take place (Darley and Fazio, 1980; Merton, 1948).

In one experiment, young men were asked to converse over the telephone with young women who were strangers (Snyder et al., 1977). Prior to making the call, the subjects were led to believe that their partners were either attractive or plain. The women did not know about this assignment, and in fact both men and women were assigned to the two conditions of the experiment at random, irrespective of appearance and personality. One group of judges formed impressions of the men's personalities after listening to their side of the conversation. Another group, who listened only to the female partners, rated the women. Men who thought that their partners were attractive behaved in a more outgoing, sociable, and warm manner than those who thought that their partners were plain. Further, those women thought by their partners to be attractive behaved in a more poised, sociable, gregarious, and self-confident manner than those who were thought to be plain. The men's beliefs concerning their partners led them to act in a manner congruent with these expectations. Their behavior, in turn, elicited behavioral re-

sponses *from the women* that were also congruent with those expectations. This phenomenon is known as the behavioral confirmation effect. Other research shows that even when the target's behavioral responses are relatively neutral, the actor may still *interpret* his or her partner's behavior as congruent with expectations—a phenomenon known as perceptual confirmation.

If such interactions are allowed to continue over several exchanges, it is possible to observe amplification of the initial effects (Snyder and Swann, 1978). In one recent investigation a number of distressed couples, unhappy with their marriages and seeking counseling, were videotaped as they tried to resolve a marital problem (Gottman et al., 1977). These couples were likely, even early in the process, to get into a cross-complaining "loop" in which each person's statement of a problem was met with the partner's statement of a second problem, quickly degenerating into an exchange of negative affect. In contrast, nondistressed couples began with a validation sequence in which one partner's statement of a problem was met with the other's acknowledgment and agreement that the problem exists. Other studies have shown that the distressed partners' negative views of each other and pessimism about the future of their relationship contrast with the positive views and optimism of normal couples. Given the kinds of behavioral and perceptual confirmation effects just described, it is plausible to conclude that distressed and nondistressed couples alike exhibit the operation of self-fulfilling prophecies.

In another example, the interactions of aggressive boys and their mothers were recorded before, during, and after a course of family therapy (Patterson, 1974, 1977). Before treatment, noxious behaviors on the part of the child elicited noxious behaviors from his mother, and so on in a sort of vicious cycle. Family therapy broke this cycle, so that the mother showed less tendency to respond in kind. The result was a diminution in noxious behavior on the part of the boys during treatment, a status that was maintained upon follow-up. While these examples involve negative behaviors, other studies document amplification effects with positive behaviors.

Another perspective on interaction processes is provided by research on the early stages of children's friendships (Corsaro, 1985). In a recent observational study, children's interactions in school and on the playground were sampled systematically, recorded on videotape, and analyzed in considerable detail. The research highlighted a set of "access rituals" used by children to insinuate themselves into ongoing play activities from which they have been excluded. For example, a child might initially feign indifference to the activity, but gradually move closer,

strategically retreating when challenged, until either firmly rebuffed or eventually incorporated into the group.

Research has also explored interaction processes in small groups involved in work and decision making. For several decades researchers studying group behavior in these contexts have focused on the products of group process, and on the relation between the distributions of individual initial opinions and dispositions (preferences) and the ultimate decision rendered by the group (equilibrium). Now there is an increasing flow of research on the actual interactions among individuals and factions within the group, the nature of the communications and events that affect individual positions in discussion, and the expression of individual differences. There has also been a clear shift from stochastic or game-theory models that predict the outcome of interactions to computer simulations that predict individual behavior during them. This historical situation is somewhat analogous to the use of individual introspective reports in cognitive psychology. Until theories developed to the point where detailed data representing complex mental events was relevant, the status of introspective reports was uncertain and they played only a peripheral role in the research enterprise. For similar reasons, rich records of group discussion were collected for many decades but underutilized until, as at the present time, theories of social interaction became advanced enough to guide data analysis and motivate even more extensive collection of such data.

Studies in this tradition often examine the effects of various factors on deliberation by mock juries (Hastie et al., 1983). The jurors (sometimes drawn from actual jury pools rather than student populations) view a complete reenactment of an actual trial. Often the charge to the jury involves choosing between manslaughter or murder, or simple as opposed to aggravated assault, so that complex questions arise concerning the motives and states of the defendant and victim. Rather than focusing on the relations between such variables as the defendant characteristics or case quality and verdict, the newer research analyzes the quality of the deliberation itself, as recorded on videotape and coded by elaborate computerized schemes. This research shows clearly that the quality of deliberation (as opposed to mere outcome) is affected by both group size (six or twelve persons) and decision rule (unanimity or majority). With a majority rule, members of small factions contribute less to discussion, and larger factions attract new members more quickly. Other research explores the expression of individual differences on group interaction (Cowan et al., 1984). In capital cases, for example, juries selected to eliminate members who are opposed to the death penalty are less robust and discerning in their deliberations. In other contexts it has been

shown that the outcome of a group discussion is determined by those members who frequently shift their opinions, rather than by those with more extreme initial positions.

Such findings focus attention on the dynamic interactions among group members rather than on dependencies between pairs of variables measured at only two points in time. Something similar may be expected to occur at the dyadic level as well. These findings have led to the development of more complete theoretical accounts of the dynamics of interaction in groups. They have also been cited by legal policymakers concerned with constitutional guarantees of due process and the selection of representative juries. In this way, research on group decision making exemplifies the theoretical and practical contributions to be made by the emerging style of research on social interaction.

Research on small group processes directly addresses a theoretical issue that is important throughout the social sciences: how to combine psychological principles describing the thoughts and behavior of individuals with social principles describing group dynamics in order to predict both the aggregate behavior of groups and the contributions of their individual members. Economic theory accomplishes this generalization by using mathematical techniques involving linear equations, based on a model of the individual as a rational maximizer of outcomes. From a psychological or sociological point of view, however, such models fail to recognize and deal with a number of important problems. For example, individual values are labile and highly dependent on the manner in which the decision is framed; capacity limitations on the human information-processing system prevent thorough consideration of all the data available to the individual; and predictions and judgments follow short-cut strategies rather than the normative laws of probability. Several realistic psychological models of the individual have been developed, but their extension to aggregate group behavior has proved mathematically intractable. Recently, computer simulation has been used to realistically model individual behavior, social constraints, and interaction processes, yielding predictions that can be tested in formal experiments (Hastie et al., 1983; Latane and Wolf, 1981; Tanford and Penrod, 1984). These techniques, when further developed, may radically alter existing theories of economic and political behavior, permitting them to take explicit account of principles discovered by psychological, sociological, and anthropological research.

Development of Relationships

As the course of interaction is studied over longer periods of time, we observe the processes involved in relationship development (Kelley et

al., 1983). The nature of the changes in the intrapersonal and interpersonal processes that accompany the emergence of an enduring relationship are presaged in laboratory studies of interaction between strangers who expect that their initial encounters will be followed by more lengthy ones. Previous research, in situations where interactions between subjects were casual and without long-term consequences, showed a tendency for people to rely on stereotypes and first impressions. But even the *possibility* of future interaction has dramatic effects on individual behavior before the first contact takes place, and as the dyadic interaction begins (Berscheid et al., 1976; Darley and Berscheid, 1967; Erber and Fiske, 1984; Gruder, 1971; Marlowe et al., 1966; Srull and Brand, 1985).

A major effect of anticipating future interactions appears to be a heightened attention to one's partner and the development of a more individuated impression of that person. For example, a recent study shows that a person anticipating future interaction with someone else pays more heed to information inconsistent with his or her preconceptions about that other and tends to process that information for its implications about the other's traits and attitudes. In contrast to tendencies to discount such information, as in the intrapersonal processes supporting behavioral confirmation effects, the person who anticipates a future relationship frequently relies on surprising information to revise his or her initial impressions.

The attitudes and other characteristics of one's partner are exceedingly important in long-term relationships. In contrast to brief encounters, close relationships occasion much cognitive and affective activity, and they magnify the effects of the positive or negative events that take place during an interaction. The motivational effects of anticipated future interaction are generally positive, with heightened liking of, commitment to, and cooperation with future partners, in contrast to the more neutral or even self-serving orientation found in short-term relationships. However, this effect is sharply reversed if the future partner is understood to be self-centered or exploitative. Both findings seem to reflect the self-fulfilling and amplification processes discussed earlier.

One important feature of the development of a relationship is that the motivation for the relationship is transformed (Clark and Mills, 1979; Kelley and Thibaut, 1978). In the laboratory, the possibility of a future with the partner changes the format of interaction regarded as most appropriate from one of simple "social exchange," in which a benefit is given in response to receiving a benefit from the partner, to one of "social responsiveness," in which the benefits given take into account the perceived needs of the partner. The details of the interaction process under these two circumstances have not yet been fully explored,

but it seems clear that people distinguish between the two kinds of re- lationships and know how to express their responsiveness to each other's needs. It also appears that those who treat their personal relationships strictly in terms of exchange place them at risk.

The shifts in motivation with relationship development are captured in recent theories that systematically analyze the initial patterns of in- centives, spelling out the nature of the interdependence, and the formal transformations that may be performed on both. Such theories combine elementary exchange principles adapted from economic analysis with more complex responsiveness concepts that reflect human beings' abili- ties to regulate their behavior out of consideration of its effects on other persons, and on interactions in even the distant future.

The simple social exchange concepts have been successful in generat- ing principles found to apply across various types of relationships, such as couples, roommates, and coworkers. In both longitudinal and retro- spective studies, the relative dependence of two persons has been found to predict such interaction phenomena as jealousy, influence, abandon- ment, and stability (Hill et al., 1976; Peplau, 1979). Thus, we now know how certain gross structural properties of relationships are related to general features of the interaction. However, information is lacking about the detailed processes and significant episodes that, on the one hand, underlie these aggregate effects and, on the other hand, account for the many exceptions to the general trends.

A good example of the transformation of motivation is the recalibra- tion of outcomes one derives from interaction through comparison with those derived by others. Theory based on this comparison process has led to a distinction between satisfaction with a relationship and whether one remains in it or leaves (Russbult, 1980). There is good empirical support for this distinction, and evidence is accumulating about its as- sociated intrapersonal and interpersonal processes—for example, about the contrasting scenarios of interaction when group members are both satisfied and stable within the group versus when they are dissatisfied but unable or unwilling to leave it. On this point, some of the most informative recent process analyses are those, mentioned above, that have compared distressed and nondistressed couples.

A full understanding of evolving relationships in the real world must consider the effects on interpersonal processes of the extended time frame in which the relationship is embedded. Some hints of the chang- ing nature and quality of social interactions over long periods of time is provided by research on shifts in levels of satisfaction over the course of an enduring marriage or career. For example, marital satisfaction is high early in marriage, decreases with the birth of the first child, reaches its

nadir as the children enter adolescence, and increases as children leave the household. Similarly, work satisfaction increases until approximately age 40, levels off through the mid-50s, and rises again thereafter. While there are a number of competing explanations for these statistical trends, the empirical data indicate that investigation of spousal, parent-child, coworker, and worker-supervisor relations at different phases in the lifecycle is essential to our understanding of social interaction processes as they evolve over long periods of time.

The Individual in an Interaction Context

The principles governing social interaction are not independent of the personal attributes of the individual participants. Thus, questions of personality and other internal structures and processes, both stable and transient, are highly relevant to any effort to reveal the general principles of social interaction. For example, it is generally agreed that social interactions are cognitively mediated, guided by the person's perception of the current situation, memories of relevant past interactions, judgments of causal relations, and other inferences (Fiske and Taylor, 1984; Hastie, 1983; Hastie et al., 1985; Schneider et al., 1979; Wyer and Srull, 1985). Other, less cognitive internal factors, such as emotion and motivation, are also of crucial importance (Clark and Fiske, 1982; Leventhal, 1984; Showers and Cantor, 1985). For example, happiness and other positive moods facilitate the processing of positive information about a person, and the remembering of positive events from the past, and increase the likelihood of engaging in cooperative or altruistic behavior.

Research on social cognitive processes has kept pace with developments in research and theory in the areas of nonsocial perception, memory, judgment, and inference. Similarly, research on affective processes draws heavily on current psychophysiological concepts and methods. In both domains, it is now possible to examine directly the impact of cognitive and affective processes on aspects of social interaction—as well as the influence of social factors on cognitive and affective states. The influence of interaction goals and other motivational states—whether people are oriented toward competition or cooperation, exchange or responsiveness, etc.—are also relevant and are receiving increasing attention in the literature. In this way, the study of social interaction retains its historical role of promoting the integration of the trilogy of mind—cognition, emotion, and motivation—into a comprehensive view of individual and social behavior.

The importance of intraindividual structures and processes is also seen in research on the effect of individual differences in personality on

social interaction (Snyder and Ickes, 1985). Although some investigators continue to employ traditional trait concepts, more recent work has introduced new individual difference dimensions that are derived directly from the analysis of social interaction, and of the cognitive structures and processes that mediate it (Cantor and Kihlstrom, 1985; Mischel, 1983). For example, a person's impression of him- or herself is an important determinant of social interaction, and a great deal of recent research has been devoted to analyzing the structure and function of the self-concept (Suls, 1982; Suls and Greenwald, 1983). Many personal decisions appear to be guided by the match between the actor's self-concept and the concept he or she possesses of other people who have chosen a particular option (Niedenthal et al., 1985). Moreover, people who have formed strong impressions of themselves on some personality dimension are highly resistant to contrary feedback from the social environment. They may also initiate social interactions, or modify ongoing ones, in order to reestablish a satisfactory self-presentation. Just as people differ in terms of those aspects of their personalities that they view as particularly important, so they also differ in terms of the attributes emphasized when forming impressions of other people (Bargh, 1983; Markus and Sentis, 1983). In this way, individuals given identical sets of information about someone can form quite different impressions of his or her personality; these impressions, in turn, can lead the individuals into quite different social interactions with that person.

Work on the self-fulfilling prophecy shows the manner in which features of personality, at least in terms of how the person appears to outside observers, develops and changes over time through social interaction. Rather than being preordained and static, personality is, to a considerable degree, constructed and reconstructed through relations with others (Cantor and Kihlstrom, 1985). This phenomenon is clearly shown in recent studies of aggressive boys (Dodge, 1980; Dodge and Frame, 1983). This work identifies a process in which these youngsters expect aggression from their peers, and accordingly interpret even ambiguous provocations in terms of hostile intention rather than as accidental occurrences. This leads them to retaliate aggressively. This reaction both confirms their social reputations for aggressiveness and elicits peer counterreactions that further strengthen the boys' beliefs about the hostility of their peers.

Somewhat different processes have been identified as generating and sustaining boys' hostile behavior within their families. In one recurrent scenario, the child's demanding and hostile reactions result in compliant responses from other family members which, in turn, cause the child to desist. It appears that this coercive cycle derives its strength from the

fact that both actors are rewarded for their respective roles in the interaction, the boy benefiting from the family's compliance and they from his momentary cessation of demanding, hostile behavior. However, this research does not yet allow us to describe how these cycles come into being in the first place. An important advance along these lines would be longitudinal research extending over a considerable time span, permitting the separation of intrapersonal and interpersonal factors, and analysis of amplification effects.

However, the individual's preexisting self-concept sets limits on interaction. For example, actors may not behave in a manner corresponding to their intentions, if those behaviors are not in their repertoire or are inconsistent with their own self-concepts. Moreover, targets do not always behave in a manner that is congruent with the way in which they have been labeled by actors (Swann, 1983). When the self-fulfilling prophecy is strongly incongruent with the target's self-concept, the initiatives of the actor may elicit a reaction from the target that attempts to shape the actor's impressions—what is known as strategic self-presentation (Jones and Pittman, 1982). Through a sequence known as self-verification, the target can lead the actor to behave in a manner that is consistent with the target's self-concept, rather than the actor's preconceptions. Finally, the targets' beliefs about their own behavior are important. If they believe that their behavior is the product of factors unique to the current situation, they are unlikely to display it in another, more neutral, setting. On the other hand, those who believe that their behavior reflects their personality may revise their self-concepts and be more likely to display the new behavior. In this way, the person may acquire a new, stable feature of personality.

It is a truism that the motives and preferences of individuals are shaped to a great degree by their interactions with others. We are learning much more about the conditions under which the internalization of such motives and preferences takes place. For example, compliance under conditions of external reward may be simply a response to available incentives. However, it has been shown in a remarkable series of experiments that that provision of rewards for performing an initially attractive activity seems to rob the activity of some of its intrinsic interest (Lepper et al., 1973). This was clearly demonstrated in a classic experiment in which children showed a decline in their tendency to play with magic markers in a free-play period that took place some time after they had been rewarded for playing with them. Subsequent experiments have shown that this decline in intrinsic motivation does not occur if the reward is given as a sign of competence or excellent performance; in fact, intrinsic motivation can be enhanced under these circumstances

(Harackiewicz et al., 1985). The effects of reward structure on intrinsic motivation are also mediated by individual differences in achievement and competence motivation.

A particularly important feature of human social interaction is that the participants intuitively understand many of the principles governing the process and, as a consequence, are capable of manipulating it for their private purposes. Research of the last two decades has revealed the skills that naive persons show in presenting their personalities to other people (Jones and Pittman, 1982). Whereas some forms of self-presentation are directed toward the maintenance of socially delivered outcomes, others have more to do with the individual's attempt to construct an identity or inculcate an accurate impression of him- or herself in the mind of another person. A number of experiments have shown that people can play an active role in shaping the information about themselves that can be derived from their social interactions. For example, if their self-image as competent people is threatened, they will try to protect it by handicapping themselves in ways made available by the environment (Berglass and Jones, 1978). These methods include drug usage, avoiding opportunities to prepare, or withholding effort. In this way, they have an excuse for poor performance if it occurs, and gain credit from good performance if that occurs. In the case of strategic self-presentation, in which the personality presented to others is not in line with the person's self-concept, the attempt at social deception sometimes can be betrayed by subtle features of facial expression. A major line of research in social interaction focuses on the microprocesses through which information is communicated nonverbally, and sometimes unconsciously, about one's personality (Ekman and Friesen, 1983).

Social Structure and Social Interaction

Just as the character of a social interaction is determined in part by the properties of the individual participants in it and by their internal cognitive, motivational, and affective processes, so is it shaped by a context provided by institutional, societal, and cultural structures and processes (Smelser and Smelser, 1970). Personality and socioeconomic factors initially serve to constrain the development of social relationships and the course of interactions within those relationships by bringing together or keeping apart particular kinds of people, and by providing differential resources to them. Moreover, institutional, societal, and cultural structures condition the maintenance and change of interactions as well as their origins.

One insight provided by the study of social interaction is that social structures organize interactions in a manner that serves to reproduce those structures (Berger et al., 1980). This process may be illustrated by experiments that bring together strangers who visibly differ with respect to status characteristics—attributes such as race, age, sex, social class, and language use—which are differentially valued in society at large. These individuals are then given a problem to solve, a task to which these status characteristics are objectively irrelevant. One finding is that, in the absence of information about one another with respect to task-relevant skills and knowledge, persons with high status character- istics are *assumed* by all participants to have more of the required skills than low-status persons. As a consequence, they are allowed to initiate more interactions; they are deferred to more often in the course of the interaction; and their solutions are more readily accepted by the group. In short, a status ordering is produced within the group that reproduces the ordering that exists in the external social order, somewhat along the lines of the self-fulfilling prophecy.

Whereas it has long been clear that the broader context of social structure affects the course and nature of social interactions in a variety of ways, it is less clear how the various norms and rules of social life develop out of social interactions and help to stabilize them. A fascinat- ing insight into this process was provided by an experiment with pairs of schoolchildren (Thibaut and Faucheux, 1965). The children partici- pated in a series of bargaining games in which one subject had more power over the other but the low-power member had an attractive al- ternative to remaining in the bargaining relationship. Under these par- ticular conditions, where the high-power person is interested in the loy- alty of his or her partner and the partner is interested in equity, the pair members tended to form binding contracts so that the game could be played subsequently under conditions agreeable to both. Contractual activity was much less intense when the power was more equal and the outside alternative was less attractive. This experiment suggests how norms will develop in natural groups when members can exploit each other in various ways. For example, we might expect contracts and other norms protecting both the employer and employee to develop un- der the combined circumstances of attractive outside offers and high company earnings. Each should be willing to accede to the normative constraints that prevent exploitation by the other.

This research again highlights the contribution that studies of social interaction can make to the development of theory in other areas of social science. For example, economic models of social decision making

assume that individuals attempt to maximize their gains and minimize their losses. Although these models have had some success in predicting aggregate behavior, they are limited by the fact that concepts of "fairness," "norms," and "implied contract" determine what will be considered an acceptable outcome or bargain. While economic theory is not equipped to handle such concepts, they are at the heart of social psychological analyses of bargaining. Research by psychologists and sociologists has identified important rules of the "fairness game," including principles relating to both distributional (who gets what outcomes) and procedural (how allocation is determined) concepts of justice, their development in the individual, and the settings in which the various concepts are applied (Thibaut and Walker, 1975). For example, it has been shown that perceived equity predicts the individual levels of satisfaction and duration in an intimate relationship. As another example, in Western culture adversarial procedures are more acceptable than inquisitional ones in resolving legal disputes—regardless of whether the actual outcome favors the individual. In a related vein, it appears that people are more likely to base their judgments of fairness on a set of heuristic principles rather than on a rational calculation of gains and losses. For example, people perceive it as less fair to impose losses on people than to eliminate their gains, even when the net outcome is held constant.

The theoretical importance of these findings is that they cannot be derived from rational, economic analyses. Better models of negotiation and bargaining behavior, phenomena of central importance to a democratically organized society, are likely to result from a combination of economic and psychosocial principles. Already these empirical and theoretical principles are being borrowed frequently by researchers and commentators in fields as diverse as economics, law, organizational behavior, labor relations, and marital counseling.

Resource Recommendations

The conceptual and methodological advances outlined above have set the stage for further progress in understanding social interaction processes.

Priority 1: Expanded Support for Individual Investigators

We believe that the priority need in this area is for expanded funding of individual research projects. As elsewhere in social science, most of the major advances in our understanding of social interaction processes have

stemmed from the work of individual investigators. There seems no rea-
son to expect that this situation will change in the foreseeable future.
We recognize that the natural sciences have developed many centralized
institutes for research and development and have focused on the collab-
orative use of large instruments. However, this does not seem to be the
foremost need in the study of social interaction at the present time. In
a time of declining federal support for science or of steady-state support
in an era of escalating costs, we should not seek to build structures that
we cannot maintain, especially at the expense of support for structures
on a smaller scale that are still the loci of most important discoveries.

There are at present many individual investigators productively en-
gaged in research on social interaction at a variety of levels, laying the
empirical foundations for the important theoretical advances of the fu-
ture. Some of this research is abstract—relating, for example, to the
structure of cognitive representations of social entities, causal attribu-
tion, and other judgments, decision making in a social context, and the
development and presentation of the self. Other research, pertaining to
traditional topics in social psychology and personality such as aggression,
altruism, attraction, outgroup prejudice, and other aspects of group dy-
namics, applies these general principles to specific content domains.
Both kinds of research are absolutely essential if the field is to continue
to make progress: the abstract work supplies potential reformulations of
theories, while the content areas test their generalizability. In this way,
we build an empirical basis for further theoretical advance. At current
levels of support many promising lines of research are going unfunded.

Priority 2: Modernization of Research Facilities

Continued or increased support for individual research projects will not
be enough. It is also necessary that we engage in a modernization of the
laboratories and other environments in which research on social inter-
action takes place. The conceptual and methodological advances illus-
trated here require a different kind of research than has been common
in the past. A great deal of traditional research on interpersonal pro-
cesses takes place in cubicles that prevent the participants from actually
interacting with each other, and checkmarks on questionnaires and rat-
ing scales often substitute for actual social behavior. In the past, there
were pragmatic reasons for this state of affairs. The available statistics
emphasized the identification of simple, unidirectional causal relations,
coding of complex interactions was unreliable and cumbersome, and
computing power effectively limited the number of cases and variables
that could be subjected to analysis. This is no longer true. Innovative

statistical techniques can examine both directions of causation between multiple elements in social interaction; advances in video recording technology permit actual social interactions to be recorded cheaply and preserved indefinitely; random-access audio- and videodisk equipment permits more elegant research designs than were previously possible when stimuli had to be constructed and presented by hand or on film or tape; and the revolution in microelectronics that has put mainframe computing capacity into desktop machines facilitates the application of detailed coding schemes to ongoing social interactions. Most departmental laboratory facilities for the study of social interaction were developed in the 1960s and 1970s, before the advent of the video and computer technology described above. They were not built to support research applying the new concepts and technologies. Therefore, a major need is for funds to support modernization of laboratory facilities, perhaps along the lines of the NSF multiuser computer grants.

Another major need is related to the way in which social interaction theory is coming to be written. The classic theories in personality, social psychology, and sociology were primarily verbal and somewhat nebulous. Beginning in the 1960s, there has been a trend for many social scientists to write their theories in the form of mathematical models or computer simulations. These have the advantage, from the scientific point of view, that they force the theorist to be specific about structural features and procedural details. An operating computer program, representing some aspect of social interaction, is an important research tool because it can derive theoretical implications that will escape the human theorist. However, few social scientists possess the programming expertise that will enable them to implement these simulations themselves. Thus, there is a need for expert programmers who can translate verbal theories into operating computer simulations. Even without increases in the number of research grants awarded, funding levels must increase to accommodate the increased needs for advanced computer hardware and skilled supporting personnel.

Priority 3: Support of Collaborative Arrangements

Although it is difficult to gainsay calls for more research, progress in the field does not depend solely on the funding of individual investigative projects. This is because the sort of research currently emerging in the field, and envisioned in this outlook report, is too complex, and too expensive, for an individual investigator to conduct. The same developments that have outpaced available laboratory facilities have also put

strains on the competencies of individual investigators. In principle, understanding even a mundane social interaction requires knowledge of role relationships, social-cognitive structures and processes, attitude-behavior relations, person-by-situation transactions, group processes, motivational and emotional processes, and the like—in short, work for an entire institute on social relations. Even our best programs rarely produce individuals who have expertise in all of these areas. Sophisticated analysis of social interaction will increasingly demand that investigators collaborate with each other.

Much of this collaboration can take place within the context of established departments of psychology and sociology, or among members of these departments, and the upgrading of multiuser laboratory facilities is expressly intended to foster this activity. However, other kinds of collaboration, crossing campus boundaries, are also necessary. For example, it is desirable to bring individual investigators together to focus on particular theoretical problems, both before research is initiated and after the data have been collected. A few such centers exist at present, but these are primarily geared to sabbaticals that take investigators away from their research sites for extended periods of time. Moreover, they rarely provide continuity for the group members through the life of the problem being studied. An alternative model would permit groups of researchers who share a commitment to a particular problem area (though holding different theoretical or methodological positions) to exchange views on a regular basis. Ideally, these groups would travel a circuit, and have a schedule for rotating membership that will permit the constant infusion of new ideas. Given recent advances in telecommunications and computer technology, it also would be possible to link large numbers of related investigators permanently together to foster the continuous exchange of information.

Just as it is difficult for an individual to keep up with trends in his or her discipline, it is almost impossible for even moderate-sized departments and universities to provide their students with a complete repertoire of investigative tools. Because these techniques evolve so quickly, even recent graduates are likely to be left ignorant of some developments. Without these analytic resources, even the most creative investigator will not be able to translate ideas into results (in fact, this was the situation in social psychology until recently, as conceptualization outstripped methodology). Therefore, there is an acute and growing need for centers devoted to disseminating technical information and analytic skills to both students and established researchers. Again, we envision both permanent facilities, to which students could travel for work-

shops and training institutes, Chautauqua-type traveling courses, as well as workshops sponsored by professional organizations at annual disciplinary meetings.

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Leading Edges
in Social
and Behavioral
Science

EDITED BY
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Working papers from the ten-year outlook on research opportunities,
a project of the Committee on Basic Research in the Behavioral
and Social Sciences, Commission on Behavioral and
Social Sciences and Education, National Research Council,
with the cooperation of the Center for Advanced Study in the
Behavioral Sciences and the Social Science Research Council.

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