

Behavior Theory and the Models of Man

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The views about the nature of man conveyed by behavior theory require critical examination on conceptual and social grounds. What we believe man to be affects which aspects of human functioning we study most thoroughly and which we disregard. Premises thus delimit research and are, in turn, shaped by it. As knowledge gained through study is put into practice, the images of man on which social technologies rest have even vaster implications. This is nowhere better illustrated than in growing public concern over manipulation and control by psychological methods. Some of these fears arise from expectations that improved means of influence will inevitably be misused. Other apprehensions are aroused by exaggerated claims of psychological power couched in the language of manipulation and authoritarian control. But most fears stem from views of behaviorism, articulated by popular writers and by theorists themselves, that are disputed by the empirical facts of human behavior.

In the minds of the general public, and of many within our own discipline, behavior theory is equated with "conditioning." Over the years, the terms *behaviorism* and *conditioning* have come to be associated with odious imagery, including salivating dogs, puppetry, and animalistic manipulation. As a result, those who wish to disparage ideas or practices they hold in disfavor need only to label them as behavioristic or as Pavlovian precursors of a totalitarian state.

Contrary to popular belief, the fabled reflexive conditioning in humans is largely a myth. *Conditioning* is simply a descriptive term for learning through paired experiences, not an explanation of how the changes come about. Originally, conditioning was assumed to occur automatically. On

closer examination it turned out to be cognitively mediated. People do not learn despite repetitive paired experiences unless they recognize that events are correlated (Dawson & Furedy, 1974; Grings, 1973). So-called conditioned reactions are largely self-activated on the basis of learned expectations rather than automatically evoked. The critical factor, therefore, is not that events occur together in time, but that people learn to predict them and to summon up appropriate anticipatory reactions.

The capacity to learn from correlated experiences reflects sensitivity, but because Pavlov first demonstrated the phenomenon with a dog, it has come to be regarded as a base animalistic process. Had he chosen to study physiological hyperactivity in humans to cues associated with stress, or the development of empathetic reactions to expressions of suffering, conditioning would have been treated in a more enlightened way. To expect people to remain unaffected by events that are frightening, humiliating, disgusting, sad, or pleasurable is to require that they be less than human. Although negative effects such as fears and dislikes can arise from paired experiences of a direct or vicarious sort, so do some of the ennobling qualities of man. The pejorative accounts of learning principles, which appear with regularity in professional and lay publications, degrade both the science of psychology and the audiences that the offensive rhetoric is designed to sway.

It is well documented that behavior is influenced by its consequences much of the time. The image of man that this principle connotes depends on the types of consequences that are acknowledged and on an understanding of how they operate. In theories that recognize only the role of proximate external consequences and contend they shape behavior automatically, people appear as mechanical pawns of environmental forces. But external consequences, influential as they often are, are not the sole determinants of human behavior, nor do they operate automatically.

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Response consequences serve several functions. First, they impart information. By observing the effects of their actions individuals eventually discern which behaviors are appropriate in which settings. The acquired information then serves as a guide for action. Contrary to the mechanistic metaphors, outcomes change behavior in humans through the intervening influence of thought.

Consequences motivate, through their incentive value, as well as inform. By representing foreseeable outcomes symbolically, future consequences can be converted into current motivators of behavior. Many of the things we do are designed to gain anticipated benefits and to avert future trouble. Our choices of action are largely under anticipatory control. The widely accepted dictum that man is ruled by response consequences thus fares better for anticipated than for actual consequences. Consider behavior on a fixed-ratio schedule (say, 50:1) in which only every fiftieth response is reinforced. Since 96% of the outcomes are extinctive and only 4% are reinforcing, behavior is maintained despite its dissuading consequences. As people are exposed to variations in frequency and predictability of reinforcement, they behave on the basis of the outcomes they expect to prevail on future occasions. When belief differs from actuality, which is not uncommon, behavior is weakly controlled by its actual consequences until repeated experience instills realistic expectations (Bandura, 1971b; Kaufman, Baron, & Kopp, 1966).

Had humans been ruled solely by instant consequences, they would have long become museum pieces among the extinct species. Not that our future is unquestionably secure. The immediate rewards of consumptive life-styles vigorously promoted for short-term profit jeopardize man's long-term chances of survival. But immediate consequences, unless unusually powerful, do not necessarily outweigh deferred ones (Mischel, 1974). Our descendants shall continue to have a future only because those who foresee the aversive long-term consequences of current practices mobilize public support for contingencies that favor survival behavior. Hazardous pesticides, for example, are usually banned before populations suffer maladies from toxic residues. The information-processing capacities with which humans are endowed provide the basis for insightful behavior. Their capacity to bring remote consequences to

bear on current behavior by anticipatory thought supports foresightful action.

Explanations of reinforcement originally assumed that consequences increase behavior without conscious involvement. The still prevalent notion that reinforcers can operate insidiously arouses fears that improved techniques of reinforcement will enable authorities to manipulate people without their knowledge or consent. Although the empirical issue is not yet completely resolved, there is little evidence that rewards function as automatic strengtheners of human conduct. Behavior is not much affected by its consequences without awareness of what is being reinforced (Bandura, 1969; Dulany, 1968). After individuals discern the instrumental relation between action and outcome, contingent rewards may produce accommodating or oppositional behavior depending on how they value the incentives, the influencers and the behavior itself, and how others respond. Thus reinforcement, as it has become better understood, has changed from a mechanical strengthener of conduct to an informative and motivating influence.

People do not function in isolation. As social beings, they observe the conduct of others and the occasions on which it is rewarded, disregarded, or punished. They can therefore profit from observed consequences as well as from their own direct experiences (Bandura, 1971c). Acknowledgment of vicarious reinforcement introduces another human dimension—namely, evaluative capacities—into the operation of reinforcement influences. People weigh consequences to themselves against those accruing to others for similar behavior. The same outcome can thus become a reward or a punishment depending upon the referents used for social comparison.

Human conduct is better explained by the relational influence of observed and direct consequences than by either factor alone. However, behavior is not fully predictable from a relational coefficient because social justifications alter the impact of outcome disparities. Inequitable reinforcement is willingly accepted when people are graded by custom into social ranks and rewarded according to position rather than by performance. Arbitrary inequities are also likely to be tolerated if the underrewarded are led to believe they possess attributes that make them less deserving of equal treatment. Persuasively justified inequities have more detrimental personal effects than acknowledged unfairness because they foster self-de-

valuation in the maltreated. Negative reactions to inequitable reinforcement, which is acknowledged to be unwarranted, can likewise be diminished by temporizing. If people are led to expect that unfair treatment will be corrected within the foreseeable future, it becomes less aversive to them.

Theories that explain human behavior as the product of external rewards and punishments present a truncated image of man because people partly regulate their actions by self-produced consequences (Bandura, 1971c; Thoresen & Mahoney, 1973). Example and precept impart standards of conduct that serve as the basis for self-reinforcing reactions. The development of self-reactive functions gives humans a capacity for self-direction. They do things that give rise to self-satisfaction and self-worth, and they refrain from behaving in ways that evoke self-punishment.

After self-reinforcing functions are acquired, a given act produces two sets of consequences: self-evaluative reactions and external outcomes. Personal and external sources of reinforcement may operate as supplementary or as opposing influences on behavior. Thus, for example, individuals commonly experience conflicts when rewarded for conduct they personally devalue. When self-condemning consequences outweigh rewarding inducements, external influences are relatively ineffective. On the other hand, if certain courses of action produce stronger rewards than self-censure, the result is cheerless compliance. Losses in self-respect for devalued conduct can be abated, however, by self-exonerating justifications. I shall return to this issue shortly.

Another type of conflict between external and self-produced consequences arises when individuals are punished for behavior they regard highly. Principled dissenters and nonconformists often find themselves in this predicament. Personally valued conduct is expressed provided its costs are not too high. Should the threatened consequences be severe, one inhibits self-praiseworthy acts under high risk of penalty but readily performs them when the chances of punishment are reduced. There are individuals, however, whose sense of self-worth is so strongly invested in certain convictions that they will submit to prolonged maltreatment rather than accede to what they regard as unjust or immoral.

External consequences exert greatest influence on behavior when they are compatible with those that are self-produced. These conditions obtain when

rewardable acts are a source of self-pride and punishable ones are self-censured. To enhance compatibility between personal and social influences, people select associates who share similar standards of conduct and thus ensure social support for their own system of self-reinforcement.

Individualistic theories of moral action assume that internalization of behavioral standards creates a permanent control mechanism within the person. Restraints of conscience thereafter operate as enduring controls over reprehensible conduct. The testimony of human behavior, however, contradicts this view. Much human maltreatment and suffering are, in fact, inflicted by otherwise decent moral people. And some of the most striking changes in moral conduct, as evidenced, for example, in political and military violence, are achieved without altering personality structures or moral standards. Personal control is clearly more complex and flexible than the theorizing implies.

Although self-reinforcing influences serve as regulators of conduct, they can be dissociated from censurable deeds by self-exonerating practices (Bandura, 1973). One device is to make inhumane behavior personally and socially acceptable by defining it in terms of high moral principle. People do not act in ways they ordinarily consider evil or destructive until such activities are construed as serving moral purposes. Over the years, much cruelty has been perpetrated in the name of religious principles, righteous ideologies, and regulatory sanctions. In the transactions of everyday life, euphemistic labeling serves as a handy linguistic device for masking reprehensible activities or according them a respectable status. Self-deplored conduct can also be made benign by contrasting it with more flagrant inhumanities. Moral justifications and palliative comparisons are especially effective because they not only eliminate self-generated deterrents but engage self-reward in the service of reprehensible conduct. What was morally unacceptable becomes a source of self-pride.

A common dissociative practice is to obscure or distort the relationship between one's actions and the effects they cause. People will perform behavior they normally repudiate if a legitimate authority sanctions it and acknowledges responsibility for its consequences. By displacing responsibility elsewhere, participants do not hold themselves accountable for what they do and are thus spared self-prohibiting reactions. Exemption

from self-censure can be facilitated additionally by diffusing responsibility for culpable behavior. Through division of labor, division of decision making, and collective action, people can contribute to detrimental practices without feeling personal responsibility or self-disapproval.

Attribution of blame to the victim is still another exonerative expedient. Victims are faulted for bringing maltreatment on themselves, or extraordinary circumstances are invoked as justifications for questionable conduct. One need not engage in self-reproof for committing acts prescribed by circumstances. A further means of weakening self-punishment is to dehumanize the victim. Inflicting harm upon people who are regarded as subhuman or debased is less likely to arouse self-reproof than if they are looked upon as human beings with sensitivities.

There are other self-disinhibiting maneuvers that operate by misrepresenting the consequences of actions. As long as detrimental effects are ignored or minimized, there is little reason for self-censure. If consequences are not easily distortable, distress over conduct that conflicts with self-evaluative standards can be reduced by selectively remembering the benefits and forgetting the harm of one's acts.

Given the variety of self-disinhibiting devices, a society cannot rely on control by conscience to ensure moral and ethical conduct. Though personal control ordinarily serves as a self-directive force, it can be nullified by social sanctions conducive to destructiveness. Indoctrination and social justifications give meaning to events and create anticipations that determine one's actions. Control through information, which is rooted in cognitive processes, is more pervasive and powerful than conditioning through contiguity of events. Cultivation of humaneness therefore requires, in addition to benevolent personal codes, safeguards built into social systems that counteract detrimental sanctioning practices and uphold compassionate behavior.

A conceptual orientation not only prescribes what facets of man will be studied in depth but also how one goes about changing human behavior. Early applications of reinforcement principles, for example, were guided by the then prevalent belief that consequences alter behavior automatically and unconsciously. Since the process supposedly operated mechanically, the reinforcers had to occur instantly to be effective. Participants in change programs were, therefore, uninformed about why

they were being reinforced, and, in an effort to ensure immediacy of effects, reinforcers were presented intrusively as soon as the requisite responses were emitted. The net effect was a tedious shaping process that produced, at best, mediocre results in an ethically questionable manner. In many public and professional circles, reinforcement still connotes furtive control even though reinforcement theory and practices have progressed well beyond this level.

Realization that reinforcement is an unarticulated way of designating appropriate conduct prompted the use of cognitive factors in the modification of behavior. Not surprisingly, people change more rapidly if told what behaviors are rewardable and punishable than if they have to discover it from observing the consequences of their actions. Competencies that are not already within their repertoires can be developed with greater ease through the aid of instruction and modeling than by relying solely on the successes and failures of unguided performance.

As further research revealed that reinforcers function as motivators, consequences were recognized as sources of motivation that depend heavily for their effectiveness upon the incentive preferences of those undergoing change. Hence, people do not indiscriminately absorb the influences that impinge upon them. Outcomes resulting from actions need not necessarily occur instantly. Humans can cognitively bridge delays between behavior and subsequent reinforcers without impairing the efficacy of incentive operations.

At this second evolutionary stage, reinforcement practices changed from unilateral control to social contracting. Positive arrangements affirm that if individuals do certain things they are entitled to certain rewards and privileges. In the case of negative sanctions, reprehensible conduct carries punishment costs. The process is portrayed in reinforcement terms, but the practice is that of social exchange. Most social interactions are, of course, governed by conditional agreements, though they usually are not couched in the language of reinforcement. Describing them differently does not change their nature, however.

Contingencies vary in the human qualities they embody and in the voice individuals have in decisions concerning the social arrangements that affect their lives. Reflecting the salient values of our society, reinforcement practices have traditionally favored utilitarian forms of behavior. But

conditions are changing. With growing reservations about materialistic life-styles, reinforcement practices are being increasingly used to cultivate personal potentialities and humanistic qualities. These emerging changes in value commitments will probably accelerate as people devote fewer hours to working for income and have more leisure time for self-development.

Another change of some consequence is the renewed concern for individual rights. People are seeking a collaborative role in the development of societal contingencies that affect the course and quality of their lives. As part of this social trend, even the actions taken in the name of psychotherapy are being examined for their ethics and social purposes. These concerns have provided the impetus for prescripts to ensure that reinforcement techniques are used in the service of human betterment rather than as instruments of social control.

A closely related issue is the relative attention devoted to changing individuals or to altering the institutions of society to enrich life. If psychologists are to have a significant impact on common problems of life, they must apply their corrective measures to detrimental societal practices rather than limit themselves to treating the casualties of these practices. This, of course, is easier said than done. Practitioners, whatever their specialty, are reinforced more powerfully for using their knowledge and skills in the service of existing operations than for changing them. Socially oriented efforts are hard to sustain under inadequate reinforcement supports.

The methods of change discussed thus far draw heavily upon external consequences of action. Evidence that people can exercise some control over their own behavior provided the impetus for further changes in reinforcement practices. Interest began to shift from managing conduct to developing skills in self-regulation. In the latter approach, control is vested to a large extent in the hands of individuals themselves: They arrange the environmental inducements for desired behavior; they evaluate their own performances; and they serve as their own reinforcing agents (Goldfried & Merbaum, 1973; Mahoney & Thoresen, 1974). To be sure, the self-reinforcing functions are created and occasionally supported by external influences. Having external origins, however, does not refute the fact that, once established, self-influence partly determines what actions one performs. Citing historical determinants of a generalizable function

cannot substitute for contemporaneous influences arising through exercise of that function.

The recognition of self-directing capacities represents a substantial departure from exclusive reliance upon environmental control. But the emerging self-influence practices are still closely rooted in physical transactions—the self-administered consequences are, for the most part, material. Eventually changes in form, as well as source, of reinforcement will appear as the insufficiency of material outcomes is acknowledged. Most people value their self-respect above commodities. They rely extensively on their own self-demands and self-approval as guides for conduct. To ignore the influential role of covert self-reinforcement in the regulation of behavior is to disavow a uniquely human capacity of man.

Proponents who recognize only external consequences restrict their research and practice to such influences and thus generate evidence that reinforces their conceptions. Those who acknowledge personal influences as well tend to select methods that reveal and promote self-directing capabilities in man. The view of man embodied in behavioral technologies is therefore more than a philosophical issue. It affects which human potentialities will be cultivated and which will be underdeveloped.

The preceding remarks addressed the need to broaden the scope of research into the reinforcement processes regulating human behavior. Much the same might be said for the ways in which human learning is conceptualized and investigated. Our theories have been incredibly slow in acknowledging that man can learn by observation as well as by direct experience. This is another example of how steadfast adherence to orthodox paradigms makes it difficult to transcend the confines of conceptual commitment. Having renounced cognitive determinants, early proponents of behaviorism advanced the doctrine that learning can occur only by performing responses and experiencing their effects. This legacy is still very much with us. The rudimentary form of learning based on direct experience has been exhaustively studied, whereas the more pervasive and powerful mode of learning by observation is largely ignored. A shift of emphasis is needed.

The capacity to represent modeled activities symbolically enables man to acquire new patterns of behavior observationally without reinforced enactment. From observing others, one forms an idea of how certain behavior is performed, and on

later occasions the coded information serves as a guide for action. Indeed, research conducted within the framework of social learning theory shows that virtually all learning phenomena resulting from direct experience can occur on a vicarious basis by observing other people's behavior and its consequences for them (Bandura, 1969). The abbreviation of the acquisition process through observational learning is, of course, vital for both development and survival. Modeling reduces the burden of time-consuming performance of inappropriate responses. Since errors can produce costly, if not fatal, consequences, the prospects of survival would be slim indeed if people had to rely solely on the effects of their actions to inform them about what to do.

In many instances the behavior being modeled must be learned in essentially the same form. Driving automobiles, skiing, and performing surgery, for example, permit little, if any, departure from essential practices. In addition to transmitting particular response patterns, however, modeling influences can create generative and innovative behavior. In the latter process, observers abstract common features from seemingly diverse responses and formulate generative rules of behavior that enable them to go beyond what they have seen or heard. By synthesizing features of different models into new amalgams, observers can achieve through modeling novel styles of thought and conduct. Once initiated, experiences with the new forms create further evolutionary changes. A partial departure from tradition eventually becomes a new direction.

Some of the limitations commonly ascribed to behavior theory are based on the mistaken belief that modeling can produce at best mimicry of specific acts. This view is disputed by growing evidence that abstract modeling is a highly effective means of inducing rule-governed cognitive behavior (Bandura, 1971a; Zimmerman & Rosenthal, 1974). On the basis of observationally derived rules, people alter their judgmental orientations, conceptual schemes, linguistic styles, information-processing strategies, as well as other forms of cognitive functioning. Nevertheless, faulty evaluations continue to be mistaken for weaknesses inherent in theory.

Observational learning has recently come to be accepted more widely, but some theorists are willing to grant it full scientific respectability only if it is reduced to performance terms. As a result,

enactment paradigms are used which are rooted in the traditional assumption that responses must be performed before they can be learned. Instant reproduction of modeled responses is favored, thereby minimizing dependence upon cognitive functions which play an especially influential role when retention over time is required. The issue of whether reinforcement enhances modeling is pursued to the neglect of the more interesting question of whether one can keep people from learning what they have seen.

When learning is investigated through observational paradigms, a broader range of determinants and intervening mechanisms gains prominence. Learning by observation is governed by four component processes: (a) attentional functions regulate sensory input and perception of modeled actions; (b) through coding and symbolic rehearsal, transitory experiences are transformed for memory representation into enduring performance guides; (c) motor reproduction processes govern the integration of constituent acts into new response patterns; and (d) incentive or motivational processes determine whether observationally acquired responses will be performed. Studied from this perspective, observational learning emerges as an actively judgmental and constructive, rather than a mechanical copying, process.

Because observational learning entails several subfunctions that evolve with maturation and experience, it obviously depends upon prior development. Differences in theoretical perspectives prescribe different methodologies for studying how the capacity for observational learning itself is acquired. When modeling is conceptualized in terms of formation of stimulus-response linkages, efforts are aimed at increasing the probability of imitative responses through reinforcement. Modeling can be increased by rewarding matching behavior, but such demonstrations are not of much help in identifying what exactly is being acquired during the process, or in explaining imitation failures under favorable conditions of reinforcement. From a social learning view, the capability for observational learning is developed by acquiring skill in discriminative observation, in memory encoding, in coordinating ideomotor and sensorimotor systems, and in judging probable consequences for matching behavior. Understanding how people learn to imitate becomes a matter of understanding how the requisite subfunctions develop and operate. Capacity for observational learning is restricted by

deficits, and expanded by improvements, in its component functions.

Over the years, proponents of the more radical forms of behaviorism not only disclaimed interest in mentation but also marshaled numerous reasons why cognitive events are inadmissible in causal analyses. It was, and still is, argued that cognitions are inaccessible except through untrustworthy self-reports, they are inferences from effects, they are epiphenomenal, or they are simply fictional. Advances in experimental analysis of behavior, it was claimed, would eventually show them to be unnecessary. Empirical evidence, however, has shown the opposite to be true. A large body of research now exists in which cognition is activated instructionally with impressive results. People learn and retain much better by using cognitive aids that they generate than by repetitive reinforced performance (Anderson & Bower, 1973; Bandura, 1971a). With growing evidence that cognition has causal influence in behavior, the arguments against cognitive determinants are losing their force.

These recent developments have shifted emphasis from the study of response learning to analyses of memory and cognition. From this effort we have gained a better understanding of the mechanisms whereby information is acquired, stored, and retrieved. There is more to learning, however, than the acquisition and retention of information. Behavioristic theories addressed themselves to performance but deemphasized internal determinants, whereas the cognitive approaches remain immersed in thought but divorced from conduct. In a complete account of human behavior, internal processes must eventually be tied to action. Hence, explanations of how information eventuates in skilled performance must additionally be concerned with the organization and regulation of behavior. Social learning includes within its framework both the processes internal to the organism as well as performance-related determinants.

Speculations about man's nature inevitably raise the fundamental issues of determinism and human freedom. In examining these questions it is essential to distinguish between the metaphysical and the social aspects of freedom. Many of the heated disputes on this topic arise as much, if not more, from confusion over the dimensions of freedom being discussed as from disagreements over the doctrine of determinism.

Let us first consider freedom in the social sense. Whether freedom is an illusion, as some writers

maintain, or a social reality of considerable importance depends upon the meaning given to it. Within the social learning framework, freedom is defined in terms of the number of options available to people and the right to exercise them. The more behavioral alternatives and social prerogatives people have, the greater is their freedom of action.

Personal freedom can be limited in many different ways. Behavioral deficits restrict possible choices and otherwise curtail opportunities to realize one's preferences. Freedom can therefore be expanded by cultivating competencies. Self-restraints arising from unwarranted fears and stringent self-censure restrict the effective range of activities that individuals can engage in or even contemplate. Here freedom is restored by eliminating dysfunctional self-restraints.

In maximizing freedom a society must place some limits on conduct because complete license for any individual is likely to encroach on the freedom of others. Societal prohibitions against behavior that is socially injurious create additional curbs on conduct. Conflicts often arise over behavioral restrictions when many members of society question conventional customs and when legal sanctions are used more to enforce a particular brand of morality than to prohibit socially detrimental conduct.

The issue of whether individuals should be allowed to engage in activities that are self-injurious but not detrimental to society has been debated vigorously over the years. Prohibitionists argue that it is difficult for a person, other than a recluse, to impair himself without inflicting secondary harm on others. Should self-injury produce incapacities, society usually ends up bearing the treatment and subsistence costs. Libertarians do not find such arguments sufficiently convincing to justify a specific prohibition because some of the self-injurious activities that society approves may be as bad or worse than those it outlaws. Normative changes over time regarding private conduct tend to favor an individualistic ethic. Consequently, many activities that were formerly prohibited by law have been exempted from legal sanctions.

Some groups have their freedom curtailed by socially condoned discrimination. Here, the alternatives available to a person are limited by skin color, sex, religion, ethnic background, or social class, regardless of capabilities. When self-determination is prejudicially restricted, those who are subordinated remove inequities by altering

practices that compromise or temporize the professed values of society.

Freedom deals with rights as well as options and behavioral restraints. Man's struggle for freedom is principally aimed at structuring societal contingencies so that certain forms of behavior are exempted from aversive control. After protective laws are built into the system, there are certain things that a society may not do to an individual, however much it might like to. Legal prohibitions on societal control create freedoms that are realities, not simply feelings or states of mind. Societies differ in their institutions of freedom and in the number and types of behaviors that are officially exempted from punitive control. Social systems that protect journalists from punitive control, for example, are freer than those that allow authoritative power to be used to silence critics or their vehicles of expression. Societies that possess an independent judiciary ensure greater social freedom than those that do not.

In philosophical discourses, freedom is often considered antithetical to determinism. When defined in terms of options and rights, there is no incompatibility of freedom and determinism. From this perspective, freedom is not conceived negatively as the absence of influences or simply the lack of external constraints. Rather, it is defined positively in terms of the skills at one's command and the exercise of self-influence upon which choice of action depends.

Psychological analyses of freedom eventually lead to discourses on the metaphysics of determinism. Are people partial determiners of their own behavior, or are they ruled exclusively by forces beyond their control? The long-standing debate over this issue has been enlivened by Skinner's (1971) contention that, apart from genetic contributions, human behavior is controlled solely by environmental contingencies, for example, "A person does not act upon the world, the world acts upon him" (p. 211). A major problem with this type of analysis is that it depicts the environment as an autonomous force that automatically shapes and controls behavior. Environments have causes as do behaviors. For the most part, the environment is only a potentiality until actualized and fashioned by appropriate actions. Books do not influence people unless someone writes them and others select and read them. Rewards and punishments remain in abeyance until prompted by appropriate performances.

It is true that behavior is regulated by its con-

tingencies, but the contingencies are partly of a person's own making. By their actions, people play an active role in producing the reinforcing contingencies that impinge upon them. Thus, behavior partly creates the environment, and the environment influences the behavior in a reciprocal fashion. To the oft-repeated dictum, change contingencies and you change behavior, should be added the reciprocal side, change behavior and you change the contingencies.

The image of man's efficacy that emerges from psychological research depends upon which aspect of the reciprocal control system one selects for analysis. In the paradigm favoring environmental control, investigators analyze how environmental contingencies change behavior [$B = f(E)$]. The personal control paradigm, on the other hand, examines how behavior determines the environment [$E = f(B)$]. Behavior is the effect in the former case, and the cause in the latter. Although the reciprocal sources of influence are separable for experimental purposes, in everyday life two-way control operates concurrently. In ongoing interchanges, one and the same event can thus be a stimulus, a response, or an environmental reinforcer depending upon the place in the sequence at which the analysis arbitrarily begins.

A survey of the literature on reinforcement confirms the extent to which we have become captives of a one-sided paradigm to map a bidirectional process. Environmental control is overstudied, whereas personal control has been relatively neglected. To cite but one example, there exist countless demonstrations of how behavior varies under different schedules of reinforcement, but one looks in vain for studies of how people, either individually or by collective action, succeed in fashioning reinforcement schedules to their own liking. The dearth of research on personal control is not because people exert no influence on their environment or because such efforts are without effect. Quite the contrary. Behavior is one of the more influential determinants of future contingencies. As analyses of sequential interchanges reveal, aggressive individuals actualize through their conduct a hostile environment, whereas those who display friendly responsiveness produce an amicable social milieu within the same setting (Rausch, 1965). We are all acquainted with problem-prone individuals who, through their aversive conduct, predictably breed negative social climates wherever they go.

It should be noted that some of the doctrines

ascribing preeminent control to the environment are ultimately qualified by acknowledgment that man can exercise some measure of countercontrol (Skinner, 1971). The notion of reciprocal interaction, however, goes considerably beyond the concept of countercontrol. Countercontrol portrays the environment as an instigating force to which individuals react. As we have already seen, people activate and create environments as well as rebut them.

People may be considered partially free insofar as they can influence future conditions by managing their own behavior. Granted that selection of particular courses of action from available alternatives is itself determined, individuals can nevertheless exert some control over the factors that govern their choices. In philosophical analyses all events can be submitted to an infinite regression of causes. Such discussions usually emphasize how man's actions are determined by prior conditions but neglect the reciprocal part of the process showing that the conditions themselves are partly determined by man's prior actions. Applications of self-control practices demonstrate that people are able to regulate their own behavior in preferred directions by arranging environmental conditions most likely to elicit it and administering self-reinforcing consequences to sustain it. They may be told how to do it and initially be given some external support for their efforts, but self-produced influences contribute significantly to future goal attainment.

To contend, as environmental determinists often do, that people are controlled by external forces and then to advocate that they redesign their society by applying behavioral technology undermines the basic premise of the argument. If humans were in fact incapable of influencing their own actions, they could describe and predict environmental events but hardly exercise any intentional control over them. When it comes to advocacy of social change, however, thoroughgoing environmental determinists become ardent exponents of man's power to transform environments in pursuit of a better life.

In backward causal analyses, conditions are usually portrayed as ruling man, whereas forward deterministic analyses of goal setting and attainment reveal how people can shape conditions for their purposes. Some are better at it than others. The greater their foresight, proficiency, and self-influence, all of which are acquirable skills, the greater the progress toward their goals. Because of

the capacity for reciprocal influence, people are at least partial architects of their own destinies. It is not determinism that is in dispute, but whether it is treated as a one-way or a two-way control process. Considering the interdependence of behavior and environmental conditions, determinism does not imply the fatalistic view that man is but a pawn of external influences.

Psychological perspectives on determinism, like other aspects of theorizing, influence the nature and scope of social practice. Environmental determinists are apt to use their methods primarily in the service of institutionally prescribed patterns of behavior. Personal determinists are more inclined to cultivate self-directing potentialities in man. The latter behavioral approach and humanism have much in common. Behavioral theorists, however, recognize that "self-actualization" is by no means confined to human virtues. People have numerous potentialities that can be actualized for good or ill. Over the years, man has suffered considerably at the hands of self-actualized tyrants. A self-centered ethic of self-realization must therefore be tempered by concern for the social consequences of one's conduct. Behaviorists generally emphasize environmental sources of control, whereas humanists tend to restrict their interest to personal control. Social learning encompasses both aspects of the bidirectional influence process.

When the environment is regarded as an autonomous rather than as an influenceable determinant of behavior, valuation of dignifying human qualities and accomplishments is diminished. If inventiveness emanates from external circumstances, it is environments that should be credited for people's achievements and chastised for their failings or inhumanities. Contrary to the unilateral view, human accomplishments result from reciprocal interaction of external circumstances with a host of personal determinants including endowed potentialities, acquired competencies, reflective thought, and a high level of self-initiative.

Musical composers, for example, help to shape tastes by their creative efforts, and the public in turn supports their performances until advocates of new styles generate new public preferences. Each succeeding form of artistry results from a similar two-way influence process for which neither artisans nor circumstances deserve sole credit.

Superior accomplishments, whatever the field, require considerable self-disciplined application. After individuals adopt evaluative standards, they expend large amounts of time, on their own,

improving their performances to the point of self-satisfaction. At this level of functioning, persistence in an endeavor is extensively under self-reinforcement control. Skills are perfected as much, or more, to please oneself as to please the public.

Without self-generated influences most innovative efforts would be difficult to sustain. This is because the unconventional is initially resisted and gradually accepted only as it proves functionally valuable or wins prestigious advocates. As a result, the early efforts of innovators bring rebuffs rather than rewards or recognition. In the history of creative endeavors, it is not uncommon for artists or composers to be scorned when they depart markedly from convention. Some gain recognition later in their careers. Others are sufficiently convinced of the worth of their work that they labor indefatigably even though their productions are negatively received during their lifetimes. Ideological and, to a lesser extent, technological advances follow similar courses. Most innovative endeavors receive occasional social support in early phases, but environmental conditions alone are not especially conducive to unconventional developments.

The operation of reciprocal influence also has bearing on the public concern that advances in psychological knowledge will produce an increase in human manipulation and control. A common response to such apprehensions is that all behavior is inevitably controlled. Social influence, therefore, is not a question of imposing controls where none existed before. This type of argument is valid in the sense that every act has a cause. But it is not the principle of causality that worries people. At the societal level, their misgivings center on the distribution of controlling power, the means and purposes for which it is used, and the availability of mechanisms for exercising reciprocal control over institutional practices. At the individual level, they are uneasy about the implications of psychotechnology in programming human relations.

Possible remedies for exploitative use of psychological techniques are usually discussed in terms of individual safeguards. Increased knowledge about modes of influence is prescribed as the best defense against manipulation. When people are informed about how behavior can be controlled, they tend to resist evident attempts at influence, thus making manipulation more difficult. Awareness alone, however, is a weak countervalue.

Exploitation was successfully thwarted long before there existed a discipline of psychology to

formulate principles and practices of behavior change. The most reliable source of opposition to manipulative control resides in the reciprocal consequences of human interactions. People resist being taken advantage of, and will continue to do so in the future, because compliant behavior produces unfavorable consequences for them. Sophisticated efforts at influence in no way reduce the aversiveness of yielding that is personally disadvantageous. Because of reciprocal consequences, no one is able to manipulate others at will, and everyone experiences some feeling of powerlessness in getting what they want. This is true at all levels of functioning, individual and collective. Parents cannot get their children to follow all their wishes, while children feel constrained by their parents from doing what they desire. At universities, the administrators, faculty, students, and alumni all feel that the other constituencies are unduly influential in promoting their self-interests but that one's own group is granted insufficient power to alter the institutional practices. In the political arena, Congress feels that the executive branch possesses excessive power, and conversely the executive branch feels thwarted in implementing its policies by congressional counteraction.

If protection against exploitation relied solely upon individual safeguards, people would be continually subjected to coercive pressures. Accordingly, they create institutional sanctions which set limits on the control of human behavior. The integrity of individuals is largely secured by societal safeguards that place constraints on improper means and foster reciprocity through balancing of interests.

Because individuals are conversant with psychological techniques does not grant them license to impose them on others. Industrialists, for example, know full well that productivity is higher when payment is made for amount of work completed rather than for length of time at work. Nevertheless, they cannot use the reinforcement system most advantageous to them. When industrialists commanded exclusive power, they paid workers at a piece-rate basis and hired and fired them at will. Reductions in power disparity between employers and employees resulted in a gradual weakening of performance requirements. As labor gained economic coercive strength through collective action, it was able to negotiate guaranteed wages on a daily, weekly, monthly, and eventually on an annual basis. At periodic intervals new contractual contingencies are adopted that are mutually ac-

ceptable. In the course of time, as better means of joint action are developed, other constituents will use their influence to modify arrangements that benefit certain segments of labor and industry but adversely affect the quality of life for other sectors of society.

As the previous example illustrates, improved knowledge of how to influence behavior does not necessarily raise the level of social control. If anything, the recent years have witnessed a diffusion of power, creating increased opportunities for reciprocal influence. This has enabled people to challenge social inequities, to effect changes in institutional practices, to counteract infringements on their rights, and to extend grievance procedures and due process of law to activities in social contexts that hitherto operated under unilateral control. The fact that more people wield power does not in and of itself ensure a humane society. In the final analysis, the important consideration is the purposes that power serves, however it might be distributed. Nor does knowledgeability about means of influence necessarily produce mechanical responsiveness in personal relations. Whatever their orientations, people model, expound, and reinforce what they value. Behavior arising out of purpose and commitment is no less genuine than improvised action.

The cliché of 1984, and its more recent kin, diverts public attention from regulative influences that pose continual threats to human welfare. Most societies have instituted reciprocal systems that are protected by legal and social codes to prevent imperious control of human behavior. Although abuses of institutional power arise from time to time, it is not totalitarian rule that constitutes the impending peril. The hazards lie more in the intentional pursuit of personal gain, whether material or otherwise, than in control by coercion. Detrimental social practices arise and resist change, even within an open society, when many people benefit from them. To take a prevalent example, inequitable treatment of disadvantaged groups for private gain enjoys public support without requiring despotic rule.

Man, of course, has more to contend with than inhumanities toward one another. When the aversive consequences of otherwise rewarding life-styles are delayed and imperceptibly cumulative, people become willful agents of their own self-destruction. Thus, if enough people benefit from activities that progressively degrade their environment, then, barring contravening influences, they will eventually

destroy their environment. Although individuals contribute differentially to the problem, the harmful consequences are borne by all. With growing populations and spread of lavish life-styles taxing finite resources, people will have to learn to cope with new realities of human existence.

Psychology cannot tell people how they ought to live their lives. It can, however, provide them with the means for effecting personal and social change. And it can aid them in making value choices by assessing the consequences of alternative life-styles and institutional arrangements. As a science concerned about the social consequences of its applications, psychology must also fulfill a broader obligation to society by bringing influence to bear on public policies to ensure that its findings are used in the service of human betterment.

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