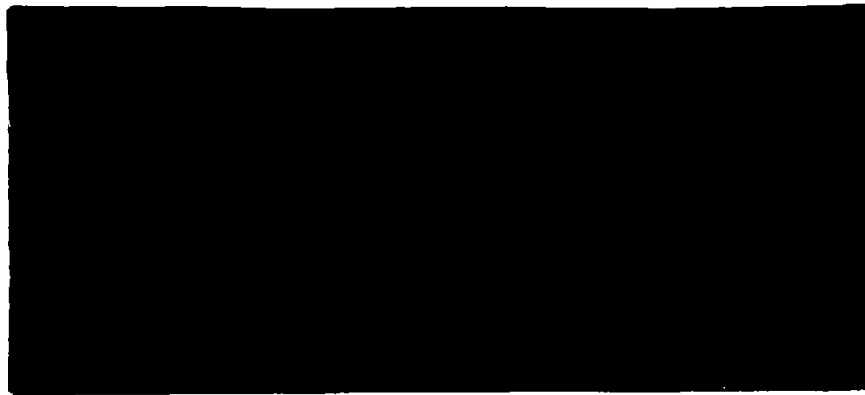


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DIFFUSION OF BEHAVIOR MODIFICATION  
IN HUMAN SERVICE ORGANIZATIONS:  
A STUDY OF KNOWLEDGE UTILIZATION

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## PREFACE

Derived from principles of operant conditioning, several methods of intervention with human beings that are collectively called "behavior modification" have been developed since the late fifties, and have been widely adopted in institutions for mental health, education, and correction.

Kathleen C. Faller, a lecturer in the University of Michigan School of Social Work, has reviewed some 530 studies in this field to develop a comprehensive picture of the utilization of behavior modification in human service organizations. She has focused on a subset of innovations using concrete reinforcements, token economies, social reinforcement, and aversive techniques.

One feature of her review is of particular interest to the Center for Research on Utilization of Scientific Knowledge (CRUSK). Drawing upon concepts in diffusion of innovations, as formulated by Everett Rogers and others, Faller has examined how utilization of behavior modification has been affected by antecedent conditions within the target populations, the adopting organizations, the innovators, and the innovations themselves. Her monograph looks carefully at what forms behavior modification has taken in institutions adopting it, and what the future may hold for these innovations.

CRUSK is pleased to present this review as a contribution to the literature on knowledge utilization.

Donald C. Pelz  
Director, CRUSK

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K.C. Faller

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## CHAPTER I: INTRODUCTION

Behavior modification<sup>1</sup> has experienced an accelerated development since the end of World War II. Along with other emergent intervention strategies, it profited from the failure of psychodynamic methods to treat war neuroses and other types of mental illness. Thus in the late fifties and early sixties, behaviorists started testing the utility of their techniques in human service organizations. Their results have been sufficiently impressive that a considerable range of innovative behavioral methods is presently being employed with a variety of populations. This paper examines a number of these methods and their utilization in mental health settings, schools, and corrections.

The investigation will be organized as follows. Chapter II will contain definitions of the innovations: concrete reinforcement, token economy programs, social reinforcement, and aversive methods. The third chapter will apply concepts from the literature on knowledge utilization to the adoption of behavioral innovations. It will describe certain antecedent conditions important in utilization; these are target population characteristics, organizational factors, characteristics of the innovators, and attributes of the innovations themselves. Chapter IV will explore the current level of utilization of these four innovations in the three types of human service organizations, noting particularly how client populations, setting variables, and innovator characteristics impact upon the innovations. Finally, the last chapter will assess the degree to which these techniques have actually been adopted, and how likely they are to persist in current settings.

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<sup>1</sup>Behavior modification, behavioral technology, behavioral strategies, behavioral techniques, and behavioral interventions are interchangeable terms I will use to refer to methods of intervention with human being based on the principles of operant conditioning, respondent conditions, and/or classical conditioning. A "Behaviorist" will mean a person using one of these approaches. Sometimes I will draw a distinction between these interventions and a broader category of practices which rely on observation of overt human behavior.

### Limitations in Information Sources

There are two limitations on this investigation. The first is that it relies for its data primarily on published material, especially professional publications. Initially, sources with mainly behavior modification material were examined: books, edited collections, and annual reviews of the use of behavioral technology, and periodicals such as the Journal of Applied Behavioral Analysis, Behavior Research and Therapy, Journal of the Experimental Analysis of Behavior, Behavior Therapy and Experimental Psychiatry, and Behavior Therapy. Following this, I looked at publications related to corrections, mental health (especially psychology), and education. To a less extent, I took note of articles in the popular press and exposés of behavior modification usage.

Unfortunately, reliance on this material has its shortcomings. Little of it deals specifically with the diffusion process. Therefore it was necessary to read widely and draw inferences about this process. No doubt the results are imprecise in some instances. For example, delays between submission and publication vary among periodicals, leading to false conclusions about the time span of diffusion. Of more serious concern is the finding that the criticism behavior modification has received in recent years<sup>2</sup> is primarily directed at its use in correctional programs. If there is a backlash against its utilization in other fields, it is not yet discernable in publications.

Moreover, appearance in print is not necessarily an index of innovation adoption. Practitioners are not likely to publish (Glaser, 1971), and the probability of their doing so varies markedly according to their field. For example, persons responsible for correctional programs, especially those in closed settings, rarely write about what they are doing. Similarly, much behavioral technology is designed for utilization by paraprofessionals (a good index of adoption being their persistent use of the methods), and they are not likely to publish. Fortunately, these last two problems are partially overcome in the literature. Other behaviorists report on work not written up by its originators, and there have been some follow-up studies on utilization by paraprofessionals.

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<sup>2</sup>Behavior modification has been attacked as being coercive and lumped together with such practices as shock treatment and psychosurgery because of the way it has been used and misused in closed settings.



A related problem is the fact that few failures are reported in the literature. This makes it difficult to be clear about factors conducive to utilization. In fact, only two reports could be located where the initiators described their utilization attempts as unmitigated failures.<sup>3</sup>

### Geographic Limitation

The second limitation of the investigation is a geographical one: that is, it treats utilization only in the United States. This limitation is in fact more than geographic because the use of behavioral technology with human subjects developed simultaneously in the United States, South Africa (the work of Wolpe and Lazarus), and in England (Eysenck, Rachman, and Meyer), but along different lines (Birk *et al.*, 1973; Krasner, 1974). More recently, behaviorists have begun to integrate the strategies which have come from these separate pursuits.

Furthermore, Canadian researchers have used and, in some cases, collaborated on refining the operant methods which are the main focus of this paper. However, since human service organizations in these other countries differ substantially from those in the United States, it would be inappropriate to make cross-national comparisons.

## CHAPTER II: DEFINITIONS OF THE INNOVATIONS

Before defining the four types of behavior modification innovations (concrete reinforcement, token economics, social reinforcement, and aversive techniques), it is necessary to offer some rationale for selecting these particular innovations for study. First, except for aversion, these strategies appear to be the behavior modification techniques most widely used in the human services. The grouping of these techniques into these four categories is dictated primarily by the purposes of this study and is not uni-

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<sup>3</sup>In both cases, the trouble was seen as the special recalcitrance of the target population (Laws, 1974; Herbert, et al., 1974).

versally accepted; nor is any other grouping. The division is not based on behavioral theory; but rather on how behavioral technology has been "packaged" and disseminated. As a consequence, it is skewed toward operant methodology, and fails to include a number of important techniques. For instance, it leaves out behavioral rehearsal, systematic desensitization, flooding, covert sensitization, and self-control techniques, which have been less widely disseminated, for reasons to be discussed later on:

Moreover, these four categories are not discrete. Token economies utilize concrete reinforcers. In addition, social reinforcement and aversion cover more than one kind of operation, and programs are likely to use these strategies in conjunction.

It should also be noted that this categorization fails to specify two popular operant strategies: contingency contracting and the triadic model. Contingency contracting is, basically, a recent application of concrete reinforcement and, further, is often used within the framework of token economies. Thus, it overlaps with the categories chosen for investigation. A similar problem exists with the triadic model. Although it has been conceptualized as a separate methodology, its only requirement is that the person who has designed the intervention not be the one to deliver the reinforcers. The triadic model is sometimes employed in all four of the categories to be investigated. It therefore does not seem appropriate to include it in this study as a discrete technique.

It is also important to realize that categorizing behavioral strategies is problematic because the techniques themselves have changed during the time they have been diffused. These alterations have come about not only as a result of the impact of the settings in which they have been used, but also as a consequence of continuous refinements in the technology (independent of the setting).

Designating four specific technologies for examination not only makes the exercise manageable, but also is a way to differentiate between the diffusion of behavior modification and more ubiquitous applications of a generalized behaviorism in the human services. There are any number of components in the three "megabureaucracies" which are behavioristic, but are not considered behavior modification techniques (e.g., goal-setting in mental health settings, behavioral objectives in education, "good time" in corrections). Thus, even programmed instruction is excluded from direct

consideration. Although it is based on behavior modification principles, and Skinner was one of its principal developers, its adoption pattern has been different from that which characterizes those techniques which are specifically within that subset of behaviorism which is commonly recognized as behavior modification.

### Concrete Reinforcement

Concrete reinforcement is based on the operant reinforcement paradigm and specifies that some form of reward follow closely the response the "behavioral engineer" wishes to strengthen. There have been three types of concrete rewards used with human service populations: food, other desired tangibles, and privileges.

Although these might be conceptualized as three separate strategies, they are grouped together for two reasons. First, the operation required for all of them is very similar. Second, they are quite likely to be used interchangeably, simultaneously, or sequentially.

When food is employed, M&Ms, sugar-coated cereal, bites of ice cream, or a meal are given to the individual immediately following appropriate behavior. This operation increases the likelihood of the desired response occurring in the future. For instance, a smile from an autistic child might be rewarded with a candy.

Other tangible rewards vary widely, depending upon what appeals to the target and what the person employing the technique is willing to give. A parent might give a comic book to a child who cleans his/her room, or a nurse might dispense cigarettes to schizophrenic patients for talking to each other.

When privileges are used as reinforcers, they are frequently chosen in the same manner as the rewards just discussed. However, in more sophisticated interventions, what is labeled as a privilege is based upon the "Premack principle."<sup>4</sup> (In fact, other concrete rewards can also be chosen in this manner, but generally are not.) The Premack principle requires that the program designer first assess what the target person or population is most likely to do (high probability behaviors) when there are no constraints on activities (a free operant environment). Generally, the response the designer wants to increase occurs infrequently (a low probability behavior). Following assessment, the low probability behavior is made a contingency for engaging in the high probability behavior.

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<sup>4</sup>The principle gets its names from D. Premack who first elucidated the concept at the Nebraska Symposium on Motivation, 1965.

For example, a teacher notes that, if given a choice, his/her class will talk and ignore their math assignment. The teacher might then make everyone's finishing the math a contingency for ten minutes of free time to talk, etc., at the end of class. Similarly, if a nurse's aide cannot get patients to make their beds because they are always watching TV, bed-making could be designated as a prerequisite for TV privileges.

### Token Economies

Token economies differ from direct utilization of concrete reinforcement by their use of tokens or points as a medium for exchange. Instead of stipulating immediate presentation of rewards following appropriate responses, tokens to be redeemed at a later time, are employed. In addition, token systems generally allow the recipient to choose from a range of reinforcers. These may be food items or other tangible reinforcers, often available at a "store," or they may be privileges.

Token economies partake of the operant paradigm in the same way as concrete reinforcement, and of classical conditioning as well. That is, the token takes on reinforcing qualities as a consequence of its association with the ultimate rewards or "back-up reinforcers."

Sometimes these programs include a provision for "response cost," that is, fines of pre-specified numbers of tokens for gross misbehavior.

A typical token program in a psychiatric hospital might reward such behaviors as getting up in the morning, dressing appropriately, combing hair, taking a bath, brushing teeth, making one's bed, cleaning one's room, getting to meals on time, eating in an appropriate manner, engaging in ward activities, and completing assigned ward chores. The reinforcers would be such items as candy, soda, popcorn, cigarettes, toilet articles, stationary supplies, or privileges such as seeing the doctor, social worker, or chaplain, watching TV or movies, using recreational equipment, and leaving the ward or hospital.

### Social Reinforcement

Social reinforcement, or differential responding, requires the use of praise, attention, smiles, pats, hugs, or other positive personal feedback following desired behavior, rather than concrete rewards. Often the intervention also specifies ignoring undesired behavior. Thus, in this

paradigm, positive reinforcement strengthens appropriate responses and ignoring (non-reinforcement) extinguishes inappropriate responses. An effort is also customarily made to select wanted and unwanted acts which are incompatible, so the client cannot maintain high rates of both.

For instance, a teacher might praise a student for working and discuss the material with him/her when he/she is "on task," but refrain from giving attention or nagging when the student is inattentive.

One problem confronted by users of this strategy is that with some populations, undesired behavior goes beyond being merely "inappropriate" and becomes "unacceptable." To illustrate, during the initial extinction phase, it is common for the target to exhibit unusually high levels of inappropriate responses or other types of unacceptable behavior. There might be self-injury, injury of another person, and property damage.

Some researchers have addressed this problem by using the "time out" technique--temporary isolation of the offending individual from the environment where the intervention is taking place.

### Aversive Techniques

Aversive methods, aversion therapy and punishment, are infrequently employed, but will be described and discussed because they are quite controversial and, as a result, have gotten much publicity.

What differentiates aversion therapy from punishment is that, in the former, an aversive stimulus is paired with the unwanted act, whereas in the latter, it follows the act. In either case, the negative stimulus acts to suppress the undesirable behavior. However, because of logistical problems related to stimulus delivery, in practice the two techniques differ very little. The aversive components most often applied are electro-shock and drugs (usually ones which elicit vomiting or temporary paralysis).

Thus, in the treatment of alcoholism, the therapist might administer emetine, an emetic, so that nausea and vomiting coincide with the patient's drinking of his/her favorite alcoholic beverage.

In recent years, behavior therapists have come to recognize that aversive methods are successful only when used in conjunction with other techniques (e.g., concrete reinforcement, modeling) which allow the patient to develop other, more appropriate ways of behaving (Spece, 1972; Kanfer, 1972).

Some behaviorists consider the two strategies "time out" and "response cost" as "mild aversives," and might include them in this category. However, unlike the aversive methods just described, they are never used alone and were developed to deal with small classes of responses that positive methods, by themselves, could not control.

### Summary

Behavior modification strategies have been categorized in a manner which lends itself to their examination as innovations. There are four innovations which will be considered: (1) concrete reinforcement, which uses either food, other tangibles, or privileges as rewards; (2) token economics; (3) social reinforcement; and (4) aversive techniques, which include aversive conditioning and punishment (which are usually indistinguishable).

## CHAPTER III: ANTECEDENT CONDITIONS WHICH HAVE AFFECTED THE UTILIZATION OF BEHAVIOR MODIFICATION

Researchers who have concerned themselves with the diffusion of innovations and the utilization of scientific knowledge (e.g., Lippitt, 1958; Rogers, 1962; Rogers and Shoemaker, 1971) have identified a number of antecedent conditions which facilitate adoption of innovations. These conditions both make adoption more likely to occur and lead to quicker utilization.

There appear to be four kinds of antecedent factors which have facilitated utilization of behavior modification and determined the manner in which it has been disseminated in human service organizations. They are: characteristics of the target populations; factors peculiar to the organizational contexts in which behavior modification has been developed and utilized; certain innovator characteristics; and attributes of the innovations themselves.

Observations regarding these factors are offered with a recognition that the analysis suffers from what Downs and Mohr (1976) call "instability" in the innovation literature; that is, factors which seem to explain adoption in some instances do not in others, in which different factors seem to

operate. Thus I have identified a number of independent variables, extrapolating from the innovation literature, which affect one dependent variable, utilization, but it is not yet possible to state under what conditions which variables are important, nor the relative strength of each.

### Target Populations

One important influence on the spread of behavior modification, and on the strategies which have been developed, has been the existence of potential target populations. The clients of human services with whom behavioral techniques were first employed were the most unresponsive. They were groups with which other methods, particularly psychotherapeutic ones, had failed. Consequently, administrators of treatment programs for these populations were disillusioned with traditional techniques and willing to allow experimentation. Furthermore, psychiatrists and psychologists, to a certain extent, were not interested in working with these unrewarding patients. Therefore, they felt no vested interest in maintaining control over their therapy. As a result, professionals espousing traditional treatment methods were not a serious source of resistance to behavior modification with these clients.

Thus, one of the earliest reports (Fuller, 1949) was about an 18-year old "vegetative idiot" who was trained to move his right arm, through the use of warm sugar-milk as a reinforcer. More productive was the early work of B.F. Skinner and Ogden Lindsley (1954) with severely regressed psychotics on a back ward at Massachusetts Metropolitan State Hospital (Waltham, Ma.) in the MOPSA (Multiple Operant Problem Solving Apparatus). This apparatus is a person-sized Skinner box, in which patients learned to pull levers in progressively more difficult patterns, and eventually in cooperation, for cigarettes, candy bars, and milk for hungry kittens (a measure of altruism). An important serendipitous finding was that level-pulling was incompatible with hallucinations. Thereafter, treatment of chronic schizophrenics on the back wards of public institutions rather quickly became the province of behavior modifiers.

Other early target populations were autistic children (Lovaas, 1972; Wolf *et al.*, 1964), educable and trainable retarded (e.g., Bijou, 1972; Hewitt, 1969), severely disturbed children (e.g., Becker *et al.*, 1967), and alcoholics (Henderson, 1959). Slightly later, the techniques spread to the difficult populations in corrections: those in the maximum security units (Petrock, 1976; Quinney, 1975), "sociopaths" (Bureau of Prisons, 1970),

and inmates whose academic and work skills were so deficient that they were bound to recidivate (Cohen *et al.*, 1971).

After the methodology had shown itself to be efficacious with such troublesome targets, it began to be employed with less recalcitrant ones, for instance, with behavior problems in public schools, with delinquents who were not incarcerated, and in family and marital therapy.

### Organizational Variables

There is a diverse group of organizational factors which has facilitated and influenced the behavior modification dissemination process. These are characteristics both of the places where the technology was developed and the settings into which it has been diffused (the two sometimes being synonymous).

First, certain academic institutions have enormously facilitated the refinement of behavioral techniques. A distinguishing feature of these institutions is that they are mostly second order, large state universities (University of Washington, University of Kansas, University of Oregon, State University of New York at Stony Brook, University of Arizona, University of Illinois, University of California at Los Angeles, and Southern Illinois University; later the University of Hawaii, University of Mississippi, University of Alabama, Florida State University, Georgia State University, and Western Michigan University).

Although Skinner was at Harvard, and some of his students (notably Ferster, Lindsley, and Azrin) were pioneers in the technology which has been used in human service organizations, they did not do their important work at Harvard. A supporting point is that the research of Skinner and Lindsley described above did not take place at Harvard Medical School Hospital, a convenient location, but on a back ward at a state hospital some distance away.

One can hypothesize that there was both organizational and individual resistance to behavior modification (Rogers and Shoemaker, 1971; Zaltman *et al.*, 1973) at Harvard and similarly prestigious schools, which was not so prevailing at state universities. That is, in departments of psychology at high ranking institutions, the parameters of acceptable of knowledge pursuit were well defined, and there were psychologists of eminence to enforce them. Therefore, the places behavioral psychologists were most



likely to be able to pursue their work, or for that matter to get jobs, were universities where the boundaries of psychology were not so clear. Another possibility is that the departments of psychology and administrations at these lesser schools, having limited funds, chose to specialize in behavior modification as an avenue to prominence (Gordon, 1976).

The second organizational factor which is present where behavior modification has flourished, is the existence of institutional contexts in which to develop and demonstrate behavioral techniques. These are of several types, and I shall discuss four which seem particularly important.

Many of the universities (e.g., University of Washington, University of Kansas, UCLA, University of Oregon) either already possessed or created educational research and demonstration laboratories which refined behavioral technology for exceptional children. These units participated in a conscious diffusion effort on the part of various entities of the Department of Health, Education, and Welfare (using the R&D Model of diffusion). The units are highly sophisticated and multi-disciplinary and, as a result, have generated many innovative behavioral strategies. They have disseminated these ideas through consultation with user systems; training of teachers and mental health personnel, both as a part of the regular university curriculum and by sponsoring in-service training and workshops; distribution of written material for assessment and training; and actual intervention in human service organizations, for demonstration purposes and by placing students in them.

An example of such a lab is the Experimental Education Unit at the University of Washington. It incorporates art, physical education, dental hygiene, dietetic, educational, medical, nursing, psychiatric, social work, sociology, psychology, speech pathology, and audiology personnel who are composed into seven specialized research teams. The unit occupies a functionally designed facility with an Instructional Center, an Instrumentation Unit, Data Photography and Data Processing Labs, and a Clinical Training Section. It also has fourteen classrooms which serve 170 children from the surrounding area. In 1967, the Experimental Educational Unit began a demonstration teacher training project, providing two years of experimental instruction in the use of programmed material and behavior modification with retarded, emotionally disturbed, learning disabled, deaf and hard of hearing, and speech disordered children (Haring, 1971).

The second sort of setting in which behavioral methodology has been elaborated is the university laboratory pre-school, some of which were precursors of the larger R&D programs just described. The targets in these pre-schools have been deviant pupils, but as a rule, the problems were less severe than those of exceptional children; for example, withdrawn behavior, aggression, developmental deficits, and excessive crying.

Pre-schools at the University of Kansas, the University of Illinois, and the University of Washington were sites where Don Baer, Sidney Bijou, and Montrose Wolf refined strategies for the utilization of social reinforcement. A laboratory pre-school at the State University of New York at Stony Brook has provided the main context for technology development there.

These experimental programs have served as the basis for subsequent intervention in community pre-schools, especially those in poverty areas (e.g., Juniper Gardens Pre-School Project in inner-city Kansas City, overseen by personnel from the University of Kansas), and in normal classrooms in proximate public schools. The funding for both university pre-schools and ventures into the outside environment has been federal, coming from the Office of Education, National Institute of Mental Health, and the Office of Economic Opportunity.

Third, state mental and Veterans' Administration hospitals have furnished settings for behavior modification innovation, most importantly the token economy. Typically, these hospitals are close to universities, and the universities' psychologists have status in the hospitals as well. Thus they occupy "gatekeeper" positions in the hospital (Zaltman *et al.*, 1973).

To illustrate, Ayllon and Azrin, from Southern Illinois University, initiated the first hospital token economy at Anna State Hospital, on a closed back ward for women (1965). Atthowe and Krasner, from the College of San Mateo County and Stanford University, implemented a similar program at the V.A. Hospital in Palo Alto, Calif., on an open ward for chronic male schizophrenics (1968). Likewise, Lloyd and Garlington, from Washington State University, used a back ward (which eventually became co-ed) at State Hospital North in Orofino, Idaho, as a token economy site (1965). These are but a small number of examples of token systems in mental hospitals.

The circumstances of Lovaas, who pioneered strategies for autistic children, were comparable. He was teaching at UCLA and did his applied work in the University's Neuropsychiatric Institute and at Camarillo State Hospital in Ventura County, Calif. (Lovaas and Koegel, 1972).

As in the case of the pre-schools, these efforts have been federally supported, in this instance by grants from the National Institute of Mental Health.

A fourth type of environment where behavioral techniques were tested and refined is the university-connected psychological clinic. For example, Gerald Patterson, now the head of a team of researchers at the University of Oregon and the Oregon Research Institute treating aggressive boys (Patterson *et al.*, 1975), began his work at the University's psychological clinic (Ullman and Krasner, 1965). Similarly, Staats made the first use of a token system with emotionally disturbed children at Fernald Clinic at UCLA (Staats, 1971).

It is not uncommon for universities which have advanced behavior modification to have access to more than one type of facilitative setting. For instance, not only does the University of Washington have the Experimental Education Unit, described earlier, but it also has Ranier School, where Birnbrauer, Wolf, Kidder, and Tague (1965) did early and instrumental work on behavioral programs for the retarded. The University of Oregon is the location not only of the psychological clinic just mentioned (where recently Keutzer and Lichtenstein have worked on behavioral control of smoking, 1971, 1974), but it has a behavioral research and demonstration lab in the Department of Education, now under the direction of Wesley Becker. It also has a team of behaviorists in the Medical School and at the Oregon Research Institute (a non-profit behavior modification R&D laboratory).

At the University of Kansas the number of sites where behavioral techniques have been designed and tested is staggering: the child development laboratory pre-school (Baer and Wolf), the Johnny Cake Child Development Project (Leblanck *et al.*), Juniper Gardens Pre-school Program (a headstart-type program in Kansas City), Children's Rehabilitation Center (for exceptional children, Lindsley), Concerned Care (four group homes for the retarded in Kansas City, Sherman), Parsons State Hospital at Parsons, Kansas, and Varsity House in Lawrence, Kansas (two other institutions for the retarded), the Experimental Living Project Research Group (a Walden II community), and Achievement Place (a behavioral group home for delinquents, Phillips, Phillips, Fixsen, and Wolf).

The innovation literature offers additional understanding of why these state universities should be so productive in behavioral innovation. Moch (1976) and, to a certain extent, other investigators (e.g., Zaltman *et*

*al.*, 1973; Hage and Aiken, 1970) found that certain features of organizational structure are related to innovation: specifically, that large size leads to specialization, functional differentiation, and decentralization, which are correlated with higher frequencies of innovation. It should be apparent from what has been said about these state universities that they possess the requisite qualities.

Moreover Moch's findings (which, in fact, are based on hospital research) also offer some insight into why radical innovations (ones which differ markedly from existing practice, Zaltman *et al.*, 1973) should be allowed in state and V.A. hospitals, settings one would expect to have what Hage and Aiken (1970) call "static styles." In these hospitals, functions are organized on a ward basis, and, because patient populations on each ward have specialized needs (especially in V.A. hospitals), programs vary markedly by ward. In such a situation, it is possible to permit a schizophrenic back ward to reorganize radically without altering the hospital structure.

#### Innovator Characteristics

Undoubtedly, innovator characteristics have influenced the advancement of behavior modification in many ways, but they are rather difficult to assess from the literature. Therefore, the data are limited to publicly observable characteristics.

One rather obvious trait is that most of the early behaviorists were trained as clinical or experimental psychologists. This accounts, in part, for diffusion into mental health programs where they worked and for the relatively high rates of utilization by psychologists compared to psychiatrists and social workers.

There are two other innovator characteristics which appear to have been instrumental in the advancement of behavioral technology. One concerns the relationships among the behavior modification innovators themselves. The other relates to their status vis-à-vis individuals in the user systems.

#### Relationships Among Behaviorists

The extent of interaction among behaviorists has been considerable. This situation is no doubt partly a consequence of their ostracism by those holding more traditional views of the nature of man. Nevertheless this cohesiveness has facilitated the development and diffusion process, and is

reflected in several ways.

First, the early behaviorists often worked in collaboration with each other (sometimes before going their separate ways). To illustrate, Staats (the first to use a token economy) initially worked with Michael on behavior modification in naturalistic settings. When Staats experienced success with tokens, he communicated his results to Michael, then at Western Michigan University. Michael and Meyerson then tried tokens with retarded persons to strengthen work behaviors. Michael and a student of his, Ayllon, were the first to use behavior modification on any scale in a mental hospital (Ayllon and Michael, "The Psychiatric Nurse as a Behavioral Engineer," JEAB, 1959). Later, Ayllon and Azrin (who, with Lindsley, had employed food to reinforce cooperative interaction between children) developed the first token economy with psychiatric patients (Staats, 1972).

Similarly, Cohen, who created the token economy demonstration project with incarcerated delinquents at the National Training School for Boys, came to know about token systems from Ayllon and Azrin and Israel Goldiamond, when all four of them were at Southern Illinois University. Cohen did his work with delinquents in collaboration with Goldiamond (and others) with whom he joined in a non-profit behavior modification corporation, the Institute of Behavioral Research.

Another behaviorist whose research demonstrates the key role of collaboration is Montrose Wolf. Now at the University of Kansas, he was Staats' graduate student at Southern Arizona University. Subsequently he worked both in Ranier School for the Retarded at the University of Washington, with Bijou and Birnbrauer, and in the laboratory for the emotionally disturbed at the University of Illinois, with O'Leary and Becker, developing operant strategies to be employed with exceptional children. All of his work at the University of Kansas, with autistic children, delinquents, retarded children, and pre-schoolers, has been in collaboration with other behavior modifiers.

Second, as might be surmised from the descriptions of universities where behavior modification has proliferated and the above discussion, the number of behavior modifiers at any one of these institutions is often quite large, providing many opportunities for frequent interaction. Again the University of Kansas furnishes a dramatic example. In the Department of Human Development alone (which is only one of the school's components doing behavioral research), there are 18 faculty members engaged specifically in the dissemination of behavior modification (Faculty Interest Descriptions, 1976).

Third, because most of the funding for the development of behavioral strategies comes from the federal government, the projects are customarily required to have advisory boards and consultants. These people are often behaviorists engaged in similar research. Thus Montrose Wolf, who was involved in a behavioral group home for delinquents, was the chief consultant to Thorne, Tharp, and Wetzel (at the University of Arizona) when they initiated the first large-scale behavioral intervention for home-based delinquents (Tharp and Wetzel, 1969).

Similarly, Gerald Patterson, whose project with aggressive boys has been mentioned, was the main advisor to Richard Stuart, as he engaged in a comparable project with older youth at the University of Michigan. Together, although pursuing somewhat different avenues, they elaborated contingency contracting for use with families and marital couples.

A final vehicle for knowledge development and dissemination among behaviorists has been the expanding number of behavioral publications and professional associations. In 1963, Behaviour Research and Therapy, an international journal published in England, first appeared. In this country, the Society for the Experimental Analysis of Behavior, which began publishing the Journal for the Experimental Analysis of Behavior (JEAB) in 1957, brought out a second periodical, the Journal of Applied Behavioral Analysis (JABA) in 1968. Now JEAB primarily contains articles about animal behavior and JABA examples of work with people. In addition, two more behavioral journals appeared in 1970, Behavior Therapy and Behavior Therapy and Experimental Psychiatry.

The Society for the Experimental Analysis of Behavior is just one of a number of professional associations. There are also the Association for the Advancement of Behavior Therapy and relevant divisions in the American Psychological Association, which hold annual meetings. Further, in 1969 the Banff (Alberta, Canada) International Conference on Behavior Modification had its first meeting. Although the conference takes place in Canada, most of the papers presented there have come from behaviorists in the United States.

The knowledge dissemination process within the behavioral community is consistent with certain aspects of the social interaction model of diffusion (Rogers, 1962; Rothman, 1974). Although no one fills the "linkage agent" role (consciously pressing upon members of the community the adoption of behavioral innovations), one can identify "opinion leaders" (persons whose

use of new techniques spurs others to follow suit), and the spread of knowledge through social and professional influence. When important behaviorists (e.g. Montrose Wolf, Sidney Bijou, Gerald Patterson, Wesley Becker, Israel Goldiamond) have developed and tested an innovation, it is then discussed at conferences and elsewhere by its initial users, and subsequently is picked up by behaviorists of lesser prominence.

This was how the "Good Behavior Game," a technique developed by Wolf and his colleagues for behavior control in the classroom, was diffused (Barrish, Saunders, and Wolf, 1969). A similar process occurred with contingency contracting, which now has numerous variants (Honne, 1970; Stuart, 1968; Patterson *et al.*, 1975).

#### The Status of the Innovators vis-a-vis the User System

The innovation literature (e.g., Rogers and Shoemaker, 1971) informs us that a certain amount of heterophily (the degree to which persons interact with others who differ from them in certain attributes) is associated with innovation. Such differences allow the parties to expose one another to novel ideas. Heterophily would seem to characterize the relationships between behavior modifiers and the members of many user systems. Here the reference is not to personnel in applied settings within the university context or highly trained staff in demonstration sites outside. Rather, it is to the contrast the training and orientation between behavior modifiers and persons employed in state hospitals, VA hospitals, institutions for the retarded, some public schools, and corrections. Because the behaviorists and the personnel in the user institutions have such divergent backgrounds the ways they have employed behavioral strategies have been innovative.

But this observation fails to address why such collaboration should occur. Why should behaviorists want to work in these settings, and why should those in charge of the places let them in? One answer suggested earlier, is that to a considerable extent, behaviorists were prevented from working in more desirable environments. In addition, they were so convinced of the efficacy of their technology that they were willing to take on the worst of populations (i.e., the populations which make these institutions less desirable environments to other psychologists).

There appear to be a number of reasons why the user systems were welcomed behavioral modifiers. First, these settings have painful deficiencies in professional staff; typically, behaviorists offer not only their own ser-

vices, but those of their students. A related point is one made earlier: that the initial targets were clients with whom users felt a "performance gap" in service delivery (Cyert and March, 1959; Zaltman *et al.*, 1971).

In addition, since the difference in education and expertise between the behaviorist and the adopters is considerable, he/she has "expert power" (French and Raven, 1968). The impact of the behaviorists' credentials is further enhanced in environments where the universities from which they come are large institutions located in small towns (e.g., University of Kansas, University of Arizona, University of Oregon, University of Illinois). In such a context, the influence of the university is pervasive. Similarly, there are many reports of work in rural school systems and in inner city programs, but rather fewer of interventions in the suburbs or with middle class populations. Again it would seem logical that in the former situations the behavior modifier would have exaggerated "expert power."

Finally (and this observation is based in part on my own experience as a behavior therapist), because of the knowledge gap between the expert and persons in the setting, often those in charge do not fully comprehend what the behaviorist is doing and that the intervention is a novel one.

Sometimes the relationship between behavior modifiers and their adopter systems is captured in the problem-solver model of innovation (Lippitt, 1958; Havelock, 1969). In this conceptualization, the need for innovation is first felt by the client organization, which solicits assistance from a consultant or change agent. The consultant comes into the setting and does an assessment. Then the two parties collaborate on a solution, relying on the resources of the consultant and those within the user system.

Although the process of behavioral utilization may resemble the one just described, there are also differences. The body of knowledge upon which the behaviorist draws is more circumscribed than the problem-solver model presumes, because he/she proffers primarily behavior modification. Moreover, by and large (except perhaps with private behavior modification consultancies), a mutual need is present, rather than one merely on the part of the user system. For, while the adopter wants to provide better service, the behavior modifier, for his own part, desires a location where he can demonstrate the efficacy of behavior modification.

Nevertheless, situations in which behavioral techniques are utilized in public schools often fit the problem-solver model. A teacher feels the need of assistance with a number of difficult children and requests help



from a behavioral consultant, who has previously extended services to the school. The consultant and the teacher together define the problems in behavioral terms, and the consultant takes baseline data. Following assessment, they collaborate on an intervention strategy, which is usually implemented by the teacher and monitored by the behaviorist. He/she gives feedback to the teacher and remains involved until his/her services are no longer needed.

### Attributes of the Innovations

Writers about knowledge diffusion (e.g., Zaltman *et al.*, 1973; Rogers and Shoemaker, 1971; Glaser, 1973; Rothman, 1974) have specified a large number of characteristics of innovations which predict their adoptability. I will discuss those which appear particularly germane to behavior modification: cost, compatibility, relative advantage, complexity, divisibility, and reversibility. To some extent, I will have to discuss the four innovations (concrete reinforcement, token economies, social reinforcement, and aversive techniques) separately, and their differential relationships to the three types of human service organizations, for they are, indeed, separate innovations, as are the human service organizations distinct. But because the subsequent chapter will deal with the actual implementations of these technologies as they vary among and within their several contexts, the innovation characteristics which affect adoptability will be treated in a rather general way here.

### Cost

The impact of cost on adoption varies according to the quantity of slack resources the organization possesses (Downs and Mohr, 1976); but, as a rule, the cheaper the innovation is, the more likely it is to be used. The cost in terms of funds for behavioral innovations to both universities and user systems has so far been negligible. Except for certain programs in adult corrections, the federal government has provided a preponderance of the funding. The chief money sources have been within the Department of Health, Education, and Welfare. Also, occasionally the utilization has been co-sponsored by state agencies. The fact that the innovations tend to come free has facilitated their spread. To a large extent, it remains to be seen what will happen when and if the organizations where behavior modification is being employed have to pay for its continuance.

A related point is that the politics of funding and the ebb and flow of financial resources are of fundamental importance in determining what behavioral innovations get refined and utilized. We find this dramatically illustrated in juvenile correction programs sponsored by NIMH. A behaviorist, Saleem Shah, became director of their Project on Crime and Delinquency in NIMH and, as such, funded the majority of behavioral innovations in juvenile corrections.

### Compatibility

The more compatible an innovation is with current operations, the more likely it will be used. I will address two kinds of compatibility (there are no doubt more): ideological and logistical.

Behavior modification is certainly not ideologically compatible with a psychodynamic interpretation of human behavior. This incongruence is well illustrated in an early piece by Staats (1965). In it he did a behavioral analysis of a psychoanalytic case study in order to demonstrate that the therapist, by attending to the patient's psychotic behavior, was providing social reinforcement for his symptoms. Consequently, behavior modification encountered marked resistance in mental health settings, particularly as a technology for neurotics and patients hospitalized on a short-term basis.

Moreover, it runs counter to the "tender loving care" philosophy for handling regressed psychotics, the retarded, and disturbed children. To suddenly deny schizophrenics their supper unless they come to the dining room (Ayllon and Houghton, 1956), is a dramatic change from spoon feeding them when they fail to feed themselves. A similar point can be made about the use of electric shock with autistic children, who previously were gently treated because their illness was blamed on their parents. Therefore, it seems safe to say that ideological compatibility was not the reason behavior modification was assimilated into mental health settings.

However, because behavior modification requires no extra personnel when it is employed, it is logistically compatible. Token economies, when properly designed, need no additional persons to run them, as they merely alter the roles of ward staff. Further, people treating autistic, highly disturbed, and even retarded children, generally work with only one or two patients at a time, the same ratio necessary for training these populations using social and concrete reinforcement.

In education, there is much more ideological compatibility because both are based on learning theory (a partial explanation for behavior modification's extensive utilization in education). Further, programmed learning, which was diffused into education before behavior modification, has facilitated the technology's spread. For instance, the two are often packaged together so that programmed material is the substance on which behavioral strategies are used. On the other hand, aversive techniques, if not ideologically incompatible, would precipitate public outcry.

Some behavioral strategies are more logistically compatible in educational settings than others. For example, it is easier for a classroom teacher to incorporate social reinforcement than a token economy, and still maintain primary focus on substantive material. The former often merely involves a reversal of the teacher's normal pattern of attention. Similarly, the utilization of privileges as reinforcers is simpler than employing material rewards. Frequently, the teacher has already been manipulating privileges, but not in a systematic way.

In the domain of corrections, the pattern is more complex. In general, because behavior modification focuses on overt action rather than underlying meaning, it has ideological appeal in correctional settings. However, beyond that point, adult and juvenile systems must be considered separately. A positive or treatment approach is foreign to adult corrections. Therefore, on the whole, few rehabilitative programs--behavioral or otherwise--exist in that system. On the other hand, aversive techniques are compatible and consequently have been used more extensively in adult corrections than in other settings.

In the juvenile system, there has been a shift to a therapeutic and rehabilitative orientation concurrent with the development of behavioral technology. Therefore, behavior modification (except for aversive methods), along with other treatment strategies, have had an easier entry into juvenile corrections.

As for logistical compatibility, token systems in both adult and youth closed settings have been facilitated by the existing high level of structure and the fact they could be implemented with present correctional staff. These settings are also rules-oriented bureaucracies, which are

ideologically and structurally compatible with the systematic use of contingencies.

### Relative Advantage

The relative advantage offered by behavior modification is a crucial variable in its utilization. One of the ways behavior modifiers ensure that target entities appreciate the effect of the intervention is by careful monitoring: gathering baseline data before implementing a strategy and often using reversal and/or control groups to demonstrate that behavior modification is the operative independent variable.

If behavioral strategies have been employed fairly extensively in mental health settings, despite their ideological incompatibility, it is largely because of their impressive advantage over the methods they replace.

The benefit of a token economy on a psychiatric back ward is a striking illustration. Before implementation, staff would have had to cajole patients to get up, might have had to dress and feed them, and almost surely had to make their beds and clean their rooms. Therefore, not only do token economies allow staff to switch to more elevated and therapeutic tasks (e.g. monitoring, dispensing tokens, delivering rewards), but the programs effectively motivate patients to take care of themselves (e.g. Ayllon and Azrin, 1969; Atthowe and Krasner, 1968).

Perhaps one reason behavior modification has been adopted less rapidly in out-patients settings is that the relative advantage is less obvious. That is, in open settings, the therapist is not likely to witness the therapeutic effect of the intervention, and furthermore, the impact is apt to be diluted because there are so many setting variables over which the therapist has no control.

A related point is that when the decision is made to attempt a token economy, its relative advantage need only be perceived by those who make administrative decisions. Aides and attendants, as a rule, are not initial parties in the decision. In contrast, when behavior modification is employed in out-patient treatment, it is more likely to be by individual therapist choice. Therefore in closed settings, the innovation is more frequently from the top down, whereas in open settings, it tends to be from the bottom up. Keller's research (1971) on the utilization of behavior modification by social workers offers additional understanding of the adoption process. Positive attitudes toward behaviorism were associated with positive attitudes on the part of peers and superiors. Such a facilitative atmosphere is more likely to occur in a closed setting than in an open one.

In education, the relative advantage of a behavioral intervention is experienced more markedly in special classrooms, where behavior is more of an issue, and learning less so. That is, the more time a teacher is likely to spend trying to control conduct, the greater benefit he/she gets from a behavioral intervention (regardless of whether the strategy focuses on conduct or achievement, a point I will return to later on). Suggestive evidence for this assertion is that teachers are more willing to use complex procedures with exceptional children than with normal ones. (There are also other reasons for this differential utilization; for example, special education teachers usually have more extensive training.)

In corrections, it is harder to assess the role of relative advantage. There are fewer behavioral programs and they tend to be at the demonstration project stage, not yet having been accepted by the ultimate users. However, there are two instances where relative advantage seems to have influenced utilization. Officials in the Bureau of Prisons, who designed the token economy at Kennedy Youth Center, their recently opened model youth facility, had seen the potency of token systems at National Training School for Boys, in Case I and Case II (Cohen and Filipczak, 1971). They were sufficiently impressed with token economies to extend the program to include all aspects of the inmates' activities (instead of just academic ones) and to disseminate the Kennedy model before it had been evaluated.

Similarly, the utilization of token economies in the maximum security lock-ups in the adult system was probably based on the perception of its efficacy in youth maximum security units (e.g. in the program at Yardville, created by Frank Petrock and to be discussed later).

### Complexity

Experts on innovation report that the complexity of an innovation is an obstacle to its adoption. The behavioral techniques I have chosen to examine vary in complexity, token systems being the most complex and social reinforcement the least, with concrete reinforcement in between.<sup>5</sup> However, each of these strategies can be designed to be more or less complicated.

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<sup>5</sup> It is hard to discern the role of complexity in the adoption of aversive strategies. They are complex insofar as they require electrical apparatus; however, the written material does not tell us whether this influenced utilization.

The complexity depends mainly on the number of behaviors being reinforced and the number of reinforcers employed. Two factors seem to dictate the degree of complexity. The first is that where the setting is structured and closed, complex intervention strategies (e.g., token economies) are likely to be applied. Second, more complicated methods are employed where simpler ones will not work (i.e., with populations so recalcitrant they must be placed in closed environments).

However, this variability in complexity aside, all of the techniques are less complex than behavioral innovations which have not been so widely diffused. Any of these strategies (except aversion) can be administered by paraprofessionals. Parents, teachers, and peers are typically the intermediaries taught to deliver concrete and social reinforcers. Similarly, ward, cottage, or correctional staff and teachers implement token economies.

In contrast, behavioral technologies like desensitization, flooding, covert sensitization, and behavioral rehearsal are more difficult to administer. They have not, as a rule, been taught to paraprofessionals for use with target populations. Rather they have been applied by a trained professional directly. They require high professional-client ratios, and, since the number of professionals is smaller than that of paraprofessionals, the spread of these technologies has been less rapid. (There are also other reasons which have inhibited the diffusion of this group of methods. For instance, most of them stem from research which originated outside the United States.)

### Divisibility

Since divisibility facilitates innovation adoption, a great advantage of all behavioral strategies is their divisibility. Two types of divisibility are represented in behavior modification: division of the innovation and division of the target population.

An example of the first kind is the strategy of Ayllon and Houghton (1956) when they first began experimenting with token economies. Initially, they required that patients arrive for dinner within the first thirty minutes in order to gain entry to the dining room; later patients also had to put a token in a box to get in; and finally, patients had to earn the tokens. Another method of dividing the innovation is by using a multiple baseline design, applying contingencies to a series of problematic behaviors in planned succession.

Rothman conceptualizes dividing the population as a three-stage process: setting a partial target (the first to receive the innovation); a proximate target (a realistic short-range goal); and a general target (overall objective of the innovation) (1975). Examples of dividing the population can be found in both schools and hospitals.

In classroom intervention, when a teacher has asked for help with several problem students, it is common to have him/her apply a strategy first to one student and, when he/she is able to use it on that one, to extend it to the others, and perhaps even to the class as a whole.

Likewise, hospital token economies are often started by population partialization (made feasible by the decentralized hospital structure). The interventionist may begin by applying the program to a few patients, although usually the partial target is one ward. Once the strategy has proven itself, it is extended to additional wards (proximate target). The general target may be the whole hospital. In such a manner did the token economy initiated by Atthowe and Krasner grow (Krasner, 1971).

### Reversibility

The easier it is to reverse an innovation, the more likely potential adopters are to try it. In fact, one of the major tenets of behavioral theory is reversibility. Individual behavior is a product of the person's reinforcement history, not of some immutable personality dimension. Further, it is not uncommon in the course of an intervention for the behaviorist to demonstrate the strategy's reversibility. It would seem that this postulation by behavior modifiers has, although indirectly, encouraged persons to try the techniques.

In actual utilization of behavior modification, one can find instances both when the innovation was initiated from the bottom up and from the top down, in which behavioral strategies have been tried and rejected. The customary posture of a behaviorist working in a classroom setting illustrates a reversible bottom up innovation. The teacher accepts the assistance generally on a trial and time-limited basis and can at any time terminate the relationship and the intervention. Further, the teacher also makes an individual choice whether or not to continue the strategy after the behaviorist has withdrawn, and whether to use it in future situations.

A good example of a reversal from the top down is the fate of the token economy at Draper Correctional Center (in the Alabama penal system). It was a demonstration project sponsored by the Department of Labor, but with sanction and support from the prison director. However, when a new director came in with different priorities, the program was terminated (Hilts, 1973).



SUMMARY TABLE FOR CHAPTER III--  
ANTECEDENT CONDITIONS

Antecedent Conditions	<u>MENTAL HEALTH</u>		<u>SCHOOLS</u>	<u>CORRECTIONS</u>	
	Children	Adults		Children	Adults
A. Existence of target populations	1. Autistic children 2. Retarded children	1. Schizo-phrenics 2. Alcoholics	1. Emotionally disturbed 2. Learning disabled	1. Sociopaths 2. Severely education-ally handi-capped	1. Maximum security inmates
B. Organizational variables					
1. Facilitating influence of large state universities	Influence present		Influence present	Some influence present	None apparent
2. Existence of facilitative settings	1. Institutional settings 2. University clinics	Back wards of state mental hospitals	1. Laboratory pre-schools 2. R&D projects for exceptional children	Settings vary	Not important
C. Innovator characteristics					
1. Collaboration among behaviorists	Facilitated utilization		Facilitated utilization	Facilitated utilization	No evidence of collaboration Innovators came from within the system
2. Innovators high status vis-a-vis target systems	Facilitated utilization		Facilitated utilization	Facilitated utilization	
D. Attributes of the innovation					
1. Cost	Funded to a large extent by NIMH		Funded by Dept. of Education and OEO	Funded by Ctr. on Crime & Delinquency of NIMH & other sources	Usually had to rely on meagre internal resources

SUMMARY TABLE OF ANTECEDENT CONDITIONS, cont'd.

Antecedent Conditions	<u>MENTAL HEALTH</u>		<u>SCHOOLS</u>	<u>CORRECTIONS</u>	
	Children	Adults		Children	Adults
D. cont'd.					
2. Compatibility					
a. Ideological	Ideologically incompatible with psychodynamic and TLC approaches		Ideologically compatible with learning theory	Comptible with evolving treatment focus	Punitive strategies ideologically compatible; treatment focus not
b. Logistical	Logistically compatible; require same staff-patient ratio		Logistical compatibility varies with different classroom settings	Structured strategies the most compatible	
3. Relative advantage	Behavior modification is distinguished by its relative advantage over previous methods for dealing with its chosen target populations.				
4. Complexity	All of the behavioral strategies chosen for study can vary in complexity; however, they are generally less complex than behavioral strategies which have not been disseminated so widely.				
5. Divisibility	Literature contains many examples of division of the target population and the innovation			Fewer attempts to divide the target population or the innovation	
6. Reversibility	Sometimes employ reversal in their design; innovations are reversible		Very often demonstrate reversal in their design; innovations are reversible	Reversal not a design feature; but has occurred when intervention ended	Large proportion of programs have been reversed (terminated)

#### CHAPTER IV: HOW BEHAVIOR MODIFICATION HAS BEEN EMPLOYED IN HUMAN SERVICE ORGANIZATIONS

Turning from the antecedent factors, how the four innovations are actually utilized in the three human service systems will now be examined. But first, it is necessary to explain the methodology employed to study utilization and make some general observations about the three "megabureaucracies."

##### Methodology

Although mental health, education, and correctional systems have separate functions, it is sometimes hard to know into which to classify certain behavioral programs. To illustrate, if an adolescent is truant from school, he is frequently referred by the school to the juvenile court. The judge may order the youth and his family to participate in a behavioral delinquency control program, run by the local community mental health center. The intervention strategy is likely to include work in the school setting with teachers and intervention with the boy and his parents at home. In cases like these, I have relied on a combined consideration of the setting in which treatment occurs and the presenting problem, to decide which "megabureaucracy" is responsible for the program.

In addition, to gain an understanding of which techniques are used frequently in which settings, I have roughly classified studies according to my perception of their major intervention strategy. However, it is fairly customary for a behavior therapist to use more than one strategy. In particular social reinforcement is frequently employed in conjunction with other methods. Further, it is quite common for a program to start with one technique and fade that one into another. Therefore, in addition to considering major strategies, it is necessary to take cognizance of secondary ones.

In the remainder of this chapter, the impact of three types of variables (organizational, target population, and innovator attributes) will be examined in relation to (1) which of the technologies have been diffused into which kinds of settings, and (2) how the technologies may have been transformed or translated by the particular setting. The organizational variables of interest are which "megabureaucracy" the technique is used in

and, in particular, whether the setting is open or closed. Target population variables include adult vs. child targets and the influence of diagnosis.

### General Observations

Some general observations can be made about the "megabureaucracies" which provide a useful perspective on the utilization of behavioral techniques in particular settings.

First, in absolute numbers there are more examples of utilization in education and mental health than in corrections (thus observations about correctional utilization will be based on considerably fewer cases). Further, there appear to be more behavioral programs in education than in mental health. This is so despite the fact that most behaviorists are psychologists and interventions with college students are excluded from consideration. Although these observations may be an artifact of the data sources, there are a number of explanations for these differential rates of adoption.

Some of the reasons were discussed earlier: the fact that corrections is less treatment-oriented and that use of behavior modification came later in this "megabureaucracy," and the existence of greater resistance to behavioral strategies in mental health than in education.

In addition, there are more school-aged children than there are mental patients or criminals; therefore, one might expect to find more interventions in schools. Furthermore, education has a tradition of innovation diffusion (dissemination of new teaching practices and curricula) not found in the other two human service organizations. As a consequence, channels of communication already exist, and one might expect teachers to be more receptive to new techniques.

However, interestingly, there are hardly any instances of utilization of behavior modification by high school teachers. It may be that by the time a child reaches high school age, teachers no longer regard it as their responsibility to manage behavior and motivate students to learn. At this age, a recalcitrant youth is classified as a pre-delinquent or delinquent, not a classroom management problem. Consequently, he/she comes under the jurisdiction of the juvenile justice system.

Another general point that should be made is that, except in adult corrections, behavior modification innovators are a fairly homogenous group. Most persons promulgating behavioral strategies in juvenile programs and

innovators in mental health and education were psychologists, generally with academic backgrounds, and with commitment to behavior modification. In adult penal programs, the innovators, by and large, came from within the correctional system and had allegiance to it, rather than to behavior modification.

There is also an interesting distinction between juvenile programs on the one hand, and school and mental health ones on the other, the cause of which is hard to tease out. In general, in the school and mental health settings, there is more experimental manipulation of independent variables. It is characteristic of their interventions to incorporate reversals or multiple baselines, and often a control group as well. However, in delinquency programs (with notable exceptions such as Wolf's Achievement Place), the strategy is more likely to consist of an AB design, sometimes with a control group.

It could be that since utilization in education and psychiatric facilities started earlier, those researchers felt greater need to demonstrate that the changed behavior was indeed under the control of the behavioral technique. In contrast, by the time the methodology was used with juveniles, the innovators may have assumed it had already been proven. It also could be that this difference in design is a function of the target population. If one has the good luck to improve a delinquent's behavior, it would be foolhardy to attempt a reversal. However, a further point is that most delinquency programs have been in open settings, conditions under which it is more difficult to do tightly controlled experimental manipulations.

### Concrete Reinforcement

As will be recalled, there are three types of concrete reinforcement: food, other tangible rewards, and privileges.

### Concrete Reinforcement in Mental Health

#### Settings: Children's Programs

Two main types of child populations have been targets of concrete reinforcement: autistic children and the severely retarded (e.g., Repp *et al.*, 1974; Wolf *et al.*, 1964; Lovaas *et al.*, 1966). With both groups the rewards most often relied upon have been edible: M&Ms, sugar-coated cereal, or mouthfuls of meals. The therapist reinforces tiny bits of appropriate be-

havior (e.g., making eye contact) with tiny bits of food, and thereby shapes the desired responses. In this manner, behaviorists have successfully trained autistic and retarded children in the following areas: to engage in activities other than self-destruction, crying, and autistic self-stimulation, to maintain eye contact, to speak, and to be with other children without being assaultive (Lovaas and Koegel, 1972).

The necessity of primary reinforcers is dictated by a target population whose diagnosis indicates it is unresponsive to social reinforcement and sufficiently regressed so that other concrete rewards are not appealing. This intensive type of treatment is made possible by the structure of the hospital setting.

The children who are treated using concrete reinforcement in open settings do not present such severe problems; typically they are diagnosed as emotionally disturbed, aggressive, and school behavior or performance problems. Non-edible material reinforcement and privileges are most often employed with them, and the mode of intervention generally includes parental involvement (e.g., Patterson *et al.*, 1973; Bernal, 1971; Hall *et al.*, 1972). For example, a child might earn the reward of watching TV by not fighting in school, or a new bicycle for improved grades. In recent years, therapists have used contracting as a method of making explicit the contingencies in these interventions.

Because parents tend to have control over the items this target population find rewarding and because the children are being treated while in their normal environment, a triadic intervention is a very suitable way to administer concrete rewards in this setting.

### Concrete Reinforcement in Mental Health

#### Settings: Adult Problems

Adult targets for concrete reinforcement in closed settings are of two main types: psychotics and anorexics<sup>6</sup> (and also sometimes the obese). All three kinds of concrete rewards have been used with psychotic patients, but behaviorists usually only employ privileges as rewards with anorexia.

Early behavioral interventions with psychotics often utilized concrete rewards; Skinner and Lindsley's work with the Multiple Operant Problem-Solving Apparatus (MOPSA), mentioned previously, is one example, and other researchers also used the apparatus (Davison, 1969). Another early experi-

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<sup>6</sup> Anorexia is a psychiatric condition, found mainly among young women and characterized by marked loss of weight and failure to eat. It frequently leads to death.

ment was done by Goldiamond *et al.* (1965) at Anna State Hospital. They trained two mute schizophrenics to speak (one of whom had been mute for 14 years and the other for 19 years), with chewing gum as a reinforcer for successive approximations of speech. They were able to fade (i.e., gradually eliminate) the gum and have speaking maintained simply by instructing staff to respond only to verbal requests and to ignore the patients' gestures.

However, the practice of using concrete reinforcers with individual psychotics has largely been supplanted by token economics. Since adults, even when psychotic, can respond to group intervention in a way that autistics and the severely retarded cannot, it is more parsimonious to use token programs with this population.

Because anorectic patients are so resistant to treatment, they have received the attention of behaviorists. The most frequently employed strategy is to hospitalize the patient, and then make eating and/or weight gain a contingency for privileges, such as having cosmetics, nice clothing, going to the day room, having visitors, and going out on passes (Agras *et al.*, 1975).

If one accepts a psychodynamic interpretation of anorexia (that it is associated with hysterical personalities), these reinforcers are particularly appropriate. And, in fact, the strategy has been highly successful in producing weight gain, though less so in maintaining it once the patient leaves the hospital. Therefore, while concrete reinforcement works with these patients in a closed setting, an appropriate strategy for open settings is yet to be found.

A wide variety of adult out-patient problems has been treated using concrete reinforcement. Some instances involve direct intervention in the client's environment, but quite often the therapist will use instigation; that is, he/she will instruct the client how to manipulate contingencies to effect the desired behavior change (Gambrill, Thomas, and Carter, 1971). This is another situation in which the constraints of the structure of treatment (e.g., office interview format, large caseload) make direct manipulation infeasible.

One of the common presenting problems treated by concrete reinforcement is marital difficulty. This is another instance where contracting is frequently applied to ensure comprehension and agreement (e.g., Stuart, 1969; Rappaport and Harrell, 1974; Azrin, Naster, and Jones, 1975; Patterson and Weiss, 1974). In such a procedure, the therapist mediates in the negotiation

of a reciprocal exchange, generally requiring both partners to change their behavior. In the agreement, each spouse must reward the other with items such as gifts, relief from chores, going out, sexual relations, and communication. A comparison of this mutual change contract with the one-sided kind employed with children demonstrates the effect of the age of the target population on the intervention. With children, the focus is on changing the child so that his/her behavior is under the control of the parents; in marital contracting, the therapist attempts to produce change in both parties.

### Concrete Reinforcement in Schools

When concrete reinforcement is employed in education, the characteristics of the target population (as in mental health) determine the type of reinforcers likely to be chosen: food is likely to be used with pre-schoolers (e.g., Kirby *et al.*, 1970; Christy, 1975) and privileges with elementary school children (e.g., Medland and Stachnik, 1972; McPherson *et al.*, 1974). Similarly, exceptional children are more often rewarded with material reinforcers, whereas "normal" ones get privileges.

This differentiation is both a function of what the target populations are likely to respond to and what is available in the classroom. Special classrooms and pre-schools tend to have resources for food (and perhaps trinkets and toys), whereas an ordinary classroom would not. Further, pre-school and exceptional children are likely to be regarded as more primitive and therefore only controllable by use of concrete reinforcers.

Food is easier to dispense as an individual reinforcer than a group one, although there are examples of food used with groups (e.g., Buckley, 1971). Because contingencies often apply to the class as a whole in regular classrooms (to avoid stigmatizing individuals), privileges are more feasible as rewards. For instance, a teacher might stipulate to students that when they finish their spelling, they can play with a game, whereas it would create great resentment if the teacher were to give M&Ms to some students but not to others.

There is, in addition, an interesting difference in the target behaviors for pre-schoolers and exceptional children versus "normal" children. In the first two cases, target responses tend to be social or cognitive skills, whereas in the latter, they tend to be "behaving": seat-sitting and attending. This observation will be discussed further in connection with token economies.



Finally, the classroom setting has facilitated the development of creative strategies which combine concrete reinforcement and manipulation of peer pressure. One example is the use of the "Macharenko principle,"<sup>7</sup> that is, allowing an individual to earn a reward for the whole group, thereby enhancing his/her prestige. To illustrate, Carlson *et al.* (1968) allowed an eight-year-old, black, tantrum-prone girl in an adjustment class to earn intermittent candy for the whole class by not having tantrums. In addition, the class could earn treats for themselves by not turning around to look when the girl had a tantrum.

Another instance of combining peer pressure with concrete reinforcement is the "Good Behavior Game" (Barrish, Saunders, and Wolf, 1969; Medland and Stachnik, 1972). It requires that an elementary class be divided into two teams which compete in not disrupting the class. If an individual misbehaves, the whole team is penalized. Privileges, such as first in line for lunch, and time for special projects (as well as winning the game) are the reinforcers.

#### Concrete Reinforcement in Corrections

Direct delivery of concrete reinforcement is not found in adult correctional programs, nor is it utilized in closed settings with juveniles. These are highly structured and often punitive environments, two characteristics which would militate against responsive positive exchanges.

In juvenile programs conducted in the natural environment, material reinforcers and privileges (food not generally being appropriate for this age group), are frequently utilized. Parents, others who have a significant relationship with the adolescent, and sometimes probation officers serve as mediators for the intervention strategy.

Again, the employment of intermediaries to deliver reinforcement reflects both the age of the population and the context of treatment. Therapists are not likely to have control over reinforcers themselves (e.g., staying out at night), nor can they readily observe the adolescent's behavior in an open setting. However, in contrast to the situation with younger children, parents are not always the most suitable persons to implement the treatment.

Thorne, Tharp, and Wetzel (1969), from their base at the University of Arizona, were the first behaviorists to mount a large scale program of this

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<sup>7</sup>The principle is named after its originator.

kind. The basic strategy has been elaborated by a number of other groups: for example Fo and O'Donnell (1975), at the University of Hawaii, Stuart *et al.* (1973), at the University of Michigan, Weathers and Liberman (1974), and MacDonald *et al.* (1970). A typical exchange between a youth and his/her family might be doing specified chores in exchange for use of the family car. Quite often, these interventions include stipulations about school attendance and performance. While most studies report improvement in the adolescent's behavior in many areas, so far the strategies have not had an impact on academic performance.

### Token Economies

#### Token Economies in Mental Health Settings

The mental health field has been the one which has made both the initial and most extensive use of token economies. However, we find important differences in the manner and the frequency with which they have been employed when we contrast adult and non-adult populations.

Token economies with children's mental problems. Token systems are sometimes used with children in mental health programs, but are infrequent in children's closed settings. There are two possible reasons for this absence. First, the child population which is "well" enough to fit into a token system (that is, not in need of immediate primary reinforcement) may not be hospitalized; but rather remains in the community and is serviced in special education programs. Or perhaps this population's treatment is under the control of professionals, psychiatrists and social workers, who are unlikely to use behavior modification.

Token economies are employed, however, with retarded children in closed settings. Two of the most sophisticated and successful are Mimosa Cottage at Parsons State Hospital, set up by personnel from the University of Kansas (e.g., Lent, 1968) and the Programmed Living Center at Ranier School, begun in 1962 and supervised by faculty from the University of Washington (Salzbader and Kidder, 1975).

In both programs, the goal is to return as many of the residents as possible to the community. To this end, token systems reward behaviors which should be adaptive in the larger environment: self-care, appropriate social behavior, occupational and academic achievement. Great care has been

taken in creating training materials in all of these areas, and the effort is reflected in the high percentages both institutions have been able to release. Their success and the particular suitability of token economies as a method of organizing residential treatment for the retarded have led other institutions to adopt similar programs.

In addition to the closed token programs just described, occasionally token economies are utilized in psychiatric units for adolescents (e.g., Aitcheson and Green, 1974; Kaufman and O'Leary, 1972). Their purpose is mainly to control disruptive behavior.

The number of out-patient children's programs employing token systems is also limited. Sometimes, the strategy is applied to children's out-patient group treatment (Clement and Milne, 1967; Stedman *et al.*, 1971) to alter social behavior. In addition, therapists may have parents use tokens at home as a way of mediating concrete reinforcement (e.g., Christophersen *et al.*, 1976; Howard, 1970; Green *et al.*, 1976). Because token economies are more efficacious with groups (a main asset of the method being its ability simultaneously to reinforce individuals with varying tastes), one would not expect high rates of utilization in individual out-patient treatment. Further, since out-patient group work is usually the province of social workers who are unlikely to be adopters of behavior modification, token economies are under-employed in these programs.

Token economies with adult mental problems. In contrast, token economies seem to be the "behavioral treatment of choice" in adult settings, at least for back ward psychotics. As noted earlier, the technology has been widely and rapidly diffused. Ayllon and Azrin started the first hospital token economy in 1961 and first wrote about it in 1965, although a detailed account was not published until 1968. It was their work that precipitated the diffusion (e.g., Atthowe and Krasner, 1968; Shaeffer and Martin, 1966; Steffy *et al.*, 1966; Marks, Shalock, and Sonoda, 1967; Gericke, 1967; Lloyd and Garlington, 1971; Parrino *et al.*, 1971; Hersen *et al.*, 1973). A dramatic index of the extensiveness of the spread is the report that by 1969, there were over fifty token economy programs in the United States, Canada, and Australia, and twenty-seven in VA hospitals alone (Krasner, 1972).

As a rule, these programs have attempted to train schizophrenics in self-care and ward care. Tokens can usually be exchanged for "store items" like cigarettes, candy, and toilet articles (typical commissary goods) or privileges like watching TV or using recreational equipment.

Although almost all token economy programs have been successful, they have been criticized for not preparing the patient for the outside world. Indeed, although hospitals are able to discharge many more token systems patients, they still recidivate at a high rate.

Innovators have introduced a number of procedures to alleviate this shortcoming. Atthowe and Krasner gave tokens for actual work behaviors on hospital jobs and included, as an important reward item, the privilege of leaving the ward or hospital on pass, so patients could practice appropriate behavior outside. Patton State Hospital (Shaeffer and Martin) has a pre-release cottage with a moderated token system, where patients can be trained in necessary self-maintenance skills: cooking, grocery shopping, and working outside the hospital.

There are also a few half-way houses (e.g., Henderson and Skiles, 1971) and day treatment programs (e.g., Goodson and Turner, 1975; Liberman *et al.*, 1974) with token economies which focus on social skill deficiencies of the previously hospitalized, as well as treating patients who lack coping skills, but whose problems do not require hospitalization. Token programs are not employed in ordinary adult out-patient treatment.

The criticisms made of token economies show a lack of appreciation of the baseline behavior of chronic psychotics, and concomitant unrealistic expectations for a single intervention strategy. Token programs are particularly well suited to settings which meet certain criteria: (1) a sizable target population, sufficiently regressed to need tangible reinforcement for small improvement; (2) fairly uniform treatment goals made up of many small components; and (3) a sufficiently controlled setting to allow for consistent monitoring and reinforcement delivery. Because back wards and residential programs for the retarded satisfy these criteria, token economies have worked well there.

#### Token Economies in Schools

The development of classroom token economies was concurrent with the technology's refinement in mental health units (e.g., Staats, Schutz, and Wolf, 1962; O'Leary and Becker, 1967). However, because school settings are more diverse than chronic wards, token programs show more variation. Like other behavioral techniques, they are used often with pre-schoolers, in special classes, and at the elementary level, but rarely with high school students.

The early token systems tended to be in laboratory pre-schools or in classes for the retarded or emotionally disturbed (e.g., Staats, Finley, Minke, Wolf, and Brooks, 1964; Bushell, Wrobel, and Michaelis, 1968; Birnbrauer, Wolf, Kidder, Tague, 1965; Hewett *et al.*, 1969). The behaviors reinforced in these economies were mainly academic, but sometimes social as well. In special classes the pay-offs were based on correct completion of programmed material, usually developed by the researchers in connection with the token economy.

However, when token systems were translated into regular classrooms, the focus of intervention shifted to: (1) the absence of disruption (no talking out, staying in seat, etc.) and (2) apparent attention to work (attending the teacher, looking at the book) (Madsen, Madsen, and Driggs, 1971; Packard, 1970; Drabman *et al.*, 1974; Becker, Madsen, and Thomas, 1970). This change in focus is somewhat surprising because behavior problems are more salient with pre-schoolers and exceptional children, than they are with more normal students.

In both academic and conduct token economies, the target responses improved impressively, and in the former, behavior did as well. However, when program emphasis was on conduct, only sometimes did academic functioning improve. The utilization of token programs in classrooms has been criticized on this count (Winett and Winkler, 1972).

There seem to be two reasons why this shift from an academic to a conduct focus occurred. First, in implementing the early token economies, psychologists were on their own "turf" (in laboratory pre-schools and special programs for exceptional children) and, as a consequence, could reinforce the behaviors they considered appropriate. However, when they moved into the elementary school classroom, they were there at the sufferance of the school, and particularly of the classroom teacher. Therefore, in this setting, they had to deal with the behaviors the teacher regarded as important.

The second reason is related. To a certain extent in pre-school programs, and more so in schooling for exceptional children, there were curriculum deficiencies. Behaviorists had a special technology (programmed instruction) of proven efficacy with these populations. Therefore, they were in a situation which suggested the marrying of programmed instruction and behavior modification. However, there were curricula in abundance in regular classrooms, and lesson plans were the province of the teacher. In such a context, it is more problematic to attach a token system to academic performance.

Token economies have also been employed occasionally by school counselors when working with children in groups (e.g., Hinds and Roehlke, 1970). The customary format is a bi-weekly or weekly group meeting in which behaviors in the first part of the session earn tokens to be spent in the latter part. Because school counselors are less likely than teachers to work with students in groups, one would not expect to find them having high rates of utilization of token programs.

### Token Economies in Corrections

Apparently the token economy concept has considerable appeal in correctional settings. It has been utilized in several different forms in both juvenile and adult settings.

Token economies in juvenile programs. The first important application of tokens to juvenile corrections was the work of Harold Cohen *et al.*, (1967) at National Training School for Boys (Case I and II), cited earlier. This intervention rewarded 90% correct responses on programmed teaching material. Because of the strategy's impressive success, token reinforcement was incorporated along with quite a number of other innovative treatment technologies into the program at Kennedy Youth Center, the demonstration youth facility of the Bureau of Prisons. This token system included not only academic behavior, but work and social behavior as well. The complexity of the entire program, not merely of the token economy, bespeaks the acceptance of the notion that the more structure, the better. This idea is characteristic of correctional settings.

The program was diffused throughout the juvenile system by the Bureau of Prisons and has been fairly widely adopted (Bureau of Prisons, 1970; Vinter and Sarri, 1974). That this complicated program was accepted and incorporated should not be attributed so much to its suitability for the target population and settings, but to the fact that it was disseminated from the top down in a centralized, authoritarian "megabureaucracy."

A second site in juvenile facilities where tokens have been employed is in adjustment units (the maximum security lock-ups). The first was developed by Frank Petrock (1976) at Yardville in the New Jersey state system, and was diffused within state juvenile programs.

The distinctive features of this program are three. Tokens were not redeemable for any concrete reinforcement; rather they were accompanied by

social reinforcement and were to be accumulated so the prisoner could move up in a level system, the eventual goal being return to the larger prison environment. Second, tokens in varying numbers were delivered on a fixed interval basis (14 times per day) with the number of tokens contingent on appropriate behavior. Third, the system was conceived as a structural facilitator for "Guided Group Interaction (another innovative treatment methodology).

The absence of any back-up reinforcers and the fixed interval schedule are both a function of the highly structured and ordinarily punitive setting, with no slack resources. The notion that Guided Group Interaction should be the central treatment technique is a consequence of innovator characteristics. Both Albert Elias, the facility's superintendent, and Petrock had previously been at Highfields, a youth treatment program based on Guided Group Interaction.

This innovation, and probably the Case projects as well, can be classified as radical innovations (Zaltman *et al.*, 1973); that is, the innovative solution differs markedly from existing practice. Petrock was a civilian in a position usually occupied by a correctional officer. He introduced humanness, treatment, and rehabilitation into the unit whose purpose was to facilitate prison control by meting out harsh punishment. Because of this striking departure, the program encountered stiff resistance, not only from the rest of the prison staff, but initially from the inmates as well.

The radical aspects of the Case projects appear to be two-fold. First, the program focuses on academic achievement for prison youth. Second, it employs reinforcers delivered by a correctional officer. The extent of resistance to this innovation is hard to assess, for indeed there is strong evidence of its acceptance. However, when the administration designed the program at Kennedy Youth Center, they failed to consult with Cohen and his colleagues, and devised a penalty rather than a reward program as a consequence.

The other kind of setting for youth in which one finds token economies is the residential group home, the outstanding example of this being Achievement Place, opened in 1965. Each youth has a token program tailored to his individual deficits, and the focus of the project is on the progressive reintegration of the boy into his home environment. Privileges and other rewards used in the token economy are those normally to be found in a group home setting. In addition to the token system, the Achievement place model has two other main components: the utilization of "teaching parents" as role models,

instructors in appropriate behavior, and dispensors of social and concrete reinforcement; and youth semi-self government (Wolf, Phillips and Fixsen, 1972; Phillips, Phillips, Fixsen, Wolf, 1975).

~ Unlike the two other types of juvenile programs, this model incorporated rigorous evaluation as part of the process of program development. Thus the Achievement Place intervention was subjected to procedural and outcome evaluation, prior to its diffusion.

The feasibility of individual token systems and the ability to gradually reintegrate youth into their natural environments reflect setting variables: the program's small size (6 to 9 boys) and its openness. And the concern for evaluation can be attributed to innovator characteristics; this work was undertaken by Wolf and his colleagues at the University of Kansas.

Token economies in adult correctional programs. The most common use made of token systems in adult corrections is in maximum security units of federal and state facilities. These programs are punitive reflections of the program Petrock developed at Yardville (which he also applied later in the maximum security facility at Marquette). Although they usually retain the use of levels, with points being accumulated to progress to higher levels and out into regular prison, Guided Group Interaction has been dropped, and the only behaviors reinforced are submission and compliance. Further, the reinforcers concomitant with the levels include such items as a mattress to sleep on, eating utensils, and the privilege of leaving one's cell for more than two hours per week (Spece, 1974; Carlson, 1975; Martin, 1975; Quinney, 1975).

This is a striking illustration of the impact of the setting (the maximum security punitive lock-up) and innovator characteristics (prison officials interested in keeping order) on an innovation. The client population, who tend to be minority group members involved in prison riots and other insubordinate activity, also has influenced the nature of the program. It is unlikely that prison administrators would conceive of imposing such "treatment" on other populations. Some would argue, in fact, that this program should not be considered a token economy, so overlaid is it with traditional prison practice.

Finally, a token economy was a part of the research and demonstration project sponsored by the Department of Labor at Draper Correctional Center, in the Alabama penal system. The goal of this program was to increase inmate



employability after departure. To this end, points were provided for prison maintenance, self-care, and academic performance. Rewards were: access to TV, the pool table, free time, snacks, cigarettes, and weekend movies. The program increased compliance by inmates and decreased prison violence, but had no reported impact upon employability.

Again, what is apparent is how the context dictates the focus of the program. The reports from the Draper Project show a major emphasis on doing chores and much less on programmed material and training for potentially remunerative jobs. Further, efforts to examine those aspects of life outside which might be related to employability are quite truncated (Rehabilitation Research Foundation, 1973). Therefore, although the intent of the Department of Labor was to increase the work capacity of inmates after their release, the effect was to improve correctional staff's control over prisoners' rule-following and chore-completing while incarcerated.

### Social Reinforcement

#### Social Reinforcement in Mental Health

##### Setting: Children's Programs

Social reinforcement is a widely used strategy with children. However, it is rarely the only technique with children in closed settings. It is customarily employed along with concrete reinforcement, and sometimes other strategies as well.

Behaviorists use social reinforcement in two ways with children in out-patient settings. They differentially respond to the behavior of the target person, which may be the child or parent(s). In addition, the teach the parents how to employ social reinforcement with their children. In pursuing the latter, the therapist generally first demonstrates to parents how they are maintaining the child's deviant behavior, with video-tape feedback or observational data. Then the behaviorist trains the parents to respond positively, with praise, hugs, etc., when the child behaves appropriately, and to ignore in appropriate behavior (e.g., Lal and Lindsley, 1968; Hawkins *et al.*, 1964; Bernal *et al.*, 1968; Slavin, 1972; Wahler, 1969a,b; Williams, 1959).

Social reinforcement has proven to be efficacious with children who are emotionally disturbed, oppositional, and mildly retarded, as well as with children experiencing developmental difficulties such as enuresis, dependency,

and school phobia. However, when used alone, it is unsuccessful with more disturbed children (Lovaas and Koegel, 1972).

An illustration of its failure with gross deviancy is provided by Herbert *et al.* (1974). Working at the University of Mississippi Medical Center, with six out-patient children too disturbed to attend public school, and with their mothers, these therapists trained the mothers in differential responding. In four of the six cases, the strategy had an effect precisely the opposite of the expected one, and precipitated unacceptable levels of self-destructive behavior.

Because of social reinforcement's lack of potency with severe behavioral deficits, therapists sometimes follow the utilization pattern found in closed settings (e.g., Green *et al.*, 1976; Christophersen, 1976). For instance, they apply it in conjunction with "time-out" or physical restraint for unacceptable behavior, or they simultaneously train parents in concrete and social reinforcement, assuming that if the two are paired, social reinforcement will eventually develop potency (e.g., Patterson *et al.*, 1975; Brockman and Williams, 1976).

#### Social Reinforcement in Adult Mental Health Programs

Social reinforcement has been used with hospitalized adults in a number of ways, but, as with children in closed settings, usually in conjunction with other strategies. For instance, when ward staff are trained to apply token systems, they usually receive instructions in the use of social reinforcement as well. The customary practice is to deliver positive verbal reinforcement along with tokens, or to give verbal praise for behaviors not included in the token economy (e.g., appropriate social interaction).

Differential responding is also used in specialized treatment in closed settings. For instance, it has been employed in response to psychotic talk (e.g., Ayllon and Houghton, 1964; Rickard *et al.*, 1965) and in group sessions to reinforce appropriate behavior (e.g., Dinoff *et al.*, 1960).

In addition, social reinforcement has been applied in treating adults on an out-patient basis. Here therapists use it both in differential response to patients' behavior (in the same manner as when treating children) and as a technique for patients to use in dealing with others in their natural environment.

More recently, it has formed the basis for advancement in marital treatment (e.g., Carter and Thomas, 1973; Weiss, Hops, and Patterson, 1974). The methodologies vary, but they allow partners to give and receive positive and negative feedback about one another's behavior (e.g., by using mechanical signaling devices or video-tape feedback). The procedures also allow for corrective intervention and training by the therapist. This is usually done in a laboratory-type setting and is expected to carry over in some measure to the couple's home interaction.<sup>8</sup>

Again, the reciprocity of exchange in this application of social reinforcement contrasts with its use with children and reflects the difference in the age relations between therapist and target. The reliance on instrumentation (such as mechanical signalling devices) is at least in part a consequence of the logistical problems of intervening in what is primarily verbal behavior.

#### Social Reinforcement in the Schools

In pre-schools and elementary schools, there are many examples of systematic variation of teacher attention and praise (e.g., Harris *et al.*, 1964; Allen *et al.*, 1964; Hart *et al.*, 1968; Brown and Elliott, 1965; Zimmerman, 1962; Hall *et al.*, 1968; Yawkey and Jones, 1974; Brown *et al.*, 1974; Sarratt *et al.*, 1969). As with other strategies used at the elementary level, target behaviors are conduct rather than academic, reflecting a setting impact. This focus is especially surprising, for it would seem more natural to praise right answers in class and correct written work, than to remember to intermittently reinforce paying attention or study behavior.

As in mental health intervention, the targets for social reinforcement are children with moderate behavioral deficits. In pre-school settings, the technique customarily is used to correct social isolation, hitting other children, and excessive crying. At the elementary level, typical target behaviors are the following: being out of seat, talking without raising one's hand, and daydreaming.

To a greater extent than other behavioral strategies, this one has been diffused into low income and inner-city schools (e.g., Hall *et al.*, 1968; Hart and Risley, 1965; Abbott, 1969; Ward and Baker, 1968; Scott and Bushell, 1974; Copeland *et al.*, 1974; Cooper, 1970). There are two possible

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<sup>8</sup> For a detailed discussion of this kind of treatment, see Edwin J. Thomas, Marital Communication and Problem-Solving, New York: The Free Press, 1976.

explanations for this phenomenon. It is an easy technique to diffuse because it demands only the reorganization of the teacher's attending behavior. The children do not have to be actively involved in the intervention. Second, social reinforcement is cheap; it requires no monetary resources and does not presume that the classroom has interesting materials (toys, games, equipment) available for children to use. These types of resources may be limited in poor school districts.

### Social Reinforcement in Corrections

Correctional settings do not rely on social reinforcement to change behavior, though occasionally it is used with youth in conjunction with other strategies. For instance, Petrock, because he had no back-up reinforcers in his token economy, instructed guards to deliver positive and negative feedback when they handed prisoners tokens. Similarly, teaching-parents in Achievement Place were trained to use social reinforcement, as well as tokens, to reward behavior. And interventionists in open settings, whose main strategy is concrete reinforcement, may employ social reinforcement as well (e.g., Fo and O'Donnell, 1975).

The absence of social reinforcement is obviously a function of both the target population and the setting. Criminals are presumed (probably rightly so) to be unresponsive to praise and positive attention from members of the correctional community, and guards might well have difficulty praising prisoners. Further, it is a basic contradiction for a punitive setting to choose a technique which relies heavily on a positive human relationship. This observation seems to provide additional understanding of the relative popularity of token economies in penal settings. Token economies do not require personal relationships or human responsiveness. Further, any reward an officer grants to an inmate is always once removed from actual human giving by use of a token, which is itself without value, though it may later be redeemed for something of value.

### Aversive Techniques

#### Aversive Strategies in Mental Health

Aversive techniques are employed with circumscribed target populations in both child and adult mental health treatment. These methods are utilized for both in- and out-patient therapy.

Aversion in the treatment of children. Electro-shock has been applied with autistic, and occasionally with retarded children, in conjunction with other techniques such as material reinforcement (e.g., Lovaas and Koegel, 1972; Lovaas and Simmons, 1969; Risley, 1968; Ball, 1975). In early research, Lovaas tried to make human contact rewarding to autistic children by putting them on an electrified grid; in order to escape, they had to run into the psychologist's arms.

Shock has been used more extensively and efficaciously to suppress self-destructive autistic behavior. Based on the hypothesis that self-mutilation is an attention-seeking act, researchers (e.g., Wolf *et al.*, Lovaas, 1969) initially ignored the behavior in order to extinguish it. Unfortunately, the extinction period turned out to be quite long and dangerous. However, Lovaas found that shock applied immediately following self-destruction rapidly eliminates it. When this is accomplished, the therapist can begin building speech and social responses.

Aversion in the treatment of adults. Aversive techniques have been employed in adult mental health settings to treat alcoholism, drug addiction, sexual inversion and perversion, and sometimes smoking (Shaeffer *et al.*, Hedberg and Campbell, 1974; Feldman and McCulloch, 1971; Tinling, 1972; Wilson *et al.*, 1975). Substance abusers may receive aversion therapy while hospitalized in order to be detoxified, but the other types of clients are generally treated on an out-patient basis.

Patients who submit to aversive treatment usually do so voluntarily. (However, it is open to question how free hospitalized patients are to refuse.) With substance abusers, their drug is paired, as closely as possible, with either electric shock or vomiting induced by emetine. Shock is the normal course when doing aversive treatment with sexual deviates. Smokers, who are a less stigmatized population, merely have to smoke many cigarettes in succession or to smoke in a hot, clammy, close room, instead of being shocked.

It is currently recognized that unless aversive treatment also involves an opportunity to learn and engage in appropriate behavior, it is unsuccessful; and some researchers question whether the aversive component contributes anything to treatment success. Thus alcoholics more recently have been trained in ways other than drinking to cope with difficult situations (Sobell and Sobell, 1975). Homosexuals have been treated by some therapists utilizing behavioral rehearsal and assignments in heterosexual responses. Other behaviorists (Feldman and McCulloch, 1971) have employed a treatment paradigm allowing anticipa-

tory avoidance. That is, patients can avoid shock which follows the presentation of a slide of an attractive male in the treatment procedure, by switching to a slide of a woman.

One could speculate that the propensity of behaviorists in mental health settings to use shock might, in part, be a consequence of the availability of the necessary equipment in the treatment facility if it is a hospital or medical clinic. In addition, the evidence of careful attention to treatment design is partly a result of the hospital context where both norms and regulations support such precision. However, it is also a function of the training of the psychologists who engage in this treatment in mental health settings.

### Aversive Techniques in Schools

Aversive methods are not used in school settings. When behaviorists must respond to unacceptable behavior, there are two generally employed techniques, "time out" and "response cost," and occasionally a third, reprimands.

"Time out" entails isolating the subject immediately following unacceptable behavior. Specifications for the "time out" environment are that it should be devoid of positively reinforcing qualities for the target and should serve the function of depriving the individual of the opportunity to earn positive reinforcers. The amount of time spent in "time out" varies according to the program context, but usually it is a matter of minutes.

"Response cost" requires the subject to forfeit part of his previously earned reward as a punishment for unacceptable behavior. Thus a child in a token economy might be fined a specified number of tokens for hitting another person.

Reprimands are self explanatory. Because the utilization of corporal punishment in schools is no longer universally acceptable, it would be surprising if one found techniques any more aversive than these being utilized in classrooms.

### Aversive Techniques in Corrections

Aversive strategies are not to be found in juvenile programs. Instead, interventionists employ "time out" and "response cost" in much the same way as in education. However, time out periods tend to be longer and "response cost" seems to be relied upon more heavily. Both of these differences reflect attributes of the target population. Delinquents are seen as deserving harsher treatment than children presenting problems in school.

In contrast, aversion has been utilized in adult corrections, controversially, if not extensively. Several instances of utilization have been reported in the California penal system. One of the institutions, Atascadero, is technically a hospital, but it is for the criminally insane, incarcerated sexual deviates, and mental patients too violent for regular facilities.

Three types of aversive methods were employed in the California programs: electro-shock to the genitals of sexual deviates; administration of anectine (a powerful but temporary muscle relaxant which can induce death if the person fails to receive oxygen) for aggressive and otherwise troublesome patients; and "shame aversion therapy." This last technique was employed with voyeurs, frotteurs, transvestites, and pedophiles, and requires that they engage in their perversion in front of mental health workers. This circumstance usually leads to an interruption in the act (Spece, 1970; Serber, 1972). However, it was ineffective when used alone. When accompanied by training in heterosexual behavior, it led to a reduction in deviant responses.

In all of these cases, inmates' rights received little consideration. In the work at Atascadero, patient consent was not solicited. At another institution, Vacaville Prison, consent was not informed because inmates were told only that the treatment would cause "no permanent damage." Further, these programs tend to be methodologically very imprecise. To illustrate, no attempt was made to pair the aversive stimulus with the prohibited act in the first two strategies.

The extreme lack of consideration for the rights of the target population and lack of care in implementation contrast sharply with the utilization of aversive strategies in mental health. The reasons for this difference lie partly in the treatment contexts, most of which are maximum security environments. In addition, prison psychologists and psychiatrists who arrived at these strategies were devising them at the behest of the prison administrations and did not have the autonomy found in the other "megabureaucracies." Further, the therapists were not genuine behavior modifiers, and lacked skill and knowledge in the methodology.

Characteristics of the target populations for aversive techniques. I have reserved for final consideration the attributes of target populations on whom aversion is practiced: autistic children, substance abusers, sexual deviates, and assaultive prisoners. These groups seem to have two types of common characteristics that lead to the utilization of aversion. First, they have been unresponsive to other forms of intervention; therefore, aversive methods might be regarded as the treatment of last resort. Second, they are

all defined as grossly deviant by society, and consequently treating them inhumanely can be sanctioned. One can argue that although autistic children differ diagnostically from the other groups who have all been psychiatrically defined as having character disorders, they nevertheless should be classified as highly deviant. To a caring adult, the frustration of trying to work with a child who is totally unresponsive, as well as being self-mutilating, self-stimulating, aggressive, and mute, is so great that electric shock suggests itself as the route to go.



SUMMARY TABLE FOR CHAPTER IV--  
HOW BEHAVIOR MODIFICATION HAS BEEN EMPLOYED

Mental Health

Children

CONCRETE REINFORCEMENT

TOKEN ECONOMIES

Closed settings

1. Food used on an in-patient basis with autistic and retarded children to reinforce speech and social behavior

1. Infrequent in closed settings with mentally ill children, but often used with retarded children

Open settings

2. Parent mediated tangibles and privileges employed with emotionally disturbed, behavior problems and developmentally deficient children in their homes

2. Occasionally used in out-patient groups and as a strategy for parents to use with children

Adults

Closed settings

1. Occasionally employed with hospitalized psychotics; privileges used with in-patient anorectics to reward weight gain

1. Extensively employed in hospital backwards to reinforce self-care behavior

Open settings

2. Taught to adults who are out-patients as a method to use with others and employed in a reciprocal way in marital treatment

2. Not found in out-patient treatment of adults, but sometimes used in day treatment and sheltered settings

Schools

Pre-schoolers and exceptional children

1. Food and tangible rewards used with pre-schoolers and exceptional children

1. Often used with exceptional children, usually to reward academic performance

Elementary school children

2. Privileges most often employed when children are of elementary school age

2. Employed in regular classrooms, mainly to control behavior

Corrections

Youth

1. Parent or significant other mediates tangibles and privileges used in open settings to improve social and academic behavior

1. Found in maximum security units, training schools and group home settings to improve social, academic and chore behavior

Adults.

1. Not employed in adult corrections

1. Used punitively in maximum security units and in traditional facilities mainly to facilitate prison maintenance

SUMMARY TABLE FOR CHAPTER IV, cont'd.

<u>Mental Health</u>	<u>SOCIAL REINFORCEMENT</u>	<u>AVERSIVE TECHNIQUES</u>
Children	<ol style="list-style-type: none"> <li>1. Employed in conjunction with other methods with children in closed settings</li> <li>2. Often a child management strategy taught to parents for use on an out-patient basis</li> </ol>	<ol style="list-style-type: none"> <li>1. Sometimes used with in-patient autistic and retarded children to suppress self-mutilation</li> <li>2. Not used with children who are out-patient</li> </ol>
Adults	<ol style="list-style-type: none"> <li>1. Used in closed settings in conjunction with token economies and to reward special behaviors</li> </ol>	<ol style="list-style-type: none"> <li>1. Sometimes used to treat substance abuse, sexual inversion and perversion, and smoking, usually on an out-patient basis</li> </ol>
<u>Schools</u>	<ol style="list-style-type: none"> <li>1. Used to reinforce appropriate behavior in children with moderate behavioral deficits</li> <li>2. May also be used in conjunction with other strategies</li> </ol>	<ol style="list-style-type: none"> <li>1. Not employed in schools</li> <li>2. Use response cost, time out, and reprimands to cope with unacceptable behavior</li> </ol>
Youth	<ol style="list-style-type: none"> <li>1. Occasionally used in conjunction with other strategies with youth in open and closed settings</li> </ol>	<ol style="list-style-type: none"> <li>1. Not used in juvenile corrections; response cost and time out are</li> </ol>
<u>Corrections</u>	<ol style="list-style-type: none"> <li>1. Not found in adult corrections</li> </ol>	<ol style="list-style-type: none"> <li>1. Used on aggressive, assaultive, and recalcitrant prisoners and on sexual deviants</li> </ol>
Adult		

CHAPTER V: THE EXTENT OF ADOPTION  
AND INCORPORATION OF BEHAVIOR MODIFICATION  
IN HUMAN SERVICE ORGANIZATIONS

Finally, it is important to evaluate how stable and permanent the utilization of behavior modification is in these three "megabureaucracies." The majority of the programs discussed are still at the demonstration project or the demonstration and diffusion stage. As a result, outside funding is still an important factor in maintaining the behavioral interventions in most cases.

Nevertheless, there seem to be some clues that suggest the future of behavior modification in these human service organizations: (1) increasingly, educational programs teach professional and line staff how to use behavioral technology; (2) training manuals in the use of behavioral techniques have begun to appear; (3) publications about behavior modification possess certain characteristics which suggest enduring adoption of behavioral techniques (e.g., the large number of articles, the interventions described occur in regular human service organization settings, they are co-authored by someone indigenous to the setting or otherwise evidence extensive involvement of setting personnel, and the articles increasingly appear in correctional, educational, or mental health journals, rather than in behavioral journals); (4) the existence of large-scale or institution-wide behavioral interventions; and (5) the apparent infrequency of program death. These variables are differentially present in the three "megabureaucracies."

## Education and Training Programs

Provisions for training mental health personnel are uneven. On the professional level, while there is adequate opportunity for psychologists taking graduate degrees to receive training, behavioral technology is much less available to psychiatrists and social workers (Birk *et al.*, 1973). Academic institutions and independent behavior modification corporations are attempting to bridge the knowledge gap for both professionals and paraprofessionals through intensive courses, workshops, and in-service programs. For example, Keller (1971) reports on 140 social work practitioners who attended behavior modification workshops, 59 of whom strongly accepted behavior modification. Likewise, Frazier (1973) has attempted to develop methods for packaging behavioral techniques so that they are retrievable for professionals and paraprofessionals in psychiatric institutional settings. NIMH regional boards have sponsored training in behavior modification for mental health personnel (Rickart, 1971). Further, numerous paraprofessional training programs, mainly on-site, have been generated (e.g., Atthowe and Krasner, 1968; Ayllon and Azrin, 1968; Steffy *et al.*, Stein, 1975; Gardner, 1975; Mira, 1970). And finally, training manuals and articles on "how to do it" proliferate (e.g., Patterson and Guillon, 1968; Brown and Brown, 1975; Sundel and Sundel, 1975; Kazdin, 1973; Tanner and Parrino, 1975).

In the field of education, there is both in-service and regular curricular training for teachers. Although behavior modification is more likely to be part of the training of teachers of exceptional children, ordinary elementary teachers who have been surveyed have a positive attitude toward the technology (Musgrove and Harms, 1975). Indeed, behavioral strategies appear to be firmly entrenched in the teaching of exceptional children. Education laboratories at the Universities of Washington, Oregon, Kansas, and Illinois have developed behavioral teacher training materials for dissemination and instructional programs, and these are likely to endure.

There is a program of cassettes and reading material on behavior modification, part of the "Invisible College," developed by the Council for Exceptional Children (Bijou, 1972). And again, there is an abundance of training manuals for teachers (e.g., Fargo *et al.*, 1970; Harris, 1972; Homme, 1969, MacMillan, 1973; Benoit, 1975; Jones, 1975; McKeown, 1971; Lazar and Stodden, 1974).

In contrast, the training in behavior modification available to correctional personnel is limited. This observation needs to be understood in

the context of characteristics of correctional staff. First, unlike teacher training or mental health training, preparation for work in corrections is not a discrete course of study. Psychologists and psychiatrists who end up in corrections are indistinguishable from others in their professions during their education, so that they would not have had specific courses in behavioral techniques for use in corrections. Secondly, the correctional system has the lowest percentage of professionals of all the human services (Sarri, 1976). Most of the personnel are correctional officers, who are not required to have special professional preparation, behavioral or otherwise.

There have been some interesting exceptions to this overall absence. When the Case projects were operating, Cohen and Goldiamond (1967) ran a national workshop for administrators, head teachers, and others in correctional settings under the jurisdiction of the Bureau of Prisons and the Department of Health, Education, and Welfare. The workshop saturated its participants and their institutional settings with information about the Case projects. In a somewhat different vein, Wolf and colleagues developed a one-year educational program for certifying "teaching parents" to staff behavioral group homes as a means of disseminating the Achievement Place model. In addition, they established a Ph.D. level curriculum for producing professionals to train people as group home staff. Finally, there have also been efforts to teach behavior modification to probation officers (Jesness, 1975).

#### Characteristics of Journal Articles

In both mental health and education, the volume of publications is staggering. In contrast, the number in corrections is small; I found only about 50. Further, whereas examples of utilization in schools and mental facilities are reported in both behavior modification journals and in professional education and mental health journals, this is not often the case with correctional utilization.

In mental health and education articles, the strategies are to be found in rather mundane settings, for instance in ordinary classrooms and in mental institutions without academic connections. It is also apparent that regular staff are beginning to see the technology as their own. Articles are beginning to appear which are authored or co-authored by school principals, counselors, teachers, and case-workers (e.g., Broughton, 1974; Brown and Brown, 1975; Lazar and Stodden, 1974; MacPherson *et al.*, 1974; Copeland, 1974). More publications are appearing which are not dissertation research and which appear devoid

of obvious academic institutional origins. Likewise, utilization is now being reported without acknowledging advice or assistance from important academic behaviorists. These observations appear to hold for behavior modification in schools and mental health; however, there is little evidence for such a trend in the field of corrections.

Such fundamental differences in utilization in corrections when compared to education and mental health may reflect not only fewer correctional programs with indigenous support, but fewer correctional journals, fewer potential authors, and less in-house support for publication.

#### Large-Scale or Institution-Wide Use of Behavior Modification

The literature on innovation indirectly suggests that the large-scale, more complex innovation is more likely to endure. Complexity and lack of divisibility are barriers to implementation because they make reversibility more problematic. Therefore the existence of large, complex behavioral projects suggests long-term commitment to the technology. However, it is difficult to assess the extent to which there are behavioral innovations of such scale and influence as to have a lasting effect on the practice methods of participants, because only pieces of projects, rather than totalities, tend to be described in journal articles.

As a result, the number of programs which can be cited is quite small. Some of those described earlier meet the criterion. Token economy programs in institutions for the retarded--for example, those at the Rainier School and Parsons State Hospital--are of this order. So are some token programs with chronic schizophrenics, although with the increasing sophistication of psychotropic drugs and the emphasis on community treatment, backward populations are dwindling and are thus less available for large-scale programs. The degree to which their staff might carry over behavioral techniques into other employment contexts depends, in part, on how well they understand the strategy's underlying principles, beyond its specific applications in hospital settings. There are two other programs, one in mental health and one in education, which are of sufficient dimension to have a lasting impact.

In mental health, there are some thoroughly behavioral community mental health centers, the most full-blown example being the Huntsville-Madison County (Ala.) Community Mental Health Center. In 1971, then under the direct-

orship of William Goodson and A. Jack Turner, it received an NIMH grant to become comprehensive and behavioral. In initiating the program, all employees, including clerical, were given a two-week intensive training program in behavior modification, and thereafter treatment personnel received weekly supervision and skill development sessions. Staff pay was gradually made contingent upon utilization of the new methodology. (In the first year, turnover was 50%; now it is relatively low). Seventy-six percent of the therapists are paraprofessionals. Another characteristic of the program, which should enhance the acceptance of the technology, is its striking emphasis on evaluation, both cumulative and summative. Thus the director could report a 47% reduction in admissions to the state mental hospital for its catchment area after the first year of operation. Eighty-seven percent of the center's out-patients reached contracted therapy goals in an average of 4.2 treatment sessions. In the second year, 92% reached criterion in 6.1 sessions (Bolin and Kevins, 1974).

Turner (1973) reports that there are six other community mental health centers which have comparable programs. One that has been written up extensively is the BAM (Behavior Analysis and Modification) project at the community mental health center in Oxnard, Calif., initiated in 1972 (Liberman, DeRisi, and King, 1973). It has behavioral day-treatment, out-patient, and in-patient facilities and evaluation procedures similar to those of the Huntsville-Madison County center, although staff salaries are not contingent.

An education program which seems to be of the same order of scope and thoroughness, although quite different in content, is Project Follow-Through. This is enterprise funded, beginning in 1967 under Title II of OEO, as a sequel to Head Start. It was implemented in 20 low income elementary schools across the country, with 10,000 slow learners in kindergarten through third grade. The intervention package is comprised of two main components: programmed learning materials designed by Siegfried Engelmann (DISTAR<sup>tm</sup>) and behavior modification strategies developed by Wesley Becker in earlier work with disadvantaged children (Becker (ed.), 1974). The format provides for small group instruction, with teachers augmented by specially-trained paraprofessionals. There are completely prespecified daily lesson plans, weekly two-hour staff in-service training and supervision, parent involvement in the form of help with homework and a course in behavior modification, and continuous weekly and monthly monitoring and testing of childrens' progress, which is fed into a central computerized evaluation scheme. This evaluation

in turn, provides immediate feedback to local sites (Becker, 1972, 1975). As in the case of behavioral mental health centers, outcome data is very encouraging.

Finally, it should be noted that no correctional innovations appear to be of an order to have a lasting impact. It may be that the program at Kennedy Youth Center is of such dimensions, but that is open to question. Its program has many components other than the behavioral one. Further, shortly after the token economy was implemented, the Bureau of Prisons drastically reduced its reinforcer budget (from \$6 per boy per week to \$2), demonstrating their lack of commitment to the behavioral aspect of the program. No doubt, partly because of this cutback, the institution's administration began to shift emphasis from the token economy to differential treatment (a method of pre-classifying boys and tailoring intervention to their needs). The official publication about Kennedy Youth Center is entitled Differential Treatment ...the Way to Begin (1970), rather than a title having to do with behavioral technology. Finally, when Vinter and Sarri evaluated Kennedy Youth Center in 1972, staff rated counseling as the most important part of the program, and the token economy as secondary.

#### Program Deaths

Publishing the termination of one's program is not a good strategy for professional advancement. Therefore knowledge about program death is very incomplete. Yet there are some notable examples in adult corrections. All the aversive conditioning projects in California which have come to light have been phased out. In addition, as mentioned earlier, the token economy and correctional officer training project at Draper Correctional Center were terminated because the prison administrator found its goals counter to his own. Finally, the first and most controversial of the maximum security token systems--Start, in the federal facility at Marion, Ill.--was closed when the ACLU brought suit against it. However, two others remain in the federal system.

Programs also end when their funding runs out and no additional resources are sought or received. But this kind of demise is different from termination based on objections to the intervention. In any case, data on this kind of closure is very spotty.



SUMMARY TABLE FOR CHAPTER V--  
EXTENT OF ADOPTION AND INCORPORATION

Indicators of Innovation Acceptance	MENTAL HEALTH		SCHOOLS	CORRECTIONS	
	Children	Adults		Youth	Adults
1. Existence of curricular and in-service training	1. Found in psychology curricula but much less in psychiatry & social work		1. A regular part of the curriculum for teachers of exceptional children; less prominent in regular education curricula	1. Cannot distinguish the training of helping professionals who go into corrections from those who go into other fields	
	2. A substantial number of in-service efforts		2. A substantial number of in-service efforts	2. A few in-service training programs reported	2. Only one in-service found in literature
2. Characteristics of journal articles which suggest acceptance of behavioral technology	1. Many journal articles; found in both behavioral journals & those in mental health; a few are written by persons indigenous to adoptor settings		1. Great many journal articles; found both in behavioral & educational journals; a fair number written by persons indigenous to adoptor settings	1. Many fewer journal articles; found mainly in behavioral journals; written by academic behaviorists	1. Very few journal articles; several accounts or exposes in law journals
3. Large-scale or institution-wide use of behavior modification	1. Token economies in state & VA mental hospitals & institutional programs for the retarded		1. Project Follow-Through --a behavioral program in 20 inner city schools to teach 10,000 slow learners to read and do math	1. None could be identified	
	2. Community Mental Health Centers in which all programs are based on behavior modification				
4. Program deaths	1. None could be identified		1. None could be identified	1. Some discontinued when funding ran out	1. Several terminated most due to public outcry

## CHAPTER VI: SUMMARY AND CONCLUSIONS

The past two decades have witnessed a remarkable increase in the utilization of behavior modification strategies in the human services. This phenomenon is especially notable in mental health facilities, schools and correctional programs.

Among the many behavioral strategies which have been developed, concrete reinforcement (which may use food, non-edible tangible rewards, or privileges as reinforcers), token economies, and social reinforcement have been the most widely disseminated. A fourth strategy, aversion, warrants consideration, not because it has been extensively employed, but because its utilization has been so controversial.

A number of antecedent factors can be identified which have facilitated the refinement and spread of these behavioral innovations. One of these was the existence of target populations such as autistic and retarded children, schizophrenics and hard core criminals, with whom other intervention methods were unsuccessful. A second was the presence of certain organizational factors: large state universities with sufficient flexibility to allow behaviorists to develop their strategies, and the availability of settings such as state and VA mental hospitals, R&D labs for exceptional children, laboratory pre-schools, and psychological clinics where these innovations could be tried out. A third factor which facilitated diffusion relates to innovator characteristics; behaviorists were very inclined to collaborate on projects and to communicate their new ideas to others in the field. Further, to test their methods they frequently chose settings where their training and prestige afforded them a large measure of expert power. Finally, a number of characteristics of the innovations themselves can be identified as facilitators. They are relatively low cost innovations; they have a fair degree of compatibility; they have relative advantage; they lack complexity when compared to other behavior modification strategies, and they are divisible and reversible. The effect of these antecedent factors varies somewhat depending upon which of the human services, mental health, education, or corrections is under consideration (see summary table at end of Chapter III).

Actual behavioral programs vary depending upon which human service organization utilizes them. Within these three "megabureaucracies," a number of variables influence the nature of the behavioral program instituted. These variables include whether the target population is adult or child, the diagno-

sis or label of the group, whether the setting is open or closed and whether the innovator is an academic behaviorist or a regular employee of the user system.

The general findings with respect to the four innovations are as follows. When concrete reinforcement is employed with younger, regressed and retarded targets in mental health facilities and schools, the rewards are more likely to be food or non-edible tangible reinforcers. With older children in those settings, privileges tend to be used. Concrete reinforcers are not ordinarily employed with adults except in out-patient marital treatment, where therapists attempt to establish reciprocal exchanges between partners.

Token economies have been widely utilized in structured settings in all three of the human services. They are found with hospitalized adult mental patients, children in regular and special classrooms, and in juvenile and adult correctional facilities. They are not often used with mentally ill children, nor with out-patient adults. And, in correctional programs, the more secure the institution, the more punitive and parsimonious the token economy.

Social reinforcement is employed in all settings except adult corrections where it would be antithetical to the ideology. It is used as the sole behavioral strategy mainly with children in open settings, who have only moderate problems. With delinquents and with children and adults in mental institutions it is applied in conjunction with more powerful methodologies such as concrete reinforcement.

Aversive methods are not employed in schools nor in delinquency treatment. However, they are sometimes employed with both adult and young mental patients in selected diagnostic categories: autistic and retarded children, substance abusers, and sexual deviants. In adult corrections a number of aversive strategies have been employed to punish assaultive, aggressive, and recalcitrant prisoners. (For a more detailed summary, see table at end of Chapter IV.)

It is important to consider the extent to which behavior modification has been truly accepted by its adopter agencies. At this point one can only indicate signs of stability of the innovation. These include evidence of training programs in behavior modification for professional and line staff; some characteristics of journal articles such as their number, who authors them, where they are published, which can indicate acceptance by user agencies; the existence of large-scale behavioral innovations; and the absence of program

termination. On the whole, mental health and school programs rate positively on these factors, whereas there is an opposite pattern in adult corrections. (For more detail, see summary table, Chapter V.)

Finally, there are some conclusions which can be drawn concerning the future of the four innovations. Certain of these appear more efficacious than others and of more utility in particular settings.

Concrete reinforcement, particularly non-edible rewards (the use of food being primarily an artifact of translating animal strategies to humans) and privileges, will remain in the behaviorist's repertoire. Specifically, concrete reinforcement will continue to be employed with children within the context of family treatment, and privileges will be utilized by classroom teachers.

Token systems promise continued superiority as a treatment method with the retarded in closed settings, and will no doubt persist on back wards as long as those exist. However, attempts at token systems in open settings will probably decrease because they are too cumbersome to administer in such environments.

Social reinforcement, because of the ease with which it can be manipulated, is potentially the most useful behavioral technique disseminated thus far. It is likely to be incorporated systematically in teacher training programs. Unlike other behavioral strategies, social reinforcement does not arouse the antipathy of mental health professionals as something impersonal and mechanistic. Therefore, a variety of personnel in the human services will probably come to use it, in conjunction with other interventions, with a range of client populations.

In contrast, aversive techniques will diminish and may be dropped altogether. The only situation in which they are clearly efficacious is the suppression of autistic self-mutilation. It remains to be seen whether other, less punitive methods currently being refined (e.g., Repp and Dietz, 1975), will replace aversion.

To summarize, it is apparent that at least some behavioral innovations will not only endure in education and mental health, but will enhance these services. However, strategies attempted in adult corrections are either dead or dying, while the prognosis for behavior modification innovation in juvenile programs is unclear.

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