CENTURY PSYCHOLOGY SERIES

The Token Economy

A Motivational System for Therapy and Rehabilitation

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Appleton - Century - Crofts
Division of Meredith Corporation

669-2

Library of Congress Card Number: 69-12160

PRINTED IN THE UNITED STATES OF AMERICA
E 04310

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Editors

Preface

This book is addressed to practitioners who deal with behavioral problems in an institutional setting, such as nurses, recreational therapists, vocational therapists, rehabilitation counselors, ward supervisors, cottage mothers, teachers of the retarded, special education teachers, psychiatrists, social workers, applied psychologists, and applied sociologists. The book assumes no background in psychology.

The names of the patients discussed in this book have been changed to conceal their identity.

There are a number of people to whom we would like to express our appreciation. First, we would like to thank Dr. P. Bailey, formerly Director of Research for the State of Illinois, Department of Mental Health, for his assistance in the conception of this work and his encouragement throughout its duration. Dr. R. C. Steck, Superintendent at Anna State Hospital, provided the administrative arrangements and the encouragement under which the program could be conducted. We were privileged to have his constant support throughout our project. We are also indebted to Dr. I. Pavkovic, who served as an interim Superintendent, during part of our project. Countless individuals at Anna State Hospital also contributed to our work. Because of space limitations we can make special mention of only a few: Mr. Isaacs, who offered expert advice on the daily administration of a hospital unit; Chaplain Otto, for his invaluable contribution to our study of religious services; Mr. Cain of the Dietary Department, who offered his cooperation and that of his staff for the conduct of studies associated with his department; Mr. Wynn, whose cooperation made possible the use of the hospital laundry.

Much of the credit for this work goes to the 45 attendants who participated at different times in the work described in this book. We are particularly grateful to Mrs. Dorothy McClelland, R.N., who gave much of her time and talent to our project. She not only

instructed attendants in the conduct of each procedure but also assisted in the supervision of the procedures as conducted by the attendants. We also want to express our appreciation to Mrs. Margaret White, who started initially as an attendant, later worked as a laboratory assistant, and finally became data analyst for the project. Many were the times when she was called upon to lend a hand in one of her various roles, and she did so with great efficiency.

At different stages of the project we were fortunate to have the professional advice and suggestions of Dr. Goldiamond, Dr. Dylrud, Dr. O. Lindsley, Dr. C. Ferster, Dr. J. P. Brady, and Dr. S. Rosenzweig.

John McHale and Maurie Ayllon gave many suggestions and much needed encouragement in the initial stages and during the more difficult stages of writing. Various parts of the first draft were read by Dr. J. Henderson, Leonard Feingold, Alice Harmon, and Floyd O'Brien. Jay Powell, Ron Bittle, Judy Houseman, and Gladys Stark compiled the bibliography and assisted in the general preparation of the manuscript. Dr. Hake, Dr. Hutchinson, Dr. Miller, and Dr. Rubin of the staff of the Behavior Research Laboratory at Anna State Hospital gave advice at various stages of the research program. We also wish to thank our editor, Prof. K. MacCorquodale.

This investigation was supported by the Psychiatric Training and Research Fund of the State of Illinois, the Mental Health Fund of the State of Illinois Department of Mental Health, and NIMH Grant 4926.

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Contents

First they tell you you're wrong, and they can prove it. Then they tell you you're right, but it's not important. Then they tell you it's important, but they've known it for years.

Charles F. Kettering

CHAPTER 1

Introduction

THE MENTAL HOSPITAL AS AN APPLIED LABORATORY

A state mental hospital is a severe testing ground for any theory of human behavior. Almost every conceivable behavioral difficulty can be seen there, often in its most extreme form. Senile disorders, neurological disorders, adolescent problems, employment problems, sexual difficulties, addiction, alcoholism, general disculturation, intellectual retardation, and neuroticism converge and interact in one community. To gaze upon this multiplicity of disorders and problems is to be overwhelmed by a sense of hopelessness and helplessness. Any simple answer that one might consider for the problems of one patient seems irrelevant for other patients. Theories of human behavior which have seemed so relevant in treating neurotics, such as psychoanalysis and nondirective therapy, flounder when encountering the institutionalized psychotic. It seems that every type of explanation has already been proposed, applied, and found wanting in its general application, including psychotherapy, group dynamics, recreation therapy, vocational therapy, drug therapy, etc. One feels compelled to do something—anything—to assist this forsaken segment of humanity. One might feel that if only the individual could be made to "talk out" his problems, then some cure might be achieved. Yet, a large segment of the patients will not listen, much less respond, to any conversation. How can we achieve

therapy by having the patient reach an insight into the meaning of his hallucination when there is not even sufficient motivation for him to listen to the therapist? How can a vocational therapist pry a patient loose from his psychosis by interesting him in learning a vocational skill when it is not even possible to interest the patient in eating to stay alive? Where does one begin in imparting a sense of personal identity and worth to a patient that has been incontinent for 10 years? How can "loss of social feeling" be responsible for the difficulties of the mongoloid girl whose gaze is continuously fastened on the attendants for some small sign of social approval and social attention; rather, her extreme social dependency appears to constitute an additional problem for her.

Various diagnostic categories have been proposed for creating some order out of this chaos, but the illustrative textbook case is rarely to be found. Who is to know whether the mental state of the young lady is that of paranoid persecution as the case history states when the young lady has not yet been heard to utter a word? Consider the gentle old motherly lady who has been classified as a schizophrenic but whose only problem seems to be her refusal to be discharged, a refusal strengthened by her family and society's unwillingness to accept a 70-year-old who has been absent from society for 20 years. Why is she in the hospital? How did she ever get here to begin with? The official records give no indication.

Psychologists and psychiatrists alike have fled from this graveyard of psychological theories, leaving only a small but extremely dedicated group of psychologists and psychiatrists to deal with these problems. The ratio of patients to psychologists or psychiatrists in a mental hospital, where the need is greatest, is often in the order of 1000 to 1. Yet the patient who is well enough to come to a psychologist's office in the middle of an urban metropolis at the appointed time surely does not suffer from the type of problem which disables the mental hospital patient for whom confinement is necessary.

Society has been influenced by the same considerations that affected the psychologists and psychiatrists and has usually placed the mental hospital in a geographically remote and inaccessible place where it need not be confronted with a problem with which it cannot cope. State mental hospitals are usually located at a great distance from any metropolitan area in much the same way, and probably for the same reason, as are prisons. The psychologist or

psychiatrist who is sufficiently dedicated to attempt to deal with the disorders of mental hospital patients suffers, then, from the additional sacrifice that he must himself remain geographically and culturally isolated while doing so.

Due to the scarcity of psychologists and psychiatrists, those who are in the hospital are often unable to devote any of their time to problems of treatment. Instead, they are often caught up in the administrative urgencies of the hospitals, the discharge of which leaves little time to practice the therapeutic and research skills in which they were trained. Because the isolated clinician can devote only a small part of his time to therapeutic and research endeavors, he usually selects those problems and patients that will derive the greatest benefit. The most commonly treated and studied patients in the mental hospital are likely to be those who have already had some skill in a vocation, are educable, are under 45 years of age, have an intact family situation to which they may be returned, communicate readily and coherently, and have no obvious neurological or physical debility as a corollary of their behavioral disorder.

The great majority of patients still remain untreated. Recent statistics indicate that the median age of state mental hospital patients is approximately 65 years. This means that half of all patients in state mental hospitals are at such an advanced age that vocational opportunities are almost totally lacking and family ties have usually been broken. Even if there were nothing wrong with them, it would be difficult to discharge them into the outside world, since the outside world has no place for them. The longer these patients remain in the mental hospital, the more severe their behavioral problems seem to grow. One currently hears the phrases "hospitalism" and "institutionalization," which describe a state of apathy and lack of motivation that is acquired by a stay at a mental hospital. The hospital community is usually geared to providing the biological necessities of life, and perhaps some minimal level of recreational opportunities, but the overall relationship is a parasitic dependency in which the patient need not function in order to obtain most, if not all, of the activities or privileges that might still be of interest to him.

The large mental hospital is a testing ground for psychological practices as well as theories. Any general procedure that is found to be effective with the great range of problems encountered in a

mental hospital will probably find great applicability in many different disciplines concerned with human behavior. A method of controlling the aggressive outburst of a destructive patient would seem to have great relevance for the control of criminal behavior outside of the hospital. Similarly, a procedure that could motivate a vegetative psychotic who has been hospitalized for 20 years might be appropriate for motivating a high school dropout to return to school. A procedure that motivated a withdrawn patient to seek out the company of other patients will probably have some relevance in building social habits in school children. A course of action which enabled a congenitally retarded child to function in some fashion should surely have some message for developing improved methods of teaching a normal child the multiplication table in a more efficient manner. From this point of view, the mental hospital provides a challenging opportunity to devise totally new psychological and educational procedures in spite of the adversities that such an environment seems to present.

OBJECTIVES AND SCOPE OF THE RESEARCH PROGRAM

The basic objective of the research program which this book describes was to design a motivating environment based upon reinforcement theory, specifically operant reinforcement theory. The central feature of operant reinforcement theory is that behavior is greatly influenced by the changes that the behavior produced in the environment. We can designate these environmental changes that result from a response as the consequence of the response. When a favorable consequence results from a behavior, this is called positive reinforcement. The effect of this favorable consequence is that the behavior increases. Many specific relationships have been discovered regarding the principle of positive reinforcement, including statements about the immediacy of the reinforcement, the amount of the reinforcement, the importance of the response requirement, etc. The principle of positive reinforcement tells us that if we wish to increase some desired behavior, then favorable consequences should

be arranged for that behavior. Conversely, the principle states that if one does not arrange favorable consequences for a behavior, then that behavior will be relatively infrequent. If a behavior has been producing favorable consequences, and then these consequences are discontinued, the process is called extinction. The Law of Extinction states that a previously reinforced response will decrease in frequency if the reinforcer is no longer produced by the response. Studies of extinction reveal that the decrease in frequency of the response will depend on how long it has been since the behavior has been reinforced. A behavior for which a favorable consequence has only recently been discontinued will have decreased only slightly in frequency. A behavior for which the favorable consequence has been discontinued for a long period of time will have decreased greatly. Similarly, the effectiveness of a reinforcing event depends on the amount of time for which the reinforcer was used. If a reinforcer has been arranged for a response on only one or two occasions, there will be relatively little increase in the frequency of the response; but if the favorable consequence has been arranged continuously, then a substantial increase will occur in the rate of the response.

Any attempt to influence behavior can be considered as involving two aspects: one of which is to increase desired behavior; the other, to decrease undesired behavior. It can be seen that the Laws of Reinforcement and Extinction provide a method of achieving both of these objectives. Whenever one desires to increase the frequency of a desired behavior, the Law of Reinforcement provides a concrete procedure for doing so, just as the Law of Extinction provides a concrete procedure for producing a decrease in an undesired behavior. The overall objective of this program was, then, to design a motivating environment in which the two principles of reinforcement and extinction would operate at maximum effectiveness in producing the desired behaviors and eliminating the undesired ones.

The Laws of Reinforcement and Extinction have been verified in their broad outlines by almost every major learning theorist. Guthrie (1935) and Spence (1956) are two theorists that have stressed the contiguity aspect; Hull (1943) and Miller (1951), the drive reduction aspect; Mowrer (1950), contiguity as well as drive; Skinner (1938), the functional aspect of the behavior; and Thorn-

dike (1935), the confirmatory aspect of stimulus-response relationships. In spite of these differences in emphasis, all of these theorists have confirmed the above statements regarding the behavioral effects of reinforcement and extinction. The generality of the Laws of Reinforcement and Extinction has been shown with many different types of animals, with different types of animal behavior, and with simple human behavior, for example, the verbal learning of Thorndike (1931) and Greenspoon (1955), as well as the nonverbal learning of simple motor responses by investigators such as Lindsley (1956), Bijou and Orlando (1961), and Long et al. (1958).

The knowledge that the theory of reinforcement has extensive experimental support is in itself of little value in suggesting specific means of designing a complex motivating environment that will achieve treatment and education. Virtually all studies of reinforcement theory have used very simple responses, such as having a person press a button or call out a word. Even clinical applications have selected responses that are simple ones, such as thumbsucking or a nervous tic. How can the theory of reinforcement be used to modify the complex varieties of behavior that one desires in a therapeutic or educational program? The same problem exists in regard to the use of reinforcers in designing a motivating environment. The reinforcers used in past reinforcement studies of humans have been extremely simple and usually tangible items such as cigarettes or candy. A motivating environment that intends using many of the complex human motivations can scarcely restrict itself to such simple tangible items. The previous research also provides little information on how to use reinforcement theory in a complex and fairly naturalistic environment. Most of the studies of reinforcement theory have taken place in laboratory situations or in a room where the individual has been isolated from others. Also, how should the responses be recorded and how should the reinforcers be delivered? In previous applications of reinforcement theory the simplicity of the response has permitted the use of automatic recording devices to record the frequency of the behavior. Yet, the complexity of the behavior being studied in a total motivating environment such as a hospital ward would seem to preclude the use of many automatic recording devices. Similarly, even though previous studies have used automatic devices to deliver the reinforcers, the complexity of reinforcers in a total motivating environment pre-

cludes the use of automatic devices for delivering the reinforcers. It is small wonder that reinforcement theory has not previously been applied to the design of complex human motivating environments.

Reinforcement theory uses terms such as response, behavior, reinforcer, and extinction which seem to have obvious theoretical relevance to problems of human behavior. But how does one translate each of these terms in such a way that the reinforcement procedure can be applied to complex human behaviors and complex human reinforcers? The reader will understand the lack of assurance that the authors felt when we initially embarked on our objective of designing a motivating environment that had therapeutic objectives and would be capable of dealing with the myriad aspects of behavior disorder encountered in a mental hospital.

The explanations of behavior provided by Freud in terms of the ego, superego, and id are familiar to all of us, as are the more specific explanations regarding the defense mechanisms of identification, sublimation, projection, and reaction-formation. Reinforcement is conspicuously absent as a central concept. Nor is the principle of reinforcement given any great weight in the self-actualization explanation of Rogers (1951), the cognitive dissonance explanations by Festinger (1957), the need-for-achievement motives of McClelland et al. (1953), the positive and negative valences of Lewin's (1935) field theory, or the many other explanations in terms of personality traits, attitudes, values, and social status. It seems, then, that most psychological theories of human behavior attach little importance to reinforcement as a major cause of complex behavior. Rewards, to be sure, are recognized in most of these theories as a possible factor, but they are not entitled to the importance attributed to the other factors listed above. A reasonable conclusion might be that a motivating environment based on reinforcement would exert little or no effect on complex human behavior.

The only conclusive way of determining whether the Laws of Reinforcement and Extinction can be used as the basis of designing a complex motivating environment is, of course, to try it. Before we could attempt it, however, procedures had to be developed to answer such questions as the following:

How does one go about selecting and specifying the behaviors that are to be dealt with in a motivating environment? What behaviors should one deal with? Is it possible to simultaneously deal

with complex behaviors and yet have some objective and standardized way of measuring them? How should the choice of the behavior that one elects to deal with in the motivating environment be governed by factors outside of the motivating environment?

How does one go about discovering what is reinforcing for a large group of people, knowing in advance that every individual differs in his preferences from every other individual and differs with respect to his own preferences at different times? Also, how can one discover reinforcers for individuals who are nonverbal or who will not for some other reason verbalize their preferences?

Given that one has discovered some reinforcers, how can one maximize the effectiveness of the reinforcer? How does one avoid problems of satiation? How does one avoid problems of reinforcers competing with each other? How does the individual know that the reinforcer is available?

How can one arrange for reinforcers to follow a response when immediacy of the reinforcer delivery is impracticable in an overall behavioral program?

How can one record whether a behavior has been performed properly without going through the impracticable procedure of continuously observing the patient? How should the responsibilities be divided up for the staff as well as for the patients? What kinds of procedures can be developed to assure the delivery of reinforcers without using automatic devices?

How does one teach a new behavior that was not previously in existence?

Reinforcement theory has one great advantage over other types of theories of human behavior as a model for answering the above questions. The very definition of a reinforcer involves environmental change. It follows, therefore, that an application of reinforcement theory will stress environmental events that can be directly measured and controlled. In contrast, other theories of behavior which rely on perceptions and cognitions as the primary explanations must attempt to control these perceptions and cognitions if they wish to modify behavior. The emphasis on these inner mental states does not readily suggest what types of environmental changes should be made.

The authors' combined experience imparted a feeling of general competence in applying the principles of reinforcement to new