

INFORMATION TO USERS

This was produced from a copy of a document sent to us for microfilming. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help you understand markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure you of complete continuity.
2. When an image on the film is obliterated with a round black mark it is an indication that the film inspector noticed either blurred copy because of movement during exposure, or duplicate copy. Unless we meant to delete copyrighted materials that should not have been filmed, you will find a good image of the page in the adjacent frame. If copyrighted materials were deleted you will find a target note listing the pages in the adjacent frame.
3. When a map, drawing or chart, etc., is part of the material being photographed the photographer has followed a definite method in "sectioning" the material. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.
4. For any illustrations that cannot be reproduced satisfactorily by xerography, photographic prints can be purchased at additional cost and tipped into your xerographic copy. Requests can be made to our Dissertations Customer Services Department.
5. Some pages in any document may have indistinct print. In all cases we have filmed the best available copy.

University
Microfilms
International

300 N. ZEEB RD., ANN ARBOR, MI 48106

PREVIEW

8208383

Smith, Alfred Lloyd, Jr.

DIFFERENTIAL REINFORCEMENT OF OTHER BEHAVIORS AS A WARD
MANAGEMENT TECHNIQUE FOR AGGRESSIVE, RETARDED WOMEN

The University of Nebraska - Lincoln

Ph.D. 1981

University
Microfilms
International

300 N. Zeeb Road, Ann Arbor, MI 48106

PREVIEW

PREVIEW

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy.
Problems encountered with this document have been identified here with a check mark ☒.

1. Glossy photographs or pages _____
2. Colored illustrations, paper or print _____
3. Photographs with dark background _____
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy _____
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages ☒ _____
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) _____ lacking when material received, and not available from school or author.
12. Page(s) _____ seem to be missing in numbering only as text follows.
13. Two pages numbered _____. Text follows.
14. Curling and wrinkled pages _____
15. Other _____

University
Microfilms
International

PREVIEW

DIFFERENTIAL REINFORCEMENT OF OTHER BEHAVIORS AS A WARD MANAGEMENT
TECHNIQUE FOR AGGRESSIVE, RETARDED WOMEN

by

Alfred L. Smith, Jr.

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Philosophy

Major: Interdepartmental Area of Psychological and
Cultural Studies

Under the Supervision of Professor Robert W. Filbeck

Lincoln, Nebraska

December, 1981

TITLE

DIFFERENTIAL REINFORCEMENT OF OTHER BEHAVIORS AS A WARD MANAGEMENT
TECHNIQUE FOR AGGRESSIVE, RETARDED WOMEN

BY

Alfred L. Smith, Jr.

APPROVED

DATE

<u>Robert W. Filbeck</u>	<u>December 8, 1981</u>
<u>Robert D. Brown</u>	<u>December 8, 1981</u>
<u>David N. Dixon</u>	<u>December 8, 1981</u>
<u>Erwin H. Goldenstein</u>	<u>December 8, 1981</u>
<u>John A. Glover</u>	<u>December 8, 1981</u>
<u>F. J. Menolascino</u>	<u>December 8, 1981</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

SUPERVISORY COMMITTEE

GRADUATE COLLEGE

UNIVERSITY OF NEBRASKA

ACKNOWLEDGMENTS

After years of effort in pursuit of this degree, appreciation is extended to the many individuals who have assisted and supported me in this endeavor. These people include the members of my committee who provided guidance and encouragement: John A. Glover, Robert D. Brown, David N. Dixon, Erwin H. Goldenstein, Frank J. Menolascino, and, especially, Robert W. Filbeck. Appreciation is also given to the many professors who contributed to my education and growth as an individual. A very special thanks is given to Allen T. Dittmann whose knowledge, wisdom, and love have strengthened me along the way.

Finally, my deepest appreciation is given to my wife Betty and son Nathan for their tolerance and patience with me.

A.L.S.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.	1
Problem Background	4
Research Questions	5
Organization of the Remainder of the Dissertation. . .	6
II. LITERATURE REVIEW	8
History.	8
Incompatible Responses	10
Stimulus Control	12
Extinction and Punishment.	19
Psychoactive Agents and Maladaptive Behavior	25
Care Staff	29
Aggression	31
Research Hypotheses.	35
III. METHODOLOGY	37
Selection of Subjects.	37
Staff Inservice.	39
Instrument Development	41
Setting.	41
Observers.	42
Procedures	42
Dependent Variable	44
Analysis of Data	44
IV. RESULTS	46
Template Analysis.	46
Psychoactives versus Non-Psychoactives	55
Clinical Analysis.	59
V. DISCUSSION.	63
Study Limitations.	69
Suggestions for Further Research	69
Conclusion	70
REFERENCES.	72
APPENDIX A - Outline of Staff Inservice on DRO.	78

	PAGE
APPENDIX B - Response Totals for a.m. and p.m. Observation Periods.	80
APPENDIX C - Data Recording Sheets.	126

PREVIEW

LIST OF TABLES

TABLE		PAGE
1	Means and Standard Deviations of Aggressive Responses per Housing Unit per Time Period.	47
2	Difference in Means and Percentages of Change in Rate of Responding per Housing Unit and Time Period.	54
3	Psychoactives versus Non-Psychoactives Subgroup Means . .	56
4	Differences in Means and Percentages of Change in Rate of Responding for Subgroups.	58
5	Percentage of Changes and Differences in Total Response Frequencies from Baseline to Treatment Periods for Individuals Having Increases in Aggressive Responding . .	60
6	Percentages of Change and Differences in Total Response Frequencies from Baseline to Treatment Periods for High Aggressive Individuals Having Decreases in Aggressive Responding	62

LIST OF FIGURES

FIGURE		PAGE
1a	Comparison of Plotted Group Daily Response Totals to the a.m. Template.	48
1b	Comparison of Plotted Group Daily Response Totals to the p.m. Template.	49
2	Comparison of Plotted Group Means per Time Period to Revised Template for a.m. and p.m. Observation Periods	50
3	Plots of Group Means per Time Period for a.m. Treatment Conditions and p.m. Continuous Baseline Periods for Each Housing Unit	53
4	Comparisons of Psychoactive and Non-Psychoactive Subgroups' Means per Time Period for a.m. and p.m. Observation Periods	57

CHAPTER 1

INTRODUCTION

The purpose of this study was to examine the utility of Differential Reinforcement of Other Behaviors (DRO) as a management strategy for the suppression of maladaptive antisocial behaviors among mentally retarded persons in an institutional setting. The importance of this study stems from Title XIX and the Joint Commission on Accreditation of Hospitals requirements that individuals with developmental disabilities live in facilities where the overall level of care is maximized. In providing such care, the least restrictive alternative in habilitation is given primary consideration and individual rights are protected.

Despite such constraints, new and additional demands are being placed on psychologists who work with intellectual and emotionally handicapped individuals in state, local, and private institutions. Such demands include responsibility for designing and implementing management systems for staff, residents, or clients that incorporate psychological principles, techniques, and strategies for behavior change and maintenance (Christian, 1981; Griffith, 1980).

Residential institutions for the mentally retarded represent one of the many settings in which such demands are made, especially when one considers the maladaptive behaviors of aggression and self-injurious behavior (SIB). Aggression and SIB among mentally retarded persons residing in institutional and private settings present a situation in

which infringement on the physical well being and rights of self and others is frequently possible.

Behavioral techniques used for correction that are aversive in nature (e.g., time-out, electro-shock), while being effective, are least preferred because of potential side effects (Homer & Peterson, 1980). In addition, such procedures do not represent the least restrictive alternative in the habilitation of developmentally disabled persons.

DRO, however, is a promising behavioral technique that is considered a least restrictive alternative because it is based on reinforcement principles. DRO may be defined as, "contingent use of positive reinforcement to increase the frequency of behavioral alternatives to a targeted behavior" (Frankel, Moss, Schofield, & Simons, 1976, p. 843).

In the DRO procedure a zero rate of responding of the target behavior leads to reinforcement after a specified period of time. The behavioral alternative (response) is not specified. Differential Reinforcement of Low Rates (DRL) differs from DRO in that the target behavior is allowed to occur below a predetermined criterion of responding for a specified period of time (Martin & Pear, 1978). Homer and Peterson (1980) note that DRO and DRL are functionally the same procedures with the exception being a zero criterion of responding in DRO.

Another intermittent reinforcement procedure which is often contrasted with DRO is "differential reinforcement of alternative responses" (DRA). In the DRA procedure, reinforcers are provided only

for pre-specified incompatible responses (Homer & Peterson, 1980).

Residential institutions for the mentally retarded are constantly the target of criticism from virtually all the major forums of debate within society (Risley & Favell, 1979). Yet, institutions for the mentally retarded will continue to be a necessity for the following populations: "first, those who are profoundly retarded and multiply handicapped, and second, those who are violent and dangerous to themselves and others" (Risley & Favell, 1979, p. 22).

Rather than focusing on the inadequacies of institutions for the handicapped, this study was an evaluation of an effort to improve the "quality of life" for the mentally retarded resident who is especially aggressive and self-abusive. The study also sought to measure the effects of increasing caretakers' awareness in preventative strategies that correct maladaptive behavior at a very early point or at onset.

Issues concerning service delivery are seldom data-based (Swenson, Seekins, & Anderson, 1979). Reasons for this lack of data in decision making are usually related to institutional constraints. These constraints almost always preclude manipulation of variables and ethical considerations associated with use of nontreatment control groups (Swenson et al., 1979). In evaluating a management program that uses a behavioral technique such as DRO that would have the effect of increasing corrective interactions between caretakers and residents in settings for the mentally retarded (Ivancic, Reid, Iwata, Faw, & Page, 1981), evaluation efforts should focus on the effectiveness of

variations of a treatment modality.

In the present study, questions concerning the efficacy of a signaled DRO procedure versus a traditional DRO procedure for rapidly eliminating aggressive responses were of major concern. In other words, does a signaled DRO procedure facilitate the reduction of aggressive responses by aiding the resident in behavioral discriminations better than a DRO procedure where signals are absent?

An evaluation effort that addressed this issue would aid in the development of interventions for public institutions and private facilities where similar problems are encountered. Finally, if the program were successful, it would lend support for the idea that the DRO procedure is a practical intervention that allows caretakers to complete their time-consuming responsibilities while providing interactions which are corrective in nature to the residents they serve.

Problem Background

The need for the present study was based on the conditions in two housing units (H.U.) of profoundly and severely retarded young women at the Beatrice State Developmental Center, located in Beatrice, Nebraska. All of the women possessed histories of aggressive behavior, either toward themselves or others (staff and/or peers). Both H.U. population composites had either been formed by an interdisciplinary team, intra-unit referral, or administrative decision.

The usual staff-to-resident ratio per H.U. at the Beatrice State Developmental Center is two staff members per 16 residents.

However, in the present study, this ratio was two staff members per 12 residents in housing units one (H.U.1), and two staff members per 15 residents in H.U.2. The staff-to-resident ratios were a function of several factors: vacancies due to placements into community-based programs, and the lack of appropriate candidates (peers that would live well together).

Attempts to deter aggressive behavior through individualized behavior management programming and/or psychoactive medications proved to be unsuccessful. In H.U.1, in particular, the rate of staff injuries related to aggressive behavior on the part of residents was over 50 percent of the total reported for the building during the first quarter of the year. Resident injuries related to aggressive interactions among peers and SIB emitted that required use of restraints comprised 100 percent of the total reported incidences for the same period.

Research Questions

The first question to be addressed concerned the utility and durability of DRO as a management system for residential care units. Would DRO, applied systematically for a response class of behaviors (aggressive), be an effective form of behavioral suppression? The second question asked whether the pairing of DRO with verbal instruction would be more effective in reducing aggressive responses than DRO alone in the suppression of behavior. Third, would behavior changes generalize to time periods when programmatic reinforcement is not provided? Finally, would residents for whom psychotropic medications had been prescribed show a significant decrease in aggressive behavior with the implementation of a behavioral intervention

and would such reductions be similar to those for whom psychoactives had been terminated or for whom they had never been prescribed?

Organization of the Remainder of the Dissertation

The organization of the remainder of this dissertation will consist of four parts, Chapters II through V.

Chapter II consists of a review and discussion of relevant literature, especially as it pertains to the use of DRO. Initially, the historical development of the use of DRO is examined. Extensive discussion is given to the role of stimulus control in behavior change and various other stimulus control paradigms, in addition to the DRO paradigm. Other techniques of behavioral suppression including psychoactive drug regimes are described and contrasted with DRO procedures. Difficulties encountered in implementation of behavior change programs in institutions relative to care staff variables are discussed. The final section is devoted to stating the research hypotheses under investigation.

Chapter III describes the methodology used in this study, including a discussion of subjects, procedures, treatments, instrumentation, variables, and analysis of the data.

Chapter IV is a presentation of the results of the study and answers to the evaluation questions.

The final chapter, Chapter V, is a discussion of the research findings. This discussion includes an interpretation of results and an examination of the study's implications and limitations. Areas of

further research are suggested, along with conclusions that can be drawn from this investigation.

PREVIEW

CHAPTER II

LITERATURE REVIEW

History

Differential Reinforcement of Other Behavior (DRO), also referred to as Omission Training (OT), has origins in laboratory experiments with animals (e.g., Homer & Peterson, 1980; Konorski, 1948; Reynolds, 1961; Woods, 1974). The procedure was first described by Konorski (1948) and, according to Woods (1974), resulted from simultaneous study of established classical and instrumental responses.

Woods wrote:

. . . . A salivary response in dogs was classically conditioned to a metronome. Then, occasionally, at the same time the metronome was activated, the dog's leg was passively flexed. On these trials food was omitted, while on trials with the metronome alone and no leg flexion, food was continued. The animal's reaction to this was not only to resist the flexion but to actively extend his leg in so doing. (p. 591)

It was observed that the dogs actively engaged in a behavior (extending their legs) that was antagonistic to flexion and further that this behavior was strengthened. What is implied is that the organism may engage in neural responses necessary for making behavior discriminations of various aspects of the stimulus configuration (Woods, 1974).

In the operant literature, Reynolds (1961) was the first to coin the term Differential Reinforcement of Other Behavior. He investigated the effects of reinforcement schedules and extinction procedures on changing rates of responding (pecking) of pigeons following

the presentation of different stimulus conditions. First, he determined that the rate of responding established under one stimulus condition would either increase or decrease as a function of a different stimulus situation. Reynolds called this change in the rate of responding behavioral contrast. Secondly, he observed that the rate of responding on a variable interval (VI) schedule, given a different stimulus situation did not increase when preceded by intervals of no responding. Additional conclusions were that reinforcement for not responding increased incompatible behaviors; that these incompatible behaviors decreased the rate of the targeted behavior in the stimulus situation in which they were conditioned; and finally, that new incompatible behavior can be reduced by simple extinction when reinforcement (DRO) is eliminated.

Several authors (Uhl, 1974; Uhl & Garcia, 1969; Weiher & Harman, 1975) preferred to make a distinction between DRO and OT related to the experimental operations involved and the assumed underlying process of each procedure (Uhl, 1974). Uhl's distinction was difficult to understand since procedurally DRO and OT are synonymous (Weiher & Harman, 1975).

Uhl and Garcia (1969) described the OT procedure as involving two temporal parameters which identify dependencies between behavior and reinforcement. Uhl (1974) identified these parameters as,

. . . a post response interval which sets the time that reinforcement is postponed after emission of the last response, and a interreinforcement interval which sets the time between reinforcements if no response intervenes. (p. 512)

Uhl (1974) maintained that in OT, "operationally, reinforcement is dependent strictly on time elapsing in the absence of a specified response, and no programmed dependencies exist between any other specific behavior and reinforcement" (p. 512). Any behavior other than acts which are attenuated because of increased time intervals between instances is conequated.

The argument proposed by these authors represents the creation of a moot point. In the DRO procedure, Homer and Peterson (1980) stated that the subject is reinforced according to an inter-reinforcer interval, provided the target response does not occur during the specified time period. However, each time the target response does occur a new postresponse interval begins. These two intervals may assume different values or remain the same. Although the term DRO implies that other behaviors are being reinforced, the subject is actually being presented a reinforcement for not emitting the target behavior (Homer & Peterson, 1980). Hence, after close examination, the conclusion to be drawn is that DRO and OT are procedurally and theoretically the same. For purposes of this study, the terms DRO and OT will be used interchangeably.

Incompatible Responses

Central to Reynolds' (1961) findings is the role that the competing response played in the suppression of the pecking behavior.

According to Ferster, Culbertson and Boren (1975):

Probably the effectiveness of the DRO schedule derives from the reinforcement of some behaviors incompatible with

emitting the previously reinforced performance. Thus, performances like facing the rear of the cage or climbing toward the ceiling of the cage are more likely to be reinforced because they are incompatible with pressing the lever. Behaviors in which the animal might engage, in the vicinity of the lever, are not likely to be reinforced because they might occur simultaneously with pressing the lever which would postpone the next delivery of food. (p. 72)

It is important to note that in the above example, behaviors were not specified for reinforcement, but they did share a common characteristic in that they occurred in place of lever pressing. Hence, a DRO does, in effect, specify a group of behaviors that are reinforced. The defining characteristic is that they do not include lever pressing (Ferster, et al., 1975).

Competing behaviors that are reinforced as a function of a DRO procedure should not be confused with a reinforcement of an incompatible response procedure, although there are certain theoretical similarities. While reinforcement of an incompatible response procedure may appear to be a feasible alternative to obtaining a reduction in a targeted response, there are certain methodological and/or technical problems associated with this type of response suppression. Ferster, Culbertson, and Boren (1975) stated:

An incompatible performance might occur right after the first few instances of nonreinforcement of the undesired performance and continue at a high rate after the first few presentations of the reinforcer. In a technical sense, this means that the undesired performance still has a high probability of occurrence in this stimulus situation when the incompatible performance is not occurring because the extinction procedure involving withdrawal of reinforcement was not carried out. Thus, it may take much longer for the undesirable performance to decrease in frequency since it is only occasionally (when the incompatible response is not occurring) not reinforced. (p. 82)