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Signature Maryna Raye Olson
Date May 6, 1971

DECELERATION OF A BLINDISM USING LINDSLEY'S BEHAVIORAL MODIFICATION

by

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A professional paper submitted to the Graduate Faculty in
partial fulfillment of the requirements for the degree

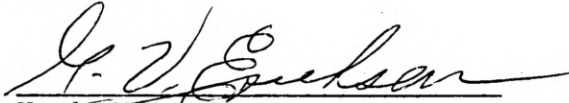
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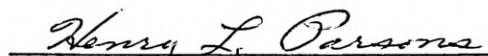
with concentration in

Secondary Education

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Head, Major Department


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MONTANA STATE UNIVERSITY
Bozeman, Montana

June, 1971

ACKNOWLEDGMENT

The researcher wishes to express heartfelt appreciation for assistance received in the accomplishment of this professional paper:

1. To Robert J. Deming, principal of the Blind Department at the Montana State School for the Deaf and Blind, for offering his total cooperation and personal encouragement while the research was being conducted.

2. To Raymond Beck, School Psychologist of the Great Falls Public School System and Coordinator of the Behavioral Modification Program, for his professional guidance in the design of the behavioral modification program used in this research.

3. To Dr. William Findley, Director of Special Education of the Great Falls Public School System and Project Director of the Behavioral Modification Program, for providing information on related research.

4. To G. V. Erickson, Montana State University advisor and Head of the Department of Secondary Education, for his superior guidance in writing this professional paper.

5. To Richard, a very understanding husband, for his patience and encouragement.

TABLE OF CONTENTS

	Page
LIST OF TABLES.	vii
LIST OF FIGURES	viii
ABSTRACT.	ix
Chapter	
1. INTRODUCTION.	1
STATEMENT OF THE PROBLEM.	2
NEED FOR THE STUDY.	3
QUESTIONS TO BE ANSWERED.	4
GENERAL PROCEDURE	4
LIMITATIONS	5
DEFINITION OF TERMS	5
Academic Performance.	6
Blind	6
General Attentiveness	6
Head-shaking Episodes	6
Lindsley's Behavioral Modification.	6
MSDB.	8
SUMMARY	8
2. REVIEW OF LITERATURE.	10
SKINNER'S OPERANT CONDITIONING.	10
Application to Classroom Teaching	10

Chapter	Page
BEHAVIORAL EXPERIMENTS RELATED TO OPERANT CONDITIONING. .	11
LINDSLEY'S BEHAVIORAL MODIFICATION.	13
Theoretical Basis	13
Operational Procedures.	14
Success of Behavioral Modification.	14
TYPICAL MANNERISMS OF BLIND CHILDREN.	17
MODIFICATION OF A BLINDISM.	18
SUMMARY	19
3. PROCEDURES.	21
CASE STUDY TREATMENT.	21
Pre-modification Phase.	21
Modification Phase.	22
Post-modification Phase	25
METHOD OF COLLECTING DATA	26
REVIEW OF QUESTIONS TO BE ANSWERED.	26
METHOD OF ORGANIZING AND ANALYZING THE DATA	27
SUMMARY	27
4. CASE STUDY RESULTS.	29
PERMANENT RECORD DATA	29
OBSERVATIONAL DATA ON HEAD-SHAKING EPISODES	30
STANFORD ACHIEVEMENT TEST SCORES.	32
STUDENT'S GENERAL ATTENTIVENESS	32

Chapter	Page
SUMMARY	34
5. CONCLUSIONS AND RECOMMENDATIONS	36
CONCLUSIONS	36
RECOMMENDATIONS	38
LITERATURE CITED.	41

LIST OF TABLES

Table	Page
1. Summary: Behavioral Management Steps.	15
2. Reasons for Detailed Behavior Records in Behavior Modification	16
3. Changes in Time Intervals and Chip Requirements Throughout the Modification Phase.	24
4. Comparison of Scores on the Stanford Achievement Tests . .	33

LIST OF FIGURES

Figure	Page
1. Number of Head-shake Episodes Per Day.	31

ABSTRACT

This study involved an investigation of the effects of Dr. O. R. Lindsley's Behavioral Modification on a twelve-year-old boy's blindness described as head-shaking. It was of interest to note any increase in the student's general attentiveness or improvement in his academic performance after deceleration of the head-shaking. The Stanford Achievement Test was used as the means for measuring academic performance.

The case study treatment was carried out in three phases. During a two-week pre-modification phase, the child's head-shaking episodes were observed for 480-minute school days and recorded. Background data, obtained from the child's permanent records, was reviewed, and a modification "program" designed according to this and observational data after consultation with a psychologist. The student himself had a part in designing the fine detail of his program. During the nine-week modification phase, chips and social praise were used as positive reinforcement for the absence of head-shaking for increasing periods of time. Consequences were also established for not earning a minimum number of chips each day. A tactual graph was made for the child to follow his own progress in decelerating his number of head-shaking episodes per day. The Stanford Achievement Test was administered during pre-modification and again during post-modification.

During the pre-modification phase, an average of 28.3 head-shaking episodes were recorded. These episodes were reduced to an average of 3.4 times during the modification phase and to 1.6 during post-modification. General attentiveness after deceleration of the head-shaking seemed to increase, however, the Stanford Achievement Test scores showed no trends at all toward the improvement of academic performance. It was concluded that Lindsley's Behavioral Modification was successful in decelerating the head-shaking blindness of this one child, and with the more recent emphasis upon student self-charting, should offer a promising means for teachers of blind children to modify many kinds of blindnesses.

Chapter 1

INTRODUCTION

Behavioral problems in the classroom have long been a concern to educators. Whatever the problem, the misbehaving child is usually paying less attention to his academic tasks than required for maximum learning. Among psychologists of learning and educators, "attention" has come to be considered essential to learning. Teachers report that those children having difficulty attending many times exhibit response deficits in academic tasks, placing even heavier emphasis on attention as a crucial consideration in the instructional environment (Haring, 1968).

In the past, psychologists attempted to solve behavioral problems by searching for the cause of behavior. Even if the behavior could be explained, there were no immediate remedies for the classroom teacher. For example, a teacher can know that many behaviors of a problem child are exhibited as a result of a bad home environment. Despite this knowledge, however, a teacher cannot change the home environment. The classroom teacher needs some practical method of assessing behavior and modifying it in the normal classroom situation.

Based on the works of free operant conditioners, such as B. F. Skinner, a method of behavioral modification was devised by Dr. O. R. Lindsley and his associates at the Child Research Center, University of Kansas Medical Center. Lindsley proposes that severe behavioral pro-

blems, requiring a psychiatrist's attention, might be avoided by training classroom teachers and parents in the use of behavioral modification (Holzschuh and Lindsley, 1966).

Several programs, operating under Lindsley's Behavioral Modification concept, have been initiated throughout the United States with remarkable success. Behaviors successfully modified have been of tremendous variety.

"Blindisms" are types of behavior characteristically exhibited by a large number of blind children. They include mannerisms such as eye-poking, head-shaking, and body-rocking, which are believed to be means of self-stimulation. These blindisms quite often interfere with a student's attentiveness in the classroom, and so teachers of the blind have struggled to decelerate or eliminate them. Behavioral modification might possibly offer these teachers a refreshing method of attacking blindisms which other methods have failed to modify.

STATEMENT OF THE PROBLEM

Teachers of the blind are faced with behaviors known as "blindisms", which often interfere with a student's attentiveness in school. The problem of this study was to investigate the effects of Lindsley's Behavioral Modification on one twelve-year-old blind boy exhibiting a blindism described as head-shaking. Since the head-shaking appeared to interfere with attentiveness in school, it was of interest in this case

study to note any increase in attentiveness or academic performance should the behavior be decelerated.

NEED FOR THE STUDY

Little research has been conducted in the field of education for the blind which would aid the classroom teacher in managing the behavior of visually handicapped youngsters. This lack of research is particularly discouraging for describing means of modifying typical "blindisms" which so frequently interfere with the attentiveness of students to important tasks in school.

Experts in the field of the visually impaired insist that a visual handicap does not make a child totally different from his seeing peers. It therefore would seem that a concept such as behavioral modification should be as successful on blind children as it has been on the sighted.

By conducting an intensive case study on one twelve-year-old blind boy at the Montana State School for the Deaf and Blind using Lindsley's Behavioral Modification to decelerate a blindism, it was hoped that other classroom teachers of the blind would be motivated to try this technique. Hopefully, one day a technique such as Lindsley's will eliminate the threat of blindisms which have long interfered with student attentiveness.

QUESTIONS TO BE ANSWERED

1. Will Lindsley's technique for modifying behavior in the classroom decelerate the head-shaking behavior of this one twelve-year-old blind boy?
2. Will the student's general attentiveness to school tasks increase if the head-shaking decreases after modification?
3. Will the student's scores on the Stanford Achievement Test, given after behavior modification has been tried, show more growth in achievement (over the scores from the test given prior to modification) than normally expected just from lapse of time between the two tests?

GENERAL PROCEDURE

The problem was approached by means of a case study conducted by the researcher on the twelve-year-old blind boy. The student's records of past academic and behavioral performance were reviewed, and a psychologist was consulted in the design of the behavioral modification program to be used. The Stanford Achievement Test was also given prior to beginning modification, and the student's number of head-shaking episodes per school day was recorded.

A program of reinforcement was designed with the use of chips to decelerate the head-shaking behavior. Consequences were also established for not earning chips. Tactual graphs were made of the number of daily head-shaking episodes, so that the student could follow his own

progress. Social reinforcement was given the student for not initiating head-shaking throughout modification.

Reinforcement in the form of chips was no longer given after the modification program was terminated; consequences were also withheld. Social reinforcement continued, as did recording and graphing of any head-shaking episodes.

LIMITATIONS

Since this research was conducted as a case study, the results apply directly to one student. The setting for modification of the head-shaking behavior was the Montana State School for the Deaf and Blind, which may or may not be a "typical" residential school for the blind. There were no experimental controls for eliminating the effects, other than that of the behavioral modification program, which might have contributed to decelerating the head-shaking. The evaluation made of the student's general attentiveness following deceleration of the head-shaking was made subjectively by teachers and dining hall supervisors. Any change in scores on the Stanford Achievement Test from the test given prior to modification to the test given after modification could not be correlated directly to the effects of decelerated head-shaking.

DEFINITION OF TERMS

For the purpose of this paper, the following terms have been

described as they were intended by the researcher:

Academic Performance

This term refers to the improvement of the student's scores on the Stanford Achievement Test above that expected in the time lapse between the test given prior to modification and the test given after modification.

Blind

For the purpose of this paper only, the term means no vision, as opposed to "legal blindness", which can mean some vision.

General Attentiveness

This student attribute referred to the apparent time spent "attending" to school tasks in the form of listening and appropriately responding.

Head-shaking Episodes

These episodes referred to a movement of the head from one side to the other in a continual manner, until someone reminded the boy to stop. Thus, for counting this type of continual behavior, an initiation of the head-shaking and the subsequent reminder to stop constituted "one head-shaking episode".

Lindsley's Behavioral Modification

Behavioral modification is a concept requiring the identifica-

tion of specific behavior, accurate measurement of the rate of its occurrence, and an exploration of the environmental events that are affecting the behavior. Modification may be focused at accelerating, decelerating, or maintaining a behavior and has been proven quite successful by Dr. O. R. Lindsley and his associates at the University of Kansas Medical Research Center. The basic working group is the management team composed of an advisor (professional in behavior analysis) who gives information to the manager (in this case, the teacher). There are three major phases to the behavioral modification program:

Pre-modification phase. This particular phase may also be referred to as the "baseline period". It is the time during which the behavior is pinpointed and defined in terms of its desirability to be accelerated, decelerated, or maintained. The behavior is counted for a certain period of time each day, and from this count a rate is computed and graphed to obtain a better picture of the behavioral situation. Events immediately preceding and following the behavior are carefully noted during this phase.

Modification phase. The advisor and manager of the working team together decide upon a program of positive and/or negative reinforcement to be used with the particular student. The student may also be encouraged to determine his own consequences. The behavior is still being recorded at this time, and evaluation of the effects of the

program is made particularly by the use of the graphs plotted.

Post-modification phase. During this part of the program, the program of modification is no longer in effect. Behaviors are still observed and recorded to determine if the child is maintaining the desired rate of behavior. If the behavior is successfully modified, the working team has completed its task; if the behavior is not modified, an alternate program is drawn up for trial.

MSDB

This abbreviation hereafter stands for the Montana State School for the Deaf and Blind.

SUMMARY

This case study on the effects of Lindsley's Behavioral Modification on decelerating the head-shaking blindness of a twelve-year-old blind boy was aimed at being a model for other teachers of the blind. It was hoped that the results would motivate teachers to try behavioral modification in their classrooms and especially to try it on typical blindisms which so often interfere with student attentiveness.

The procedure of behavioral modification used included pinpointing the head-shaking behavior, observing and recording the rate of its occurrence, designing a set of consequences for the behavior, designing reinforcements for its lack of occurrence, and finally phasing

out of the program as the behavior was decelerated. All procedures were carried out after consultation with a psychologist.

Chapter 2

REVIEW OF LITERATURE

In this chapter, a review of literature related to Lindsley's Behavioral Modification is presented. The reader will discern from the organization of this literature the historical development of the ideas encompassing Lindsley's approach to modifying behavior in the classroom. Included under the development of ideas are the theoretical basis and the relative success of behavior modification as it has been used to the present time. Since the behavior of interest in this study is considered a typical blindness, literature on this type of behavior will also be included. Finally, a study done on a blind girl with a similar behavioral problem to the student of this study will be reviewed.

SKINNER'S OPERANT CONDITIONING

B. F. Skinner is well known for his theory of "operant conditioning". According to this theory, behavior is contingent upon reinforcements which prevail in the environment. The theory also holds that the probability of a behavioral response occurring depends on the consequence for that response (Skinner, 1953).

Application to Classroom Teaching

Skinner has suggested the application of operant conditioning to classroom teaching. He feels that this application would be entirely natural, since teaching is the arrangement of contingencies of rein-

forcement under which students learn. Programmed instruction is one device that employs the concept of operant conditioning and has been adapted in many instances to improve learning. Skinner further proposes that teachers could better handle discipline problems by carefully analyzing misbehavior and its reinforcements. He suggests that the first step in any situation is to define the behavior that is desired from the student. Following the definition is the reinforcement of the desired response when it occurs and the prompting of it when it is about to occur. Finally, the reinforcement program must take place in a sequence of properly-sized steps.

According to Skinner, one of the tragedies of classroom teachers using operant conditioning is that few see what they achieve. They seldom hear long-range results because they lose contact with students. Then, too, positive reinforcement is often misused; sometimes the student's good will is more important to the teacher than his progress (Skinner, 1968).

BEHAVIORAL EXPERIMENTS RELATED TO OPERANT CONDITIONING

In the past ten years educators have been trying techniques in the classroom to control behavior based on operant conditioning. All studies reviewed by the researcher revealed high degrees of success.

One study of particular interest was conducted on a group of seven children who were one and two years behind academically as a

result of maladaptive behaviors. These maladaptive behaviors were described as being physically inappropriate (getting out of seats, talking-out, moving desks, etc.). The classroom teacher was assisted by a specialist in designing reinforcers contingent upon each child's appropriate behavior. Consequences were also assigned each child when inappropriate behaviors were exhibited. Results were extremely satisfying in that the percentage of deviant behavior decreased significantly for all children in their respective programs. One interesting aspect of this study was called the "ripple effect". The behaviors of other class members surrounding the seven experimental students improved at the end of the modification period also. It was indicated by the teacher conducting the study that further research needs to be done in relation to the numbers of children that can be affected in this type of situation. There was little question that all seven students gained from this experiment, since all were able to progress at a more rapid rate academically once their behaviors were modified (Boudin, 1967).

Another study done on a nine-year-old girl who had a talking-out in class rate of 37 per cent illustrates successful use of operant conditioning. The girl was required to wear a surgical mask for thirty minutes each time she talked out for ten days. The first time the masking was discontinued, the girl's talk-out rate had been reduced to 2.5 per cent; reinstatement of the masking reduced the talk-outs to zero per cent after four more days. During modification, the girl

received points for raising her hand before speaking, and the points were traded for time to do activities she most enjoyed. Points were accumulated only on a daily basis. The girl's academic work seemed to increase after modification of the talk-outs (Warren, 1965).

LINDSLEY'S BEHAVIORAL MODIFICATION

Theoretical Basis

Dr. O. R. Lindsley suggests that behavioral modification is a small part of a large trend. The trend is to shift from general or group statements about behavior to specific statements about individuals. Further, there is a change taking place from naming things to trying to change them. Close attention is now being paid to the real consequences of behavior instead of the antecedents or stimuli. Instead of asking, "What makes the child yell?", see the child as asking, "What do I get out of yelling?" Other shifts include those from indirect to direct measurement (actual behavior as witnessed rather than from test data) and from imprecision to precision in describing behavior. Lindsley does suggest that this individualized, specialized, precision approach to children will require a small child-manager ratio. Parents and teachers are in far better position to accomplish the task than psychologists or psychiatrists, since the ratio of children to them is 1:2,400 and 1:3,600 respectively. With parents and teachers using behavioral modification, small problems can be prevented from

becoming big ones (Lindsley, 1966).

Operational Procedures

Lindsley has so designed a program of behavioral modification that the classroom teacher or the parent might employ it with ease. The language is simple, the techniques easy to understand and the equipment minimal and inexpensive. The management team is the recommended working group. The team is headed by the advisor, a professional, who gives information to the manager, a parent or teacher. Most suggestions are based on free-operant analysis of behavior. Table 1 illustrates the steps typically used by the management team. Table 2 shows the empirically-determined reasons why recording of behavior is stressed (Holzchuh and Lindsley, 1966).

Success of Behavioral Modification

The Educational Research Laboratory of the University of Kansas, under the direction of Dr. O. R. Lindsley, reports overwhelming success with behavioral modification in the Kansas City area. One hundred per cent of the parents and teachers who tried Lindsley's prescribed suggestions improved a child's behavior by the third try. Eighty-five per cent succeeded on the first attempt. Records of success include cases such as the following: a junior high school boy cured his five-year-old sister of thumbsucking; a teen-age girl reduced the frequency of her boyfriend's swearing; a teacher found a method of helping a girl

Table 1

Summary: Behavioral Management Steps

Pre-modification phase	Modification phase	Post-modification phase
1. Precisely define child's behavior 2. Count the frequency and plot rate of behavior on a graph: $\frac{\text{Freq. of behavior}}{\text{Time observed}} = \text{rate}$ 3. Whenever possible, note what precedes the behavior and especially what comes after it	1. Modification plan in effect 2. Continue to count and record behavior 3. Graphic records are useful 4. Evaluate the effects of modification	1. Modification plan not in effect 2. Continue behavior-recording and graphical record 3. Evaluate: a) does the child's behavior maintain the desired rate b) is an alternate modification plan needed; if so try again

Table 2

Reasons for Detailed Behavior Records in Behavior Modification

1. Activities people concerned with the behavior problem as managers:
 - a. must look
 - b. must select
 2. Make clear what the behavior is
 3. Shows how severe the problem really is; picks up some undetected facts
 4. Makes clear very rapidly if the behavior really is a problem
 5. Helps select a method of change
 6. Occasionally the problem disappears
 7. Tells how the method selected to help is doing the job by:
 - a. detecting small changes
 - b. telling when you should try another
 8. Keeps attention focused on the problem
 9. Assesses the motivation of the participants
 10. Keeps a permanent record of behavioral history
 11. Allows concrete statements about the overall program effectiveness
-

reduce her speed in doing arithmetic and found another method of increasing her accuracy of performance; a housewife remediated a ten-year-old problem of fingernail chewing. Still other successes include elimination of hitting, talking-out, silly movements, bedwetting, and bad posture. . . just about anything one can imagine! The only recorded failures are the parents and teachers who refused to start, aborted their attempts to improve a child's behavior, or did not record their efforts at all (Holzschuh and Lindsley, 1966).

TYPICAL MANNERISMS OF BLIND CHILDREN

The inappropriate behavior which was the target of modification in this study would be described by Lowenfeld as a mannerism typical of blind children and better known as a "blindism". Lowenfeld, an expert in the field of education for the blind, lists some typical blindisms as being body-swaying, rocking back and forth, rapid head-turning, thrusting fingers into the eyes or mouth, and manipulation of the lips, ears, or nose.

According to Lowenfeld, the lack of stimulation is considered largely responsible for these blindisms. Thus, these acts are probably acts of automatic self-stimulation. It can be easily understood that a child who does not get enough impressions from the outside world will turn to his own body for stimulation and will continue to do this if he finds it satisfactory or pleasurable. It has been observed that when a

child grows older, he develops interest in a great variety of activities and usually supplants these mannerisms. Usually the mannerism disappears in the very early grades. It is not Dr. Lowenfeld's purpose to suggest that nothing be done about these behaviors. He notes that if these mannerisms do persist beyond the early grades and are notably interfering with a child's learning, methods can be employed to extinguish them. The parent or teacher is cautioned in making such an attempt, so that one behavior is not substituted for another (Lowenfeld, 1964).

MODIFICATION OF A BLINDISM

A case study was conducted on a ten-year-old girl who was congenitally blind in an effort to eliminate a typical "blindism". The blindism was described as head-rolling or rocking. The researcher in this study was not concerned with the causation factor but only the elimination of the mannerism. Using a behavioral modification approach based on free-operant conditioning, the girl was positively reinforced for not showing the head-rolling behavior and negatively reinforced when the behavior did appear. Specifically, the girl was offered thirty tokens by her teacher (the researcher) at the beginning of every week for a six-week period. The girl was subject to lose a token every time she initiated head-rolling. Tokens retained at the end of each week bought her free time the last period of the day; one token was

worth two minutes of free time. The girl could also earn "special tokens" each time she went for a specified length of time without initiating the head-rolling. The special tokens bought the girl gum and licorice.

After six weeks of conducting the experiment, the mannerism was significantly decreased. The girl initiated head-rolling an average of thirty-two times every twenty-five minutes, and each behavior lasted about twenty-five minutes prior to modification. After modification, the behavior decreased to thirteen times in twenty-five minutes, and the duration decreased to eight seconds. Using Z scores, the difference in both categories of initiation and duration were significant at the .01 level. Suggestions by the researcher included a continuation of this operant approach using different reinforcements and over longer periods of time (Maywalt, 1970).

SUMMARY

Studies based on ideas similar to those of Dr. O. R. Lindsley on behavioral modification date back to Skinner and his early theory of free-operant conditioning. Emphasis is placed on positive and negative reinforcements in the environment to obtain or eliminate a behavior. The trend is toward the recording of individual behavior and subsequent steps taken to change that behavior based on an exploration of environmental events affecting or that can be arranged to affect the behavior.

Individual studies have been successful to the present time.

An expert on the education of the blind classifies behaviors similar to the one in this study as mannerisms typical of young blind children and refers to them as "blindisms". Teachers and parents are advised to modify these mannerisms if they persist past the early grades and interfere with the learning process. Caution is to be taken, so that one behavior is not substituted for another.

The history of success with behavioral modification based on free-operant conditioning is long and encouraging. No precise data has been obtained on the degree of academic improvement made as a result of modifying forms of non-attentive behavior. The study by Maywalt revealed methods similar to those used in this case study, and the blindism modified was also of a similar nature.

Chapter 3

PROCEDURES

The problem under consideration in this study was to investigate the effects of Lindsley's Behavioral Modification on the head-shaking behavior of one twelve-year-old boy. The head-shaking, described as a "blindism", seemed to interfere with the student's attentiveness to school tasks. Any increase in the boy's general attentiveness or improvement in his academic performance after deceleration of the head-shaking was of interest in this study.

The steps of behavioral modification, the case study treatment used on the student, are outlined first in this chapter. Procedures for collecting background and experimental data will be given, followed by a review of questions to be answered. Finally, the methods of organization and analyzation of the data are presented.

CASE STUDY TREATMENT

Since this study involves one subject, no experimental control subjects were used. The case study treatment used was Lindsley's Behavioral Modification which has been widely successful with sighted children exhibiting maladaptive behaviors.

Pre-modification Phase

The first phase of the treatment continued for a two-week period during which the researcher (teacher) counted and recorded the number of

times someone had to remind the student to stop head-shaking each school day. Each new initiation after such a reminder was recorded as an additional head-shaking episode. Observation and recording took place 480 minutes out of each school day from morning breakfast to the evening dinner meal. Observation and counting were done by the researcher, other teachers, dining room supervisors, and peers. The first Stanford Achievement Test was administered during this phase, and the student's permanent records were examined for pertinent background data on his past academic, behavioral, and physical record. A psychologist was consulted after the pre-modification data had been gathered, so that a program of behavioral modification could be designed.

Modification Phase

The modification phase continued for a period of nine weeks. The only time limit placed on this study was the practicality of terminating it prior to Christmas vacation. The specific program designed for the student was put into effect during the modification phase.

The researcher first discussed the child's head-shaking behavior with him and explained that he would be helping to make a "special plan" for decreasing his head-shaking. The student was asked to make a list of things he enjoyed doing both in and out of school and a list of things he did not ever like to do. The first two weeks the child set a kitchen timer on his desk every fifteen minutes. Each time the bell of the timer rang, the child was given a plastic "chip" if he had not

initiated head-shaking at all during that period. Depending on the child's progress each week, the time intervals were either held constant or increased in length. The last week of the phase, for example, required the boy to set the timer for 120 minutes each time. Table 3 summarizes the changes which took place in the program throughout the modification phase. The child himself suggested that if he was caught a second time during any time interval, he would have to give the teacher back one of his chips. A card was also carried to each meal for the dining hall supervisors to initial if the student did not initiate any head-shaking during the meal. Each set of initials was redeemable for a chip. Chips were kept in a small plastic bag attached to the side of the student's desk, and at the beginning of each day they could be cashed in for any one of a number of reinforcers from the student's original list of things he liked most to do. Items on the list were such things as free time to listen to a talking book or read a library book, various field trips, coke with the teacher, candy treats, church on Sunday with the teacher, and dinner at the teacher's house. Each item had a different price tag on it, and chips could be accumulated for days at a time. A consequence was established from the child's list of undesirable activities to discourage any lack of effort to earn chips on a daily basis. Each week, again based on the student's progress, a minimum number of chips was required. Table 3 also summarizes the changes in weekly consequences. For each chip not earned under the minimum

Table 3

Changes in Time Intervals and Chip Requirements
Throughout the Modification Phase

Week	Time intervals of reinforcement	Number of chips possible	Chips required
1	15 minutes	28	10
2	15 minutes	28	15
3	30 minutes	15	10
4	30 minutes	15	10
5	60 minutes	9	7
6	60 minutes	9	7
7	60 minutes	9	7
8	60 minutes	9	7
9	120 minutes	4	5

number, the consequence was ten minutes after school with a special work assignment. An additional positive reinforcement for earning the minimum number was the earning of a nickel each day toward the student's weekly allowance. The price tags attached to each item on the list of reinforcers decreased gradually as the chance for earning chips decreased. Changes in the modification program were made only after consultation with the psychologist who acted as the advisor on the management team. Social reinforcement in the form of a positive comment and "pat on the back" was given the student throughout the modification phase. A tactual graph was made on a braille graph with the use of white glue which hardened to form the line of frequency of head-shaking episodes on a daily basis. The graph was shown to the student each day, so that he could follow his daily progress in decelerating the head-shaking.

Post-modification Phase

During this two-week period, the modification program previously described was no longer in effect. Counting and recording of behavior continued as well as the social reinforcement given the student for not initiating head-shaking. The tactual graph was still shown the student each day, he continued to get his meal card signed by dining hall supervisors, but he received no chips or money. Detention after school as a consequence was also discontinued. The Stanford Achievement Test was administered at the end of this phase for the second time.

METHOD OF COLLECTING DATA

Because this was a case study, it was necessary to attain as much information as possible on the twelve-year-old blind boy. One source of information was the child's permanent records. These were reviewed by the researcher and later taken into account when designing the program for modifying the head-shaking behavior.

The Stanford Achievement Test was utilized in estimating the student's change in academic performance from the time prior to modification to the time following modification. Buros (1959) contains many evaluations of the Stanford Achievement Test, and there is general agreement that it is a useful instrument. It is long enough to provide samples of knowledge necessary to attain substantial reliability. It compares favorably with its chief rivals such as the California Achievement Tests and the Iowa Test of Basic Skills. The median value of reliability quotients is .88 or higher.

Data on the student's number of head-shaking episodes per day was gathered by direct observation with the help of teachers, dining hall supervisors and peers. Each of these observers was asked to note any change in general attentiveness with a deceleration of the head-shaking.

REVIEW OF QUESTIONS TO BE ANSWERED

All data was collected with the following questions in mind:

1. Will Lindsley's technique for modifying behavior in the classroom decelerate the head-shaking behavior of this one twelve-year-old blind boy?
2. Will the student's general attentiveness to school tasks increase if the head-shaking decreases after modification?
3. Will the student's scores on the Stanford Achievement Test, given after behavior modification has been tried, show more growth in achievement (over the scores from the test given prior to modification) than normally expected just from lapse of time between the two tests?

METHOD OF ORGANIZING AND ANALYZING THE DATA

The information gathered from the student's permanent records was organized into a descriptive paragraph. Test scores before and after behavioral modification were placed in tabular form for comparison. Observational data on the number of head-shaking episodes per day was organized into a standard line graph. A duplicate of this line graph was made tactual for the student.

SUMMARY

The problem being investigated in this study involved the effects of Lindsley's Behavioral Modification on decelerating the head-shaking behavior of a twelve-year-old blind boy.

Lindsley's Behavioral Modification, the case study treatment,

was carried out in three phases. During the two-week pre-modification phase, the child's number of head-shaking episodes were observed and recorded. Background data on the child was gathered and a psychologist consulted in setting up a specific modification program for the student. The Stanford Achievement Test was administered during this phase. During modification, the specific program of reinforcement was put into effect. Social reinforcement, chips redeemable for special privileges, and money allowance were means of rewarding no head-shaking. Detention after school was the consequence for head-shaking more than a set number of times per day. Counting and recording continued throughout the modification phase, and changes were made in the program to fit the child's deceleration progress. Modification lasted a period of nine weeks.

During the two-week post-modification, recording of the head-shaking episodes continued but the modification program was discontinued. The child was given only social reinforcement for not head-shaking. At the end of this phase, the Stanford Achievement Test was again administered.

Data gathered was focused at answering questions concerning the success of Lindsley's approach in decelerating the blindism, increasing general attentiveness to school tasks, and improving the student's academic performance on the Stanford Achievement Test. Permanent record data and subjective evaluations of the child's attentiveness were organized into descriptive paragraphs. Test scores on the Stanford were placed in tabular form and observational data was placed on a line graph.

Chapter 4

CASE STUDY RESULTS

The problem of the study was to investigate the effects of Dr. O. R. Lindsley's Behavioral Modification in decelerating the head-shaking behavior of a twelve-year-old blind boy. It was of interest to note any increase in the student's general attentiveness to school tasks after deceleration of the head-shaking and also any change in the boy's academic performance (as measured by the Stanford Achievement Test) after modification of the head-shaking. This chapter presents the results of this study.

A descriptive paragraph summary of the student's permanent record data is given, followed by graphical data on the number of daily head-shaking episodes recorded throughout behavioral modification. Test scores on the Stanford Achievement Test, both before and after modification, are compared in tabular form. A subjective evaluation of the student's general attentiveness following modification of the head-shaking is presented in paragraph description.

PERMANENT RECORD DATA

The student's records revealed that he was born blind and had no other known physical handicaps. His intelligence quotient, as measured in January, 1968 by the Wechsler Intelligence Scale for Children was 80 and, as measured in December, 1969 by the Stanford-Binet, was 79. Both

reports by the psychometrist interpreted these scores as in the range known as "dull normal". Descriptions of his academic work by previous teachers included such terms as "inconsistent", "unstable", "below-grade level". Comments on the student's effort put forth in class included terms such as "inattentive" and "lacks concentration". Every progress report mentioned the head-shaking behavior and its apparent interference with concentration on school tasks. It was noted that the student was more disruptive in the classroom and in the dining hall at times when he was head-shaking. Numerous attempts to decelerate the head-shaking were reported; however, none led to any success.

OBSERVATIONAL DATA ON HEAD-SHAKING EPISODES

During the pre-modification phase of two weeks, the student was observed to have initiated an average of 28.3 head-shaking episodes per school day. The extent of the head-shaking movement was very exaggerated. The child's head moved to the right about four inches and to the left about four inches in a continuous manner. The first day of the nine-week modification had a recorded count of head-shaking episodes of only seven, and the count never again rose above thirteen throughout the modification phase. The average number of head-shaking episodes per day during this phase was 3.4. The head-shaking not only decreased in the number of times initiated, but the head movements were much less pronounced. The student's head moved no more than two inches to either

side when he was head-shaking. During the post-modification period, the average number of head-shaking episodes per day decreased still more to approximately 1.6. Head movements at the end of the post-modification period were barely detectable to the observer when they did occur. The student seemed to have the most difficulty keeping his head still during music class and in particular moments in the classroom. As the modification progressed, the student became more able to remind himself to stop head-shaking without someone else saying anything. Figure 1 summarizes in graphical form the data collected on the number of head-shaking episodes per school day. Days for which no count was recorded were "no-chance" days due to illness of the student or a vacation.

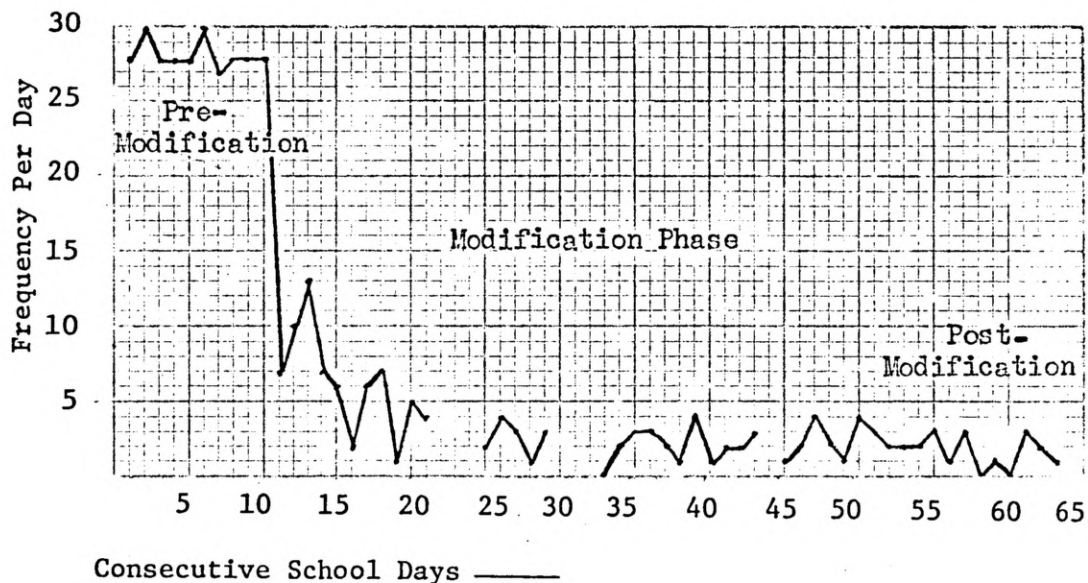


Figure 1

Number of Head-shake Episodes Per Day

STANFORD ACHIEVEMENT TEST SCORES

The first administration of the Stanford occurred on September 22, 1970, when the boy was twelve years and nearly two months old. The grade level he was just beginning was grade five. The second administration of the test took place after decelerating the head-shaking on December 11, 1970, when the boy was twelve years and about four months old. Thus, there was a time lapse of about ten weeks between the two tests. The results of both tests are summarized in Table 4. There were gains of between one and ten months in six testing areas on grade scores from the test given prior to modification to the test given after. There were even losses ranging from one to eight months in four areas of testing. Percentile rank showed gains ranging from four to twenty-six in four testing areas, losses between two and twenty-one in four areas, and stable scores in two areas. Stanine scores showed no change except for one drop from a four to a three and two gains; one gain from two to three and the other gain from four to five.

STUDENT'S GENERAL ATTENTIVENESS

The researcher noted a definite increase in the general attentiveness of the student as his head-shaking decreased. He was able to work for longer periods of time on a given task, and followed oral directions better than ever before. Because he spent more time doing

Table 4

Comparison of Scores on the Stanford Achievement Tests

Test Area	Grade score		Percentile rank		Stanine score	
	First test	Second test	First test	Second test	First test	Second test
Word Meaning	4.1	4.7	24	40	4	4
Paragraph Meaning	4.3	3.4	32	11	4	3
Spelling	4.1	3.8	22	14	3	3
Word Study Skills	2.4	2.8	4	12	2	3
Language	2.0	2.5	1	1	1	1
Arithmetic Computations	4.9	4.7	44	40	5	5
Arithmetic Concepts	4.3	5.4	26	58	4	5
Arithmetic Applications	3.9	4.1	18	18	3	3
Social Studies	4.1	4.2	18	22	3	3
Science	4.0	3.9	22	20	3	3

assigned work, he disrupted class much less frequently. The music teacher reported better behavior with deceleration of the student's head-shaking; however, it might be noted that head-shaking was the most frequent in this class than in any other throughout modification. The physical education teacher reported better cooperation when participating in activities in his class after head-shaking decreased. The typing teacher reported less class interruptions after deceleration of the boy's head-shaking. Dining hall supervisors perhaps noted the greatest improvement of all in the student's general attentiveness to the eating task. The boy began showing neater eating habits, better manners, improved social behavior and was rarely if ever the severe problem he had been prior to modification. The test administrator reported increased attentiveness to the task of taking the Stanford after modification of the head-shaking.

SUMMARY

The student's permanent records showed no other physical defects other than the visual handicap from birth. Intelligence test scores classified the student as "dull normal". Past instructors found the head-shaking extremely disruptive to the student's concentration, and there were no reported successes in modifying it.

After Lindsley's techniques were applied in the form of a behavioral modification program, the student showed a decrease in the number

of head-shaking episodes per day from an average of 28.3 during pre-modification to 1.6 during post-modification. The movement itself became less pronounced when it did occur.

Scores on the Stanford Achievement Tests showed some areas of improved scores, some of lower scores and some of no change from the test given prior to modification to the test given after modification,

There was general agreement by the student's teachers and dining hall supervisors that his general attentiveness to school tasks improved after deceleration of the head-shaking. The greatest improvement in attentiveness and general behavior occurred in the dining hall.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

This study was designed to investigate the effects of Dr. O. R. Lindsley's Behavioral Modification on decelerating the head-shaking blindism of a twelve-year-old blind boy. Another aspect of the study was to note any changes in the student's academic achievement (as measured by the Stanford Achievement Test) and further if his general attentiveness increased after deceleration of the head-shaking. This chapter presents conclusions drawn from the results of this study and also some recommendations for the future in the area of behavioral modification for the blind.

CONCLUSIONS

The student's head-shaking was successfully decelerated after application of a modification program based on Lindsley's Behavioral Modification. Deceleration from an average of 28.3 head-shaking episodes per day to 1.6 episodes per day was as much, if not more, of a success than numerous studies conducted on sighted children using Lindsley's approach. The child responded well to the treatment and had little difficulty making the transition from the modification phase to the post-modification phase of no reinforcements or consequences other than social praise or the lack of it. It is not known why music class offered the student more difficulty than other times in refraining from

head-shaking.

A comparison of the scores on the Stanford Achievement Test, given prior to modification, to the scores on the Stanford after modification failed to give any indication of improvement in academic achievement. The results showed an inconsistent difference between the two sets of scores; the scores on the test after modification were improved in some testing areas, lower than original scores in some areas, and stable in still others. Apparently the only thing the test scores represented was the student's inconsistency of performance. It is questionable whether testing over a longer time period would have shown any trends of improvement.

Results of decelerating the blindism were extremely gratifying in the area of the student's general attentiveness to school tasks. Comments from the student's daily contacts were, in general, positive toward the effects of behavioral modification on decelerating the head-shaking behavior.

The researcher found that using behavioral modification in this case study did not take up an unreasonable amount of teacher time. While conducting this case study, the other three classmates of the boy were also put on similar behavioral modification programs. Two students successfully established a daily habit of physical exercise for the purpose of losing weight. One student had an eye-poking blindism completely extinguished after modification. The twenty minutes of time

that it took each day to keep a graphical record of each child's frequency of behaviors was well worth the results obtained. The boy in this particular case study allowed the entire class more time to learn by being less disruptive. Even though there was no substantial proof that the student learned more when not head-shaking, it is certain that the reduced head-shaking made his chances of a learning gain far greater.

RECOMMENDATIONS

Dr. O. R. Lindsley's approach to behavioral modification has been extremely successful with all types of behaviors of sighted children. This case study has not brought to light any reasons for not using this approach on blind children.

The researcher had the opportunity of attending a workshop given by Dr. Lindsley just following the conclusion of this case study. Since the last literature was written on his concepts of modifying behavior, a great many new ideas have been added. One of these ideas is more emphasis on positive reinforcement and a de-emphasis of negative reinforcement. Another suggestion is the use of chips or tokens only for emergency situations, when behavior necessarily requires quick modification. Student self-charting has taken the place of tokens in providing positive reinforcement. A new emphasis has been placed on using a type of graph paper known as "six cycle logarithmic paper", because it offers

a clearer picture of relative changes in behavior, is more accurate in converting absolute data to relative data without computing, and provides more of a straight line of acceleration and deceleration as well as a homogeneity of variance. The advantages of using Lindsley's general approach in precision teaching has been shown. Precision teaching is a term that, in a sense, replaces behavioral modification in that application includes working with writing skills, problem-solving skills and other precise goals of teaching. We do not have to be confined to modifying behaviors, such as talk-outs, body movements, and other types of physical behavior.

Recommendations for teachers of the blind, in view of this case study and new developments in behavioral modification, are as follows:

1. Teachers of blind children have small enough numbers of students that using behavioral modification in their classrooms would take a minimal amount of time. They should be encouraged to try modifying at least one behavior on one child to become more confident in the use of behavioral modification techniques.
2. Teachers of blind children should make increased efforts to accentuate the positive. For example, one might begin marking the number of right answers on papers rather than the number wrong and taking the opportunity to praise a task well done wherever possible.
3. Six cycle logarithmic graph paper is being invented in braille. Teachers of the blind should therefore consider allowing

students to chart their own behaviors. Taking a small amount of time to set up charts for the students to chart their own behaviors should save the teachers time in the long run. Tokens may very well not be needed as means of motivating correct responses.

4. Consideration should be given to the use of modifying skills such as reading rates, problems done correctly, and other more precise operations involved in the teaching-learning process. All teachers will need to become better "precision teachers" if we are to see an improvement in the education of children.

LITERATURE CITED

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- Boudin, H. M. 1964. Behavior modification techniques and the ripple effect. Unpublished Master's thesis, Syracuse University.
- Buros, O. K. 1959. Fifth mental measurements yearbook. The Gryphon Press.
- Haring, N. G. 1968. Attending and responding. Dimensions Publishing Company.
- Holzschuh, R. D. and O. R. Lindsley. 1966. Teaching teachers, parents, children and self in the use of behavior management. University of Kansas: Educational Research Center.
- Kothera, R. 1965. An intervention program to modify disruptive classroom behavior. Unpublished manuscript, children's rehabilitation unit, University of Kansas Medical Center.
- Larsen, L. A. January, 1970. Behavior modification with the multi-handicapped. The New Outlook for the Blind.
- Lindsley, O. R. 1966. Theoretical basis of behavioral modification. Paper presented at the School of Education, University of Oregon.
- Lowenfeld, B. 1964. Our blind children. Charles C. Thomas, publisher.
- Maywalt, D. H. 1970. Extinguishing a mannerism through the use of operant conditioning. Unpublished Master's thesis, Western Michigan University.
- Shaw, K. L. 1967. A behavior modification approach to work with special problem students. A Master's thesis, George Peabody College.
- Skinner, B. F. 1953. Science and human behavior. Macmillan Company.
- Skinner, B. F. 1968. The technology of teaching. Meredith Division.
- Warren, A. 1965. All's quiet in the back of the room. Paper read at the Council for Exceptional Children, Wichita, Kansas.