

**BEHAVIOR MODIFICATION OF NONTALKING  
OF A FIRST-GRADE GIRL AND  
TEMPER TANTRUMS OF A FIRST-GRADE BOY:  
A TOKEN ECONOMY**

**BY**

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BEHAVIOR MODIFICATION OF NONTALKING  
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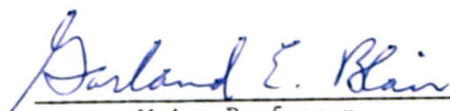
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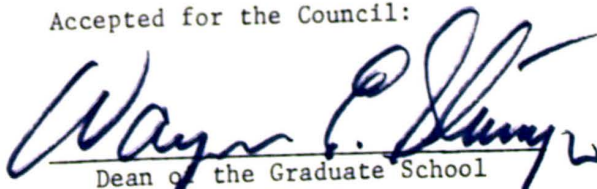
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To the Graduate Council:

I am submitting herewith a Research Paper written by Ida Sue Westerman entitled "Behavior Modification of Nontalking of a First-grade Girl and Temper Tantrums of a First-grade Boy: A Token Economy." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Education, with a major in Counseling and Guidance.

  
Major Professor

Accepted for the Council:

  
Dean of the Graduate School



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## CHAPTER I

### INTRODUCTION

The examiner used a token reinforcement program in an attempt to eliminate temper tantrums from the responses of a first-grade boy and to promote verbalization in a nontalking first-grade girl.

#### Review of the Literature

Behavior therapy, although containing a multiplicity of approaches, uses a social relationship to induce changes in social behavior. Since behavior is controlled largely by its consequences, attempts to bring about any lasting changes in response must alter the nature and incidence of reinforcing outcomes (Bandura, 1969). In contrast to traditional approaches in experimentation, behavior modification tends to concentrate on a specific behavior of a single individual and the contingent consequences of that behavior (Nelson, 1968). Therefore the nature and timing of a reinforcer used in behavior modification must be considered.

The key to remediation of inappropriate behavior is seen by some behaviorists (Quay, Werry, McQueen & Sprague, 1966) in the integration of the basic principles of learning theory (Gelford and Hartmann, 1968), selected techniques and the child's behavioral characteristics. Recent research (Quay, et al, 1966) indicates that praise and other verbal rewards are often ineffective with conduct disorders and that better results are obtained with tangible reinforcers. Desirable response

patterns can be established and maintained more successfully through the systematic use of positive reinforcement (Badura, 1969; Kuypers, Becker, O'Leary, 1968; O'Leary, Becker, Evans and Sanderges, 1969).

Although much research dealing with the effects of various schedules on operant behavior in lower organisms has been reported, the presentation of techniques and data to aid investigators of operant behavior in children has been made only in recent years. One such group of experimenters, Long, et al, (1958), found that almost all of the data derived from experimental sessions of reinforcement, involving 200 subjects varying in age from four to eight years, attested to the feasibility of controlling the behavior of children by the use of various schedules of reinforcers, such as trinkets, pennies and projected pictures.

Successful demonstrations of reinforcement techniques in changing behavior in laboratory situations have promoted increasing attempts to extend such methods to other situations, including the classroom. Some of the questions raised concern the effects on other aspects of the subject's behavior and how other pupils in class are affected by the teacher's concentration on the behavior of one or two specific children. A study by Ward and Baker (1968) attempted to assess the treatment effects of reinforcement therapy as they sought to eliminate the deviant behavior of twelve first-grade Negro children. Teachers involved in the program were instructed to reinforce task-relevant behaviors by attention and praise and to extinguish deviant behaviors by ignoring them. Although the procedures used were not uniformly



successful with all twelve children, results were encouraging in that the amount of deviant behavior was reduced with no adverse changes occurring in the behavior of either the target children or other children in the classrooms involved.

A successful implementation of a token system in a classroom, according to one study (Kuypers, et al, 1968), requires extreme care in selection and training of observers, provision of guidelines and preparation of the teacher concerning what is coming. Also differential social reinforcement must be used if a delay in presentation of tokens is involved. Application of the principle of shaping behavior is essential to the success of a program in improving and maintaining acceptable behavior in most cases, rather than only the presentation of reinforcers for achievement of an absolute standard of performance (Kuypers, et al, 1968).

In a discussion of guidelines for initiating behavior modification programs many contributing factors are described (Greiger, et al, 1970). Emphasis is placed on the importance of the initial introduction, the relation of the teacher's personality to the selected technique, the factors used for evaluation and plans for on-going participation.

A recent study by Staats (1962), reported by Bandura (1969), found that the use of tangible rewards such as trinkets or tokens increased the attention span of a group of four-year-olds from twenty minutes to forty-five minutes. Bandura cited several advantages of the token incentive system as compared with other systems utilizing

material rewards: the value of tokens as reinforcement is independent of momentary deprivations, due to lack of satiation effects tokens retain incentive value longer, easy and immediate presentation by the teacher is possible, and motivation will remain consistently high due to possibilities of token saving for a variety of items of personal choice (Bandura, 1969).

In order to determine whether or not the behavioral approach was feasible with young children, Kennedy and Thompson (1967) followed the case of a six year old whose negative classroom behavior included inattentiveness, refusing to follow directions or complete assignments and emotional or social maladjustments in that he seldom smiled and had no close friends. No change in behavior was observed after one week of counseling sessions during which the following topics were discussed: why it is important to pay attention in class, why it is important to do things in order, how to have friends, sibling relations and practicing for "show and tell" time. The experimenters decided to reward the child verbally and with a piece of candy for each minute of attending during counseling sessions. Results indicated his attending behavior increased during counseling sessions and his teachers reported improved adjustment in his behavior in class.

Dramatic responses to token economy programs used to reduce maladaptive behavior such as screaming (Winkler, 1971), temper-tantrums and physical aggression (Bandura, 1973), crying, uncontrollable laughter and fighting (O'Leary and Becker, 1967) have been described in recent studies. In the studies mentioned, acceptable behavior was

maintained after the token system was terminated. More than one of the eight subjects in the research discussed by O'Leary and Becker (1967) indicated that he would be able to maintain his acceptable behavior the next year without prizes or tokens. One aim of using a reinforcement program is that once the desirable behavior is initiated, the child will learn to reinforce himself because the behavior itself will serve as a reinforcer (Krumboltz and Krumboltz, 1972).

A combination of speech therapy, reinforcement and de-sensitization was used and described by Strait (1958) to promote speech in the classroom in the case of one first-grade boy whose speech was reportedly normal with his family. The therapist used praise and pictures to reinforce verbal responses and gradually introduced other adults into the situation, persuading the boy to read for them. As she continued the therapy into the next school year, the child agreed to read for one child, then small groups of his peers until by the end of the year he had read in front of the class and resumed behavior appropriate to that of a normal, happy second-grade child.

Speech therapy involving only speech training methods with no direct attempts to alleviate mutism has reportedly succeeded in the amelioration of the mutism in school situation of six children ranging from five and one-half to ten years of age. Smayling (1955) concludes, however, that in five of the cases the mutism was related to speech defects which interfered with successful oral communication. She also suggests that her findings using speech therapy techniques disagree with previous investigators who stress psychotherapy as the most effective method of treating voluntary mutism.



Many studies have been conducted dealing with the development or promotion of speech in non-verbal children who are autistic or schizophrenic youngsters (Churchill, 1969) and controlling speech rate (Salzinger, Salzinger, Portnoy, Eckmann, Bacon, Deutsch and Zubin, 1962) through the use of reinforcement programs. The effectiveness of a token reinforcement system has been positively demonstrated in the elimination of extreme aggression in five boys with whom psychiatry had no effect, in the motivation of five-year-olds to learn to read and in producing profuse verbalization in nontalkers (Hamblin, Buckholdt, Bushell, Ellis and Ferritor, 1969). Those involved in the experiment with these varied problems using reinforcements for a period of 18 months also reported the development of functional speech in several mute or nearly mute autistic children, starting them on the way to a normal life. The experimenters share feelings of exhilaration and humility concerning the results of their research as follow-up studies three months later indicate that token systems can evoke behavior change on a permanent basis (Hamblin, et al, 1969).

A recent study (Brison, 1971) described successful efforts to promote verbal communication in a nontalking child whose speech was normal in the family setting. Since the parents resisted a recommendation of psychotherapy for the child, the school instituted a reinforcement program which eliminated the nontalking behavior in a few weeks. Three years later the boy still maintained verbal behavior and presented no special problem at school.



One case of voluntary mutism with regard to his father only, which had reportedly persisted for two years, was abruptly terminated by his father's refusal to allow any privileges until verbal requests were made. However, in cases where such threats or other attempts fail to elicit speech or when mutism occurs in the classroom, the application of operant conditioning seems to offer promise (Straughan, 1968). Straughan reports success in eliciting verbal responses from a 14-year-old boy by the use of candy reinforcers and soliciting the help of classmates in encouraging him to talk. The same methods were partially successful in promoting speech in a 15-year-old girl who, after developing normal speech, withdrew from any verbal communication at the age of three. Since her habit of mutism was well-established and had been reinforced by the parent's quick responses to non-verbal clues and her present teacher's use of many rhetorical questions, the case presented great difficulty for attempted treatment. Although encouragement by classmates and reinforcement in the form of candies and gifts for classmates served to elicit speech in the particular class, there was little generalization except in the home and the subject reportedly remained mute in her classes the next year (Straughan, 1968).

## CHAPTER II

### METHOD

#### Subjects

The first subject was a seven-year-old girl ( $S_1$ ), who had been retained the previous year in the first grade. Retention was largely based on the child's refusal to read or speak in school, a factor which prevented an adequate evaluation of her reading ability or skills by the teacher. She had ranked at the second percentile on the Gates MacGinitie Reading Test administered during the last month of the school year.

During the first three weeks of her first year in school, the child refused to eat at school. She displayed no emotion, rarely changed her expression and remained persistently mute throughout the year, with the exception of an occasional furtive inaudible whisper to a nearby classmate when the occasion demanded a request from a teacher. Remaining withdrawn from her peers,  $S_1$  never participated in physical or group activities. All written assignments were completed and teacher requests, other than those requiring verbal responses, were met.

A conference with the subject's mother and step-father revealed she used speech to communicate with family members in the home situation, rarely laughed or cried, usually screamed when punished or antagonized, read stories to a younger brother, but refused to talk in situations outside the home. The mother attributed her daughter's

reluctance to communicate verbally to stubbornness and recommended punitive measures to force her to talk. Her step-father suggested that, given time, she would outgrow the mutism.

The subject was assigned to the first-grade classroom of the examiner for her second school year and exhibited essentially the same behaviors as previously described. She stood by the teacher's desk, crying silently at the beginning of the first three school days. Investigation revealed that an older sister had been instructed to report to the mother if the subject failed to talk to the teacher and she would be whipped with a belt when she returned home. Her usual detached mute behavior resumed without crying, when she had been advised no reports regarding her communication would be sent home by the teacher.

The second subject for the behavior modification program was a five-year-old boy ( $S_2$ ) who had exhibited disruptive and aggressive behavior, both verbal and physical, during the previous year in kindergarten. His kindergarten teacher had attempted unsuccessfully to eliminate or control the boy's behavior by the use of various punitive measures. Consequently, he was assigned to the classroom of the examiner for his inclusion in the behavior modification program. The maladaptive behavior exhibited by the subject consisted of temper tantrums, kicking, biting, spitting, cursing, hitting teachers and peers, throwing objects, refusing to remain in his seat, blaming others for his behaviors and constantly scattering his personal belongings. He often cried and expressed sorrow for his behavior especially if he had hurt another child.

The subject scored in the average range on the WISC, although there was a significant difference between the scores on the verbal and performance sub-tests, indicating the possibility of a neurological problem. He demonstrated average ability in reading, mathematics, and writing, although he seldom completed writing assignments and his papers were usually smeared and sloppily done.

The parents contended their son was just a normal boy, exhibiting normal behavior and presenting no special problem in the home. According to his parents, the boy keeps his room and belongings neat and orderly. His father recommended a behavior change could be accomplished in the classroom by the administration of severe whippings. Attempts to persuade the parents to seek professional help for the subject were futile.

### Experimental Procedure

The token economy program consisted of the presentation of tokens to the children in one first-grade class by the teacher for desirable behavior. The program was explained to the students at the beginning of the school term. A token sheet listing the number of tokens required to trade for a variety of items and special privileges was posted in a conspicuous place in the room. The target behavior was the refusal to talk of a first-grade girl and temper tantrums of a first-grade boy.

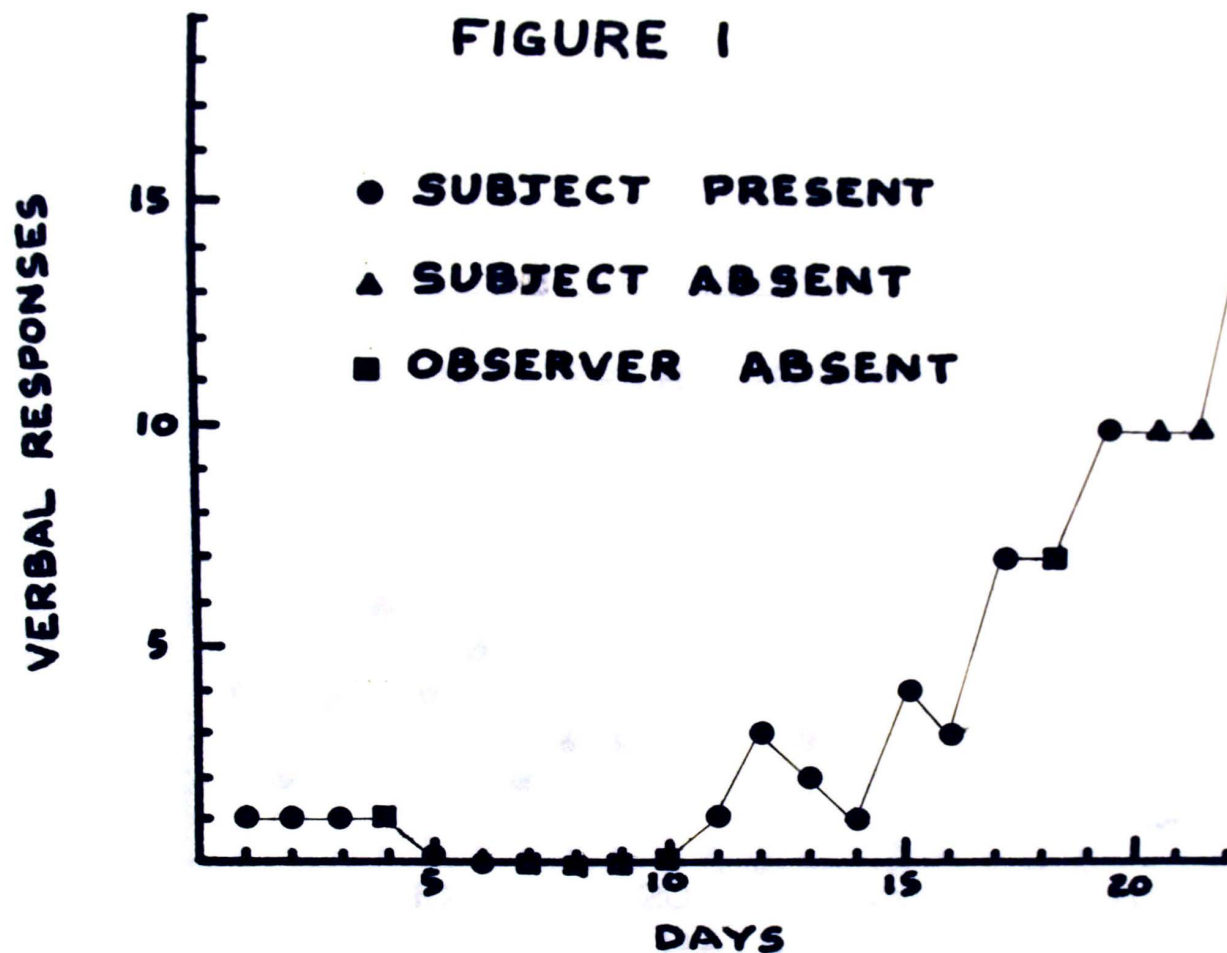
A baseline measure of the frequency of the occurrence of the boy's temper tantrums and the absence of verbal communication of the girl's activity was collected for one week. Tokens were awarded frequently



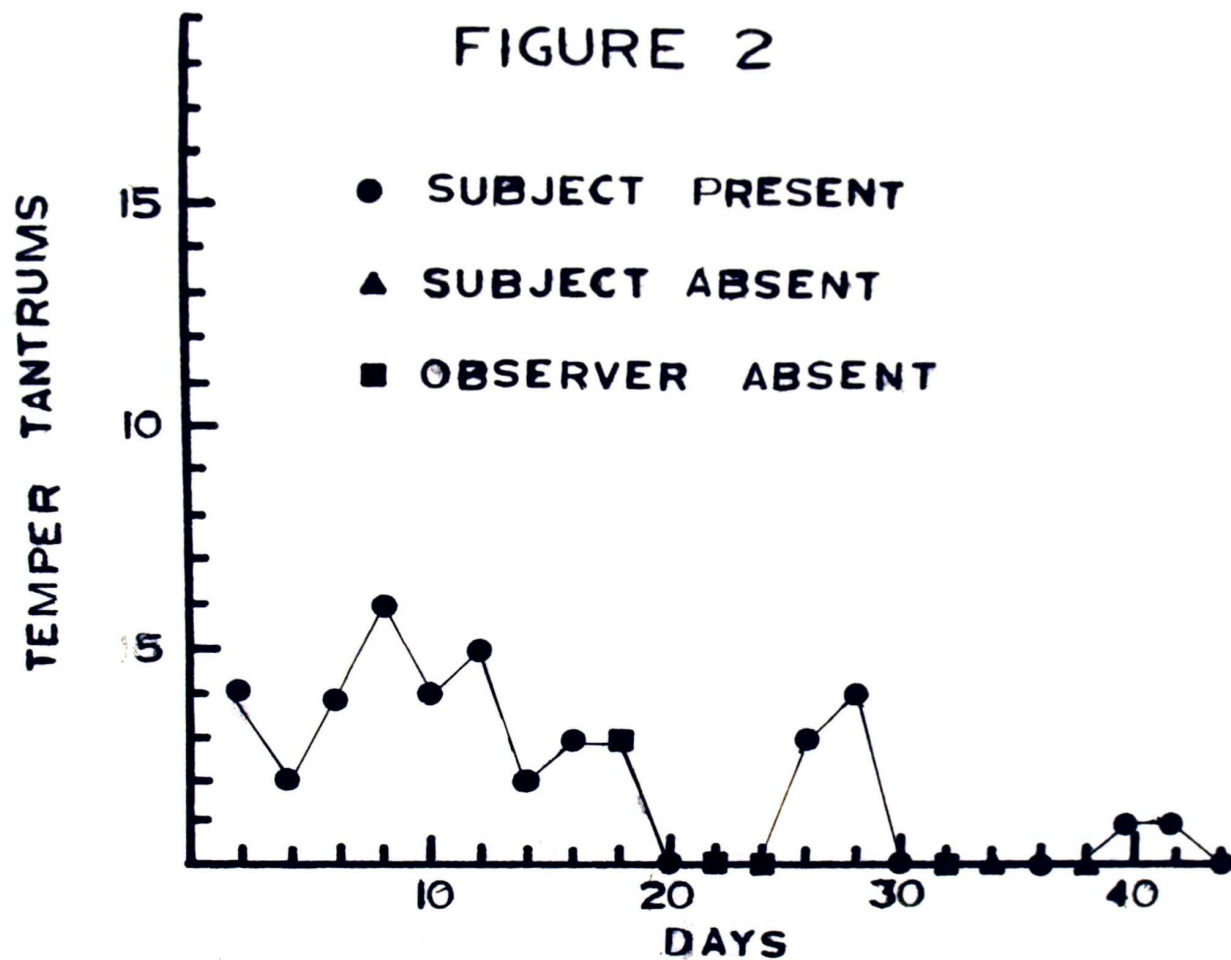
for desirable behavior, making the boy's reinforcement contingent on certain lengths of time without temper tantrums and on the handling of anxiety-producing situations with appropriate responses. The total lack of verbal response in the behavior of the girl necessitated the reinforcement of successive approximations of verbal communication such as whispers, conversation reported by other children, movements of mouth in group activities until normal verbal response was achieved. The reinforcement schedule was altered later to an intermittent presentation of tokens and gradually withdrawn.

Frequency of undesirable behaviors of the two children were recorded by tally marks to determine a baseline. Line graphs were used to record behavior occurrences during the token program.

Success for  $S_2$  was defined as a reduction in the frequency of temper tantrums in his behavior. Satisfactory verbal interaction with the teacher and other students was determined to constitute success for  $S_1$ .



**FREQUENCY OF VERBAL COMMUNICATIONS OF S<sub>1</sub>**



FREQUENCY OF TEMPER TANTRUMS OF  $S_2$

## CHAPTER III

### RESULTS AND DISCUSSION

S<sub>1</sub> was rewarded for verbal interaction reportedly occurring in the classroom and on the playground with other classmates, although not witnessed by the examiner. However, she remained mute in relation to the teacher until advised that she could not purchase her usual afternoon ice cream until she indicated her choice verbally. After three attempts to make her selection known by pointing were refused, the subject spoke the word "Orange" and was immediately rewarded. Following the initial breakthrough of a spoken response, she began to communicate verbally without pressure infrequently. As the frequency of her verbal response increased she began slowly to participate in activities with her classmates and others of her peer group.

Following the achievement of a seemingly normal level of verbalization within the classroom, the subject was sent on successful errands to the office. She then agreed to read for her former teacher and later for the principal in the classroom.

If the examiner failed to provide the token reward immediately following speech, she was reminded by the subject. However, she readily accepted the explanation that rewards would be less frequent since verbal communication had been achieved and she was able to converse with her peers and school personnel.

The examiner is pleased to report the subject entered into satisfactory verbal interaction in all possible school situations and



displayed normal emotions before moving with her family to another city. No information has been available regarding continuation of her behavior in the new situation.

Tokens alone did not serve to reduce the intensity or frequency of temper tantrums in the behavior of  $S_2$ . Complete withdrawal of teacher attention during temper tantrums, unless another child was endangered, served to eliminate tantrums and reduce the frequency of outbursts in the classroom. However, satisfactory control of aggressive displays of temper was not achieved.

Following the close of the first semester, the subject was transferred to another classroom at the request of his father. Maladaptive behavior continued in the new situation, although the reoccurrence of temper tantrums was reportedly infrequent.

The examiner was unable to discover a satisfactory reward or reinforcement system which could effect a dramatic reduction in the maladaptive behavior of  $S_2$ . His desire for attention, whether of a negative or positive nature, was a strong factor in his behavior. Complete withdrawal of teacher attention was not feasible since much of his behavior involved damage or danger to the person or property of others. Therefore, his destructive behavior often, of necessity, gained attention and the attention served to reinforce the undesirable behavior.

The immaturity and short attention span of the subject contributed to his difficulty in achievement academically comparable with his peers, and frustration thereby produced led to blaming and hurting others.

The refusal to accept responsibility for his behavior, an attitude which was supported by his parents, was another detrimental factor to the solution of the problem. His demonstrated remorse and expressed desire, on several occasions, to behave well but just was unable to do so, indicated the boy needed professional help. The apparent lack of parental acknowledgement of the boy's problem, inconsistency in parental comments and behavior, and conflict between parental and teacher attitudes all served as detrimental factors to his progress and adjustment. Frequent involvement in physically aggressive and emotion-laden situations in the home carried over into the school environment and influenced the subject's inability to develop stable, calm, realistic attitudes and behavior.

Although the results of the present study are somewhat discouraging in the case of  $S_2$ , the multiplicity of factors involved must be considered. The success in promoting normal verbal communication in the behavior of  $S_1$  should provide sufficient recognition of the value of reinforcement techniques in the classroom to encourage further research in the area. In future programs of this nature, the use of a neutral observer to record behaviors would prove to be an invaluable addition.

## BIBLIOGRAPHY

- Bandura, A. Principles of behavior modification. New York: Holt, Rinehart & Winston, 1969.
- Bandura, A. Aggression: a social learning analysis. Englewood Cliffs, N. J., Prentice-Hall, 1973.
- Brison, D. W. A nontalking child in kindergarten. In A. M. Graziane (Ed.), Behavior therapy with children. Chicago: Aldine Atherton, Inc. 1971.
- Churchill, D. W. Psychotic children and behavior modification. American Journal of Psychiatry, May, 1969, 125; 11, 1585-1590.
- Gelfand, D. M. & Hartmann, D. P. Behavior therapy with children: A review and evaluation of research methodology. Psychological Bulletin, 1968, Vol. 69, No. 3, 204-215.
- Greiger, Russell N., Mordock, John B., and Berger, Norman (Ohio State University) "General guidelines for conducting behavior modification programs in public school settings." Journal of School Psychology, 1970, Vol. 8 (4), 259-266.
- Hamblin, R. L., Buckholdt, D., Bushnell, D., and Ferriter, D., Changing the game from "get the teacher" to "learn". Trans-action Magazine, January, 1969, 20-31.
- Kennedy, Daniel A. and Thompson, I., Use of reinforcement technique with a first grade boy, Personnel and Guidance Journal, Vol. 46, No. 4, December, 1967, 366-370.
- Krumboltz, J. D., and Krumboltz, H. G., Changing children's behavior, Englewood Cliffs, N. J.: Prentice-Hall, 1972.
- Kuypers, D. S., Becker, W. C., O'Leary, K. D. How to make a token system fail. Exceptional Children, 1968, 35, 101-105.
- Long, E. R., Hammack, J. T., May, F., and Campbell, B. J. (University of North Carolina) Intermittent Reinforcement of Operant Behavior in Children, Journal Experimental Analytical Behavior, 1958, 1, 315-339.
- Nelson, W. H., Teachers as experimenters. Journal of School Psychology, 1968, Vol. 7, No. 3, 29-33.



- O'Leary, K. D. and Becker, W. C., Behavior modification of an adjustment class: A token reinforcement program. Exceptional Children, 1967, 33, 637-642.
- O'Leary, K. D., Becker, W. C., Evans, M. B., and Saudergas, R. A., A token reinforcement program in a public school: A replication and systematic analysis. Journal of Applied Behavior Analysis, 1969, 2, 3-13.
- Quay, H. C., Werry, J. S., McQueen, M., and Sprague, R. L., Remediation of the conduct problem child in the special class setting. Exceptional Children, April, 1966, 32, 509-515.
- Reed, C. R., Elective mutism in children: A re-appraisal, Journal of Psychological Psychiatry, 1963, 4, 99-107.
- Salzinger, S., Salzinger, K., Portnoy, S., Eckmann, J., Bacon, P., Deutsch, M., and Zubin, J., Operant conditioning of continuous speech in young children, Child Development, 1962, 33, 683-695.
- Smayling, Lyda M. Analysis of six cases of voluntary mutism, Esther L. Herbert (Ed.) Clinical Notes, Journal of Speech and Hearing Disorders, Vol. 24, 1959, 55-58.
- Staats, A. W., Staats, C. K., Schutz, R. E., and Wolf, M. M. The conditioning of textual responses using "extrinsic" reinforcers. Journal of the Experimental Analysis of Behavior, 1962, 5, 33-40. Cited by Albert Bandura, Principles of behavior modification. New York: Holt, Rinehart & Winston, 1969.
- Strait, Rose, A child who was speechless in school and social life, Esther L. Herbert (Ed.) Clinical Notes, Journal of Speech and Hearing Disorders, Vol. 23, 1958, 253-254.
- Straughan, J. H., The application of operant conditioning to the treatment of elective mutism, in Sloane, H. and McAuley, B., Operant procedures in remedial speech and language training, Boston, Houghton, Mifflin, 1968, 242-255.
- Ward, Michael H. and Baker, Bruce L., (Harvard University). Reinforcement therapy in the classroom, Journal of Applied Behavior Analysis, 1968, 1, (4) 323-330.
- Winkler, R. C., Reinforcement schedule for individual patients in a token economy, (University of New South Wales, Sydney, Australia). Behavior Therapy, 1971, 2, 534-537.



## References

- Bakwin, H., & Bakwin, R.W. Behavior disorders in children (4th ed.). Philadelphia: W.B. Saunders Company, 1972.
- Berry, M.W., & Benson, J. Speech disorders: principles and practices of therapy. New York: Appleton-Century-Crofts, 1956.
- Bijou, S.W., & Sturges, P.S. Positive reinforcers for experimental studies with children--consumables and manipulables. Child Development, 1959, 30, 151-170.
- Blackham, G.J., & Silberman A. Modification of child behavior. Belmont, California: Wadsworth Publishing Company, Inc. 1971.
- Brison, D.W. A nontalking child in kindergarten. In A.M. Graziano (Ed.), Behavior therapy with children. Chicago: Aldine-Atherton, 1971.
- Brown, S.F. Retarded speech development. In W. Johnson & Maeller (Eds.), Speech handicapped school children. New York: Harper and Row, 1967.
- Browning, R.M., & Stover, B.O. Behavior modification in child treatment. Chicago: Aldine-Atherton, 1971.
- Duxbaum, V. Troubled children in a troubled world. New York: International Universities Press, Inc., 1970.
- Clarizio, H.F. Toward positive classroom discipline. New York: John Wiley & Sons, Inc., 1971.
- Cohen, J. Operant behavior and conditioning. Chicago: Rand McNally, 1969.
- Cohen, L. The modification of children's behavior. In L. Cohen (Ed.), Behavior modification: a sourcebook for psychology and education. New York: MSS Educational Publishing Company, Inc., 1971.
- Itemad, J.G., & Szurek L.A. Mutism among psychotic children. In S.A. Szurek & I.M. Berlin (Eds.), Clinical studies in childhood psychoses. New York: Brunner-Mazel, 1973.
- Evers, W.L., & Schwarz, J.C. Modifying social withdrawal in preschoolers: the effects of filmed modeling and teacher praise. Journal of Abnormal and Child Psychology, 1973, 1(3), 248-256.
- Filippi, R. & Rousey, C.L. Delay in onset of talking--a symptom of interpersonal disturbance. Journal of the Academy of Child Psychiatry, 1968, 7(2), 316-328.

- Franks C.M., & Fusskind, D.R. Behavior modification with children: rationale and technique. Journal of School Psychology, 1968, 6, 76-98.
- Gelfand, D.M., & Hartmann, D.P. Behavior therapy with children: a review and evaluation of research methodology. Psychological Bulletin, 1968, 69 (3), 204-215.
- Hall, V.R. Lund, D., & Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968, 1, 7-12.
- Harris, P.R., Wolf, M.M., & Isaac, D.W. Effects of adult reinforcement on child behavior. Young Children, 1964, 20(1), 8-17.
- Lovaas, O.I. A program for the establishment of speech in psychotic children. In R.L. King (Ed.), Childhood autism, Oxford: Pergamon Press, 1966.
- Macmillan, D.L. Behavior modification in education. New York: Macmillan, 1973.
- Madsen, C.H., Jr., Becker, W.C., & Thomas, D.R. Rules, praise, and ignoring: elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1(2), 139-150.
- Madsen, C.H., Becker, W., Thomas, D.R., Foser, L., & Ploger, L. An analysis of the reinforcing function of "sit down" command. In R.W. Parker (Ed.), Readings in educational psychology, Boston: Allyn & Bacon Inc., 1968, 265-278.
- McCoy N. & Zigler, E. Social reinforcer effectiveness as a function of the relationship between child and adult. Journal of Personality and Social Psychology, 1965, 1, 605-612.
- Meacham, M.L. & Wiesen, A.E. Changing classroom behavior (2nd ed.). New York: Intext Educational Publishers, 1974, 1-62.
- Nikulas, W.I. Behavior modification: an overview. New York: Harper & Row, 1972.
- Wilton, J.E., Solnit, S. & Solnit, A.J. Problems in child behavior and development. Philadelphia: Lea and Febiger, 1968.
- O'Leary, D.K., & O'Leary S.G. Classroom management: the successful use of behavior modification. New York: Pergamon Press, Inc., 1972.



- Reynolds, N.J. & Risley, T. Social & material reinforcers in increasing talking. Journal of Applied Behavioral Analysis, 1968, 3, 253-262.
- Risley, T. Learning and lollipops. Psychology Today, January 1968, 1(8), 28-31; 62-65.
- Risley, T. & Wolf, M.M. Experimental manipulation of autistic behaviors and generalization into the home. In R. Ulrich, T. Stachnik & J. Mabry (Eds.), Control of human behavior. Glenview, Illinois: Scott Foresman, and Company, 1966, 193-198.
- Shaw, C.R. When your child needs help. New York: William Morrow and Company, Inc., 1972.
- Sloane, H.N., Johnson, W.K., & Farris, F.R. Remedial procedures for teaching verbal behavior to speech deficient or defective young children. In H.N. Sloane & B.D. MacAulay (Eds.), Operant procedures in remedial speech and language training. Boston: Houghton Mifflin Company, 1968.
- Smayling, L.W. Analysis of six cases of voluntary mutism. Journal of Speech and Hearing Disorders, 1958, 23, 253-254.
- Staats, A.W. Learning, language and cognition. New York: Holt Rinehart and Winston, 1968.
- Staats, A.W., Staats, C.K., Schutz, R.M. & Wolf, M.M. The conditioning of textual responses using "extrinsic" reinforcers. Journal of the Experimental Analysis of Behavior, 1962, 5, 33-40.
- Straughan, J.H. The application of operant conditioning to the treatment of elective mutism. In H.N. Sloane & B.D. MacAulay (Eds.), Operant procedures in remedial speech and language training. Boston: Houghton Mifflin Company, 1968, 242-255.
- Thomas, D.R., Becker, W.C., Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. Journal of Applied Behavior Analysis, 1968, 1(1), 35-45.
- Ullman, L. & Krasner, L. Case studies in behavior modification. New York: Holt Rinehart & Winston, Inc., 1965.
- Ward, W.H., Baker, B.L. Reinforcement therapy in the classroom. Journal of Applied Behavioral Analysis, 1968, 1(4), 323-328.
- Wing, L. Autistic Children. New York: Brunner/Mazel Publishers, 1972.

Holf, P.H., Risley, T., & Meos, E. Application of operant conditioning procedures to the behavior of a nonverbal autistic boy. Behavior Research and Therapy, 1964, 1, 305-312.

Zilboorg, G. & Henry, C. History of medical psychology. New York: W.N. Norton and Company, Inc., 1941.

Zimmerman, P.H. & Zimmerman, J. The alteration of behavior in a special classroom situation. Journal of the Experimental Analysis of Behavior, 1962, 5(1), 59-60.