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THE EFFECTIVENESS OF TRANSCENDENTAL MEDITATION AS A MEANS OF IMPROVING THE ECHOLALIC BEHAVIOR OF AN AUTISTIC STUDENT

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The Transcendental Meditation technique was found to be an effective means of improving the echolalic behaviour of an autistic student.—EDITORS

The following is the text of the original paper which was presented at the International Symposium on Autism Research, Boston, July 14, 1981.

No formal study has yet been done that examines Transcendental Meditation in connection with autistic students. Anecdotal evidence has been offered reporting dramatic improvements in an autistic male’s behavior following instruction into Transcendental Meditation (TM) (Bordeaux, Note 1).

A variety of differing therapies have been used with autistic children. Paluszny (1979) gives an overview of these therapies by categorizing them into four distinct groups (Proponents of these differing therapies follow the listing of the group): 1) Therapy related to intrapsychic aspects, environmental causes, and resolution of intrapsychic conflicts — Bettelheim (1974); 2) Therapy related to biochemical aspects — Rimland (1964, 1974); 3) Behavior modification — Stevens-Long and Lovaas (1974); 4) Therapies using parents as therapists include Kozloff’s Social Exchange (1974), Schopler’s Developmental therapy (1974), and Howlin’s home-based approach (Paluszny, 1979).

Additional therapies used with autistic children are: psychoanalytic, based on the work of Melanie Klein (Tustin, 1972), perception-oriented therapy (Delacato, 1974), education-based therapy (Oppenheim, 1974), language-based therapy (Rutter, 1968), and music therapy (Alvin, 1978).

ECHOLALIA

Studies concerned with the echolalic behavior of exceptional students (this includes autistic, mentally retarded, and schizophrenic) all tended to use a behavior modification approach. Carr, Schreibman, & Lovaas (1975); Freeman, Ritvo, & Miller (1975); Risley & Wolf (1967); Schreibman & Carr (1978); and Tramontana & Shivers (1971) all utilize operant conditioning, with positive reinforcement. All studies cited showed significant decreases in echolalia.

Persistent echolalia is frequently used as one of the diagnostic criteria for autism. Schreibman & Carr state that a substantial number of investigators have found a negative correlation between the level of a child’s language development and the probability that the child will echo the speech of others.

TRANSCENDENTAL MEDITATION

Transcendental Meditation (TM) is an effortless technique which allows the mind to experience finer and finer levels of thought and finally transcend the experience of thinking entirely. As mental activity settles down during this process, there are corresponding changes in the physiology of the nervous system (Ferguson & Gowan, 1976). Wallace et al. (1972), in a well-known study presented in the Scientific American, show a number of important physiological changes taking place due to the practice of TM: reduction in oxygen consumption was a 16% drop during 20–30 minutes of TM as com-
pared with an 8% decrease occurring after six hours of sleep; the arterial concentration of lactate, a chemical correlated with anxiety, dropped four times as fast as with people normally lying down resting; skin resistance, a measure of relaxation, increased in some cases more than four times.

Kanellakos (1978) speaks about the deep-rooted stresses that are released during the time a person is meditating and receiving rest twice that of sleep. He points out that modern medicine has shown stress to be an important causative factor in physical and mental illness.

A number of studies have indicated a correlation between TM and the reduction of anxiety. Dillbeck (1977), Ross (1976), and Shecter (1977) all found a decrease in anxiety due to their subjects starting TM.

Bloomfield (1976) and Bloomfield & Kory (1976) have used TM as an adjunct to psychotherapy with seriously disturbed individuals and have found it useful therapy for anxiety neurosis, depression, obsessive-compulsive neurosis, drug abuse, and psychosomatic disease. In general, patients practicing the TM technique were found to improve at an unusually fast rate and to benefit more from their therapy sessions. Bloomfield (1976) found TM to be successful with in-patients in a psychiatric hospital.

The November 13, 1978 issue of Time magazine tells of TM being taught in three of California's prisons: Folsom, San Quentin, and Deuel Vocational Institution. In one study, psychologist Alan Abrams tested the emotions and psyches of 120 Folsom inmates, half of whom were meditators. Abrams used a battery of psychological and personality tests and found that neuroticism among meditators decreased 50% on the average, hostility 22%, anxiety 60%, and suspicion 27%. No significant changes were noted for non-meditators. The most convincing statistic that Time gave on this study was that of the 58 meditators who have been released from Folsom over a period of two years, only 2 have returned. Folsom's average recidivism rate is 15% for prisoners released 1–2 years, rising eventually to 50%.

The public schools is another avenue in society where TM has found some success. Rubottom (1972) speaks about its potential uses in the schools, citing Eastchester Public Schools in New York as an example of its potential. He found that the students who were taught TM improved their grades, got along better with teachers, parents, and other students, and lessened their use of drugs. Shecter (1977) found in his study with secondary students, positive changes in creativity, intellectual performance, and other psychological variables occurring with greater significance with those practicing the TM technique.

Recently, TM is being proposed as an aid in special education. Yvonne Jackson (1977) in a doctoral dissertation cites her study with educable mentally retarded adolescents in which she suggested that the TM program could be effective as an adjunct to the curricula in “alleviating learning disorders specifically, and enhancing the learning process generally” (p. 3351A). Jackson tested the students on aspects of personality and intellectual development and found that the students in the TM program developed significantly (p = .001) on all three scales measured. Truch (1977) in his book, The TM Technique and the Art of Learning, quotes Claudio Calvi, a British expert in the area of multi-handicapped special education, as giving ten valid reasons for the TM technique's usefulness in special education programs. Ferguson (1976) reviews all the relevant research that suggests that regular practice of TM may provide a wide range of physiological, perceptual, and psychological benefits to exceptional children. In Ferguson's study TM is recommended by educators, doctors, psychologists, and businessmen. He has four comprehensive tables in which he cites 53 studies showing the physiological effects of TM, cumulative physiological and medical benefits, psychological effects, and educational benefits.

Truch (1977) states that learning the technique requires only following some simple instructions and feels that it should be tried in programs for autistic children who are not so withdrawn they cannot be communicated with. TM, being a technique rather than a philosophy or a religion, does not require belief in its effectiveness or comprehension of the underlying theory or principles (Ferguson, 1975). Bloomfield (1976), when speaking of TM in reference to psychotherapy, points out that TM is exclusively under the control of the patient. The improvement gained is not due to medication or the patient-therapist relationship, but to a natural process initiated by the individual's own efforts.

**METHOD**

**POPULATION—Subject.** This study dealt with one
15-year old autistic male, a student in an autistic classroom at a special education center. He has been diagnosed, "aphasic, mildly mentally retarded with concomitant emotional overlay, hyperactive, delayed speech, and autistic" (Lane, Note 2). His last IQ score taken from his present school records was a 58 performance score on the Wechsler Intelligence Scale for Children — Revised. Descriptions of the subject's behaviors in his IEP and other school records have been, "poor attention, screaming, rocking, echolalia, temper tantrums, aggression when frustrated, good visual motor, excellent manual dexterity, wandering."

The subject has been in the autistic unit at the special education center for five years. During that time, he has been involved in a combined program of behavior modification, developmental therapy, and pre-vocational training with some academics. His IEP indicated reading and spelling at approximately third grade level, math at approximately second grade.

The subject's mother, who has been an active participant in his development, was actively involved in this experiment by helping coordinate the necessary meetings between the subject, researcher, and TM teacher. She also kept the researcher informed of any new skills or behaviors of the subject that she or her family observed, or that she knew of through her contact with the subject's school teacher. Additionally, the subject's mother was of assistance in reminding her son when it was time to meditate.

Teacher. The TM teacher who taught the subject TM had little experience with exceptional children. Ideally, it would be best if the TM teacher involved had a stronger background in special education (Bloomfield & Kory, 1976). For that reason, the researcher, who had a strong background in autism, worked with the TM teacher.

Observers. Ten special education teachers were involved in observing the video-taping of the subject and recording the data. The observers volunteered following a meeting during which the researcher gave a general description of the project.

PROCEDURE

This study was conducted as a single case experimental design with three phases: 1. Baseline, 2. Pre-treatment, 3. Treatment. Previous to the baseline, the subject was video-taped at varying times in his classroom over a weeklong period. The video-tapes were viewed by the ten observers and four alternates, and at the end of this time they completed a Target Behavior Rating Form. Echolalia was the target behavior of the study as indicated by the data taken from these forms.

During the training of the observers, the observers viewed five different tape segments, each two and one-half minutes in length. A general definition on echolalia had been given to the observers by the researcher. Following the recording of occurrences by the observers, the researcher went back over the tape with them, pointing out the correct occurrences of echolalia. Any disagreements were discussed until they were resolved to the satisfaction of the whole group. The main objective of the training session was for the group to clearly understand what the occurrence of echolalia would entail. The observers agreed upon a specific definition of the target behavior: Repeating the speech of others, either immediately or after a delay, giving the impression of being locked into an idea or thought that is expressed verbally in an inappropriate manner. Bizarre words and word combinations are included also. More specifics and clarifications concerning the subject's echolalia were given on the handout that each observer had.

Following the training period, video-taping of the subject in the classroom resumed. Hersen & Barlow (1976) indicate that repetitive time sampling on a random basis within specified time limits is a most useful technique for a single case study. Two observers viewed these tapes together and the average of their number of occurrences is the figure plotted on the Behavior Chart. The observers recorded data throughout all three phases of the study.

The baseline period continued until there were 15 observation points (Glass, Willson, & Gottman, 1975). At this point, the subject began meeting every other day with the TM teacher. This was the pre-treatment phase, phase two. The observers were not notified of any changes so as not to contaminate their recording. Basically, during these meetings, the teacher was working with the subject on remaining seated, for a specific length of time, with his eyes closed. Communication is another area that was covered at these meetings; establishing a very
basic system of feedback between student and teacher was attempted. The researcher guided the teacher in ways of dealing with any incidents of inappropriate behavior that occurred with the subject during these sessions. This phase of the study continued until the subject achieved the specific criteria that the TM teacher had set up. A month's time limit was set for this phase. It was not certain that this point would be reached with the subject as research had not clearly established that an autistic person could be taught TM. Criteria was met in two weeks and the subject was then instructed.

Phase three, the treatment phase, began when the subject was instructed. The TM teacher and researcher continued to have regular meetings with the subject during this phase. The purpose of these meetings was to check the technique to see that the subject was not altering it. Checking the TM technique was based upon the student's level of understanding. The scientific research on the TM program that was previously reviewed validates an increase in positive behavior. Checking the growth and stability through the data found on the student would show if he was doing the technique correctly. Normally, the average person gives the teacher verbal feedback, but in this instance, where the child's communication is limited (he can answer most concrete, simple questions) the data had to be the reliable source of feedback (Karlson, Note 3). This phase was one month in length, from May 12 to June 11.

Data Collection. The researcher collected the data sheets at the end of the recording period. The tape shown to the observers was divided into appropriate two and one-half minute segments. The segments included the subject in his classroom during a session in which language was a part. This distinction was made because in order for echolalia to occur, in most cases, the subject must be in a situation where verbal language plays a part.

Following the collection of the data sheets, the researcher plotted the two observers' average counts on the Standard Behavior Chart, developed by Eugene Berquam (1979). On this chart, the three phases of the study were indicated. The data point plotted is the average data count of the two observers per number of segments observed. This point indicates the average count per segment. The relevant trends in the observations were analyzed using time series concepts. Precision teaching observations were analyzed for acceleration and deceleration.

RESULTS

Fourteen observers (ten plus four alternates) were trained by the researcher so that they would be capable of identifying and counting the target behavior, echolalia. During the baseline phase of the study, the data taken by the observers were studied for inter-rater reliability correlations using Pearson Moment Correlations. Data collection continued during phase two and three of the study. The researcher kept a journal relaying anecdotal evidence throughout phase two and three.

High correlations during the baseline phase were found between the observers, as shown in Table 1.

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The data taken during all three phases of the study is plotted on the Standard Behavior Chart shown in Figure 1. Using precision teaching techniques of plotting celeration, an increase in the subject's echolalic behavior of 26% per week is indicated during baseline. Following treatment, the graph shows a decrease in the subject's behavior of 27% per week. This increase and decrease are indicated by the lines drawn on the chart. Another specific that may be noted in Figure 1 is the short phase two. Because of only one data point during this phase, this data was included with the tabulations for the treatment phase.

DISCUSSION

This analysis showed that there was a significant
decrease in the subject's echolalic behavior, the target behavior of this study. At the Precision Teaching Winter Conference held in Orlando February 1981, Dr. Ogden Linsley, an authority on precision-teaching methods, indicated that through the research he has conducted at University of Kansas, he found that (a) the regular classroom produces approximately 1% per week change in targeted behaviors when using standard teaching strategies, and (b) a behavior modification classroom teaching technique produces approximately 10% per week change in target behaviors (Linsley, Note 4). This information emphasizes the measurable improvement shown by the 27% per week decrease in the subject's echolalic behavior, especially since the subject is a student in an autistic classroom and the target behavior of this study was not a target behavior in the subject's classroom.

The study, therefore, did answer the two questions presented. The first question, whether the subject could learn the TM technique, was obviously answered in the affirmative by the successful completion of phase two and entering into phase three.

The second question, whether the subject's echolalic behavior would show measurable signs of improvement following his instruction in the TM technique, is also answered affirmatively by the analysis of the data collected.

It was an observation of this researcher and the observers of the study that not only was there a decrease in the subject's echolalic behavior, but also a change in the quality of his echolalia. That is, his echolalia seemed to change from a form of self-stimulation to more of a means of communication. The echolalia seemed to cease when the subject was not experiencing frustration, but when he was frustrated, he began echoing in what seemed to be a way of communicating this frustration. Thus, it appears that the echolalia changed from being an inappropriate form of self-stimulatory behavior to a more appropriate form of communicative behavior.

**CONCLUSIONS**

Within the last two decades much research has been done on both autism and Transcendental Medi-
tation (TM). Never before have the two been paired together in a formal study. In the research on TM, there have been successful studies using TM with other classes of exceptional education students. Authors have suggested that TM be used with autistic students to determine its effectiveness in dealing with behavior change with this special population. It was the purpose of this study to determine this and offer guidelines to any future research in this previously untouched area.

Data analysis, using precision-teaching methods of plotting celeration on a Standard Behavior Chart, demonstrated that there was a measurable decrease in the target behavior following treatment.

It can be concluded that TM was an effective means of treatment with this 15-year old autistic male. Furthermore, it was noted by the observers in this study that the target behavior, echolalia, was a behavior of the subject that not only was not a behavior that was targeted in his classroom, but one that was often unintentionally reinforced by the teacher, aide, and other support people that worked with the subject in the classroom. The fact that this behavior of the subject decreased significantly in spite of this occurrence lends further support to the success of this study.

REFERENCE NOTES

2. Lane, M. Personal communication, December 1, 1980.

REFERENCES

TM in the pen. 1978. Time, November 13, p. 84.

PAPER 263

TRANSCENDENTAL MEDITATION AND MENTAL RETARDATION

JAMES EYERMAN, M.D.†

The case history of a mentally retarded woman documents improvements in speech, social behaviour, and physiological functioning as a result of the practice of the Transcendental Meditation technique.

The following figure has been prepared for illustrative purposes.—EDITORS

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