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ABSTRACT

Investigated in two studies involving 52 profoundly retarded Ss (8-29 years old) were a parameter descriptive of the subject (sex) and the effectiveness of a modeling technique to evoke a response. The major finding of the first investigation in which there were two sessions was that exposure of Ss to a live model produced a significant increase in modeling behavior, while there were no sex differences found. Results of the second investigation involving only one exposure to the model indicated that exposure of Ss to a model produced no significant change in behavior. (SBH)

# Acquisition of Imitative Responses in Profoundly Mentally Retarded

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Modeling, as a behavior modification technique has received considerable attention in the professional literature (Bandura, 1965; Bandura, Ross, & Ross, 1963). Altman and Talkington (1971) in their review of modeling programs for nonretarded, noted that certain characteristics attributed to the mentally retarded, such as outer-directed cognitive style (Turnure & Zigler, 1964), and external cue dependency (Zigler, 1966) would suggest the susceptability of this population to modeling procedures.

A number of recent investigations suggest that modeling procedures with retarded populations are, in fact, efficacious. Talkington, Hall, and Altman (1973), reported increased performance on a basic communication task by severely retarded subjects who were exposed to a peer model demonstrating the correct response. Performance was significantly greater in this condition than in one where subjects were given verbal commands only. In an investigation dealing with survival skill training, Stephan, Stephano, and Talkington (1973) exposed mildly retarded subjects to either a live model, a film-mediated model, or no model. Performance was significantly increased in the modeling conditions. The authors suggest that closed circuit TV may be potentially useful for training certain skills.

Strichart (1974) reported that retarded subjects were more imitative of competent models than noncompetent models. In addition, retarded subjects were more imitative than nonretarded subjects. Clinton and Boyce (1975) administered informative and affective social reinforcement to retarded subjects performing an imitative motor task. Performance was found to be

better in the affective condition than in the information condition.

These studies have been concerned not only with establishing modeling effects in retarded populations but also at investigating the relevant variables defining the modeling paradigm. These variables can be classified along three dimensions. They are (1) those variables descriptive of the the subject, (2) those variables descriptive of the model, and (3) those variables descriptive of the task.

Notwithstanding the studies cited above, there is still a relative lack of research relating to the investigation of modeling parameters in retarded populations, especially the lower level populations. In light of the generally positive results reported thus far and the recent increase of reports in the literature of lower level retardate social responsivity (Altman, Cleland, & Swartz, 1972; Baer, Peterson, & Sherman, 1967; Cleland, Altman, & Swartz, 1971; Ross, 1970; Whalen & Henker, 1969; Zucker, 1976; Zucker & Altman, 1974), continuing research of the modeling phenomenon with retardates seems warranted and potentially fruitful. The purpose of the present paper is to describe two modeling studies with profoundly mentally retarded populations. The first investigated a parameter descriptive of the subject, namely, sex; and the second attempted to use a modeling technique to evoke a response.

## Experiment I

### Method

#### Subjects

Thirty-two subjects were randomly selected from a profoundly retarded population at a public residential institution. Half the subjects were males, the other half females. The mean IQ of the subjects was 15.56 (SD = 7.0)

with a range of 8 to 19. The mean chronological age (CA) of the subjects was 174.85 months (SD = 29.43) with a range of 106 to 232. Insofar as possible, subjects with severe sensory impairments were not included in the sample and all subjects were ambulatory.

Half the males and half the females were randomly assigned to a control and treatment condition. The model in all conditions was a male. Independent t-tests of IQ and CA data indicated no significant differences between the control and treatment conditions.

Procedure

Subjects were brought individually into the experimental room in a pre-determined random order. The experimental room was located adjacent to the day ward enabling subjects to be brought in with as little confusion or disruption of daily routine as possible. The experiment consisted of two sessions run on successive days.

Session one was identical for all subjects regardless of group membership. The subject was brought to the experimental room by an attendant and was seated at a table where he performed the initial ranking procedure. Ten different pairs of M & M's, representing all the different possible combinations of the five colors, red, yellow, brown, green, and orange, were presented to the subject one pair at a time. To control for position effects the number of times any one color appeared as the left choice or the right choice was distributed equally. Thus, each color appeared twice as the left choice and twice as the right choice. In addition, to control for order effects, the sequence of presentation of the pairs varied randomly for all subjects. The pairs of M & M's were affixed to 21.5 x 27.9 cm. cards with a distance of 15 cm. between the M & M's. The subject was asked

to indicate which M & M of the two he wanted. This was repeated for all ten pairs. The subject was then given one M & M of each color as a reward and told that the experimenter would return the next day at which time the subject would be able to choose M & M's again. The subject's responses on this initial ranking were recorded and a hierarchy of color preference based on Guilford's (1954) paired comparison method was determined individually for each subject.

In session two, subjects were again brought to the experimental room in the same predetermined random order and seated at the table. From this point on the procedure differed for the control and treatment group. In the control group, the subject was presented with all five colors of M & M's and told he could pick any one he wanted. To increase the salience of color cues, 10 M & M's of each color in 5 cellophane bags were actually presented to the subject for choice. After the subject had taken his bag of M & M's, he was asked to perform the ranking procedure again. The subject was presented the 10 pairs of M & M's exactly as before and his responses were recorded. In the treatment group, the subject was also presented with all five colors of M & M's for choice. However, before the subject could make his choice the experimenter said, "I think I'll choose one of these for myself," picked up the of the bags of M & M's, placed it in his pocket and grinned broadly. The subject was then allowed to pick from the remaining four bags. The color of M & M's the experimenter chose was determine individually for each subject based on his initial ranking of the colors. In each case, the eliminated alternative was the subject's fourth ranked color. This was done to insure that the eliminated alternative, or the one chosen by the experimenter, was one which was not popular with the

subject. After the subject had chosen from the remaining colors, he was asked to perform the ranking procedure again. The subject was presented the 10 pairs of M & M's exactly as before and his responses were recorded.

## Results

The subject's responses on the first and second ranking were compared. Specifically, the number of times the subject chose what was determined to be his fourth ranked color on the initial ranking was compared to the number of times he chose this color on the second ranking. Frequencies were tabulated on whether or not there was in increase in the number of times this alternative was chosen on the second ranking. The $\underline{X}^2$ statistic was used to ascertain differences between groups. Since some cell frequencies were less than 10, Yates' correction for continuity was applied to the $\underline{X}^2$ (Guilford, 1965).

The subject's post rankings of the fourth choice alternative were as follows: 12 subjects showed an increase in choice in the treatment condition, while 4 did not. In the control condition, 5 subjects increased their choice, while 11 did not. This difference between conditions produced a $\underline{X}^2$ of 4.52 (df=1) which was significant at the .05 level.

The subject's post ranking of the fourth choice alternative by sex were as follows: In the treatment condition, 7 males increased their choice, while 1 did not, and five females increased their choice while 3 did not. This difference between sexes produced a $\underline{X}^2$ of .33 (df=1) which was not significant ($p > .05$). In the control condition, 3 males increased their choice while 5 did not, and 2 females increased their choice, while 6 did not. This difference between sexes produced a $\underline{X}^2$ of .01 (df=1) which was not significant ($p > .05$).

## Experiment II

### Method

#### Subjects

Twenty subjects were randomly selected from a profoundly retarded population at a public residential institution. The mean IQ of the subjects was 18.52 (SD = 3.23) with a range of 8 to 29. The mean chronological age (CA) of the subjects was 106.71 months (SD = 20.68) with a range of 69 to 144. Insofar as possible subjects with severe sensory impairments were not included in the sample and all subjects were ambulatory.

The subjects were randomly assigned to a control or treatment condition. Independent t-tests of IQ and CA data indicated no significant differences between the control and treatment conditions.

#### Procedure

The subjects were brought to the experimental room one at a time in pre-determined random order with as little disruption as possible to the group activities in the day room. They were seated at a 120cm x 120cm table with a beige telephone 38cm from the edge in front of them. The model was seated to the left of the subject. A comic book was presented and the model said "Here is a book, let's look at the pictures". In the experimental group the phone rang 30 seconds after the book was presented. After two rings the model picked up the phone and said "Hello...yes...goodbye". and replaced the receiver. In the control group the phone did not ring and the model and subject looked at the book for 30 seconds.

The subjects were then told to keep looking at the book and that the model would be back in a few minutes. The phone then rang five times while the subject was alone at the table. Responses were recorded on the basis of

responding to the phone or not. If any contact was made with the phone the subject was recorded as responding.

## Results

Frequencies were tabulated on whether or not the subjects responded to the telephone. The $\underline{X}^2$ statistic was used to ascertain any differences between groups. Since some cell frequencies were less than 10, Yates' correction for continuity was applied to the $\underline{X}^2$ (Guilford, 1965).

In the treatment group 7 subjects responded while 3 did not. In the control group 4 subjects responded while 6 did not. This difference produced a $\underline{X}^2$ of .81 (DF=1) which was not significant ($p$ .05).

## Discussion

The major finding of the first investigation was that exposure of profoundly retarded subjects to a live model produced a significant increase in modeling behavior. In addition, there were no sex differences found; that is, the number of males and females in each group that increased their choice of the fourth ranked alternative did not differ significantly.

Previous studies using nonretarded children report disparate findings in terms of sex differences. Typically, studies of this nature (Martin, Gelfand, Hartmann, 1971) show differential effects due to model sex and subject sex, although not always in the same direction. In this study, however, the profoundly retarded subjects evidenced no sensitivity to the sex manipulation.

One possible explanation could be that their relative lack of experiences, as compared to nonretarded children, would not enable them to associate differential outcomes based on sex type of model. These children may not have any awareness of sexual-role stereotyping in their institutional environment. Also, it may be that the additional cues of sex of model and one's own sex do not have the importance attributed to these factors in higher level populations.

The results of the second investigation indicated that exposure of profoundly retarded subjects to a model produced no significant change in behavior. Responses of subjects in the treatment group were not significantly different from those of the control group.

It would seem that the problem here lies in the methodology employed, rather than with the subject population. The subjects were only exposed to the model once and since the required response was a novel one it may be that repeated exposure to the model would have enhanced the subjects responses. The behavior of one of the subjects lends some support to this argument. This subject picked up the telephone and said "hello." It turned out that this subject went home one weekend a month and was repeatedly exposed to telephone behavior. This observation may indicate that repeated exposure may have been a more effective procedure in this study.

Another possible explanation also deals with the novelty of the situation. The ringing of the telephone might have caused fear in young subjects and rather than model the answering behavior they displayed avoidance behavior.

Despite these considerations, however, the results of the second investigation indicated no modeling effect in this profoundly mentally retarded population.

In summary, the results of these investigations suggest some avenues for future research. While the first study demonstrated a modeling effect, the second demonstrated the problems in applying research results to a training situation. Continued systematic investigations of variables like task, duration of exposure and their interaction need to be carried out in order to make our efforts with lower level populations successful.

References

Altman, R., Cleland, C. C., & Swartz, J. D. Social responsivity in the profoundly mentally retarded. Perceptual and Motor Skills, 1972, 34, 101-102.

Altman, R., & Talkington, L. W. Modeling: An alternative behavior modification approach for retardates. Mental Retardation, 1971, 9, 20-23.

Baer, D. M., Peterson, R. F., Sherman, J. A. The development of imitation by reinforcing similarity to a model. Journal of the Experimental Analysis of Behavior, 1967, 10, 405-416.

Bandura, A. Influence of models' reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965, 1, 589-595.

Bandura, A. Principles of behavior modification. New York: Holt, Rinehart & Winston, 1969.

Bandura, A., Ross, D., & Ross, S. A. Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 1963, 66, 3-11.

Cleland, C. C., Altman, R., & Swartz, J. D. Dominance-submission in profoundly retarded male subjects under conditions of strong motivation. Journal of Psychology, 1971, 78, 185-191.

Clinton, L. & Boyce, K. Acquisition of simple motor imitative behavior in mentally retarded and nonretarded children. American Journal of Mental Deficiency, 1975, 79, 695-700.

Guilford, J. P. Psychometric methods. New York: McGraw-Hill, 1954.

Guilford, J. P. Fundamental statistics in psychology and education. New York: McGraw-Hill, 1965.

Martin, M. F., Gelfand, D. M., & Hartmann, D. P. Effects of adult and peer observers in boys' and girls' responses to an aggressive model. Child Development, 1971, 42, 1271-1275.

Ross, D. Effect on learning of psychological attachment to a film model. American Journal of Mental Deficiency, 1970, 74, 701-707.

Stephan, C., Stephano, S., & Talkington, L. W. Use of modeling in survival skill training with educable mentally retarded. Training School Bulletin, 1973, 70, 63-68.

Strichart, S. S. Effects of competence and nurturance on imitation of nonretarded peers by retarded adolescents. American Journal of Mental Deficiency, 1974, 78, 665-673.

Talkington, L. W., Hall, S. M., & Altman, R. Use of a peer modeling procedure with severely retarded subjects on a basic communication response skill. Training School Bulletin, 1973, 69, 145-149.

Turnure, J. & Zigler, E. Outer directedness in the problem solving of normal and retarded children. Journal of Abnormal and Social Psychology, 1964, 69, 427-436.

Whalen, C. K., Henker, B. A. Creating therapeutic pyramids using mentally retarded patients. American Journal of Mental Deficiency, 1969, 74, 331-337.

Zigler, E. Research on personality structure in the retardate. In N. R. Ellis (Ed.), International review of research in mental retardation, Vol. 1. New York: Academic Press, 1966.

Zigler, E. The retarded child as a whole person. In D. K. Routh (Ed.), The experimental psychology of mental retardation. Chicago: Aldine, 1973.

Zucker, S. H. & Altman, R. Reactance as a motivational technique with severely and profoundly retarded. Paper presented at the Annual Meeting of the American Association on Mental Deficiency, Toronto, Ontario, 1974.

Zucker, S. H. The effects of evaluative and non-evaluative audiences in retardate performance of simple and complex tasks. Paper presented at the Second Western Research Conference on Mental Retardation, San Antonio, Texas, 1976.