THE MODIFICATION OF LEISURE BEHAVIOR IN A HALF-WAY HOUSE FOR RETARDED WOMEN¹

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A multi-element baseline design combined with a multiple-baseline design, was used to investigate the effect of availability of materials, prizes for participation, and instruction on the leisure behavior of 14 mentally retarded women in a half-way house. A leisure program was conducted on weekday evenings, during which residents could choose to participate in any of six activities offered: puzzles, card games, clay, painting, weaving, and rug making. It was found that instruction in weaving and rug making significantly increased the percentage of residents participating in these activities, and that following instruction, prizes were not necessary to maintain high levels of participation. In contrast, prizes were more effective than mere availability of materials in maintaining participation in the other activities.

DESCRIPTORS: leisure activities, leisure behavior, recreation program, instructions, tokens, multiple baseline, residential settings, half-way house, retardates, adults

An independent living skill frequently included in curriculums for the mentally retarded (*e.g.*, Cincinnati Public Schools, 1964; Thiel, 1972), but seldom the focus of research, is the use of leisure. The few available studies suggest that such persons have deficits in their leisure skills. Miller (1965) investigated the adjustment of adults who had attended classes for the mentally retarded in the 1930s. Although no comparison was made with normal subjects, it was found that the majority of retarded subjects did not use community recreation facilities, did not belong to social groups, and tended to engage in solitary, nonproductive leisure pursuits. More recently, Bjaanes and Butler (1974), in an obser-

vational study of four group-living homes, found that residents spent only 3% of their free time in active, goal-directed leisure behavior, while passive leisure pursuits, such as watching television and napping, predominated. These studies suggest that variables influencing the leisure behavior of the mentally retarded should be investigated, so that techniques can be developed to increase the creative use of leisure.

The topic of leisure is not totally new to the field of applied behavior analysis: recreational activities and free time have often been used as reinforcers to modify other behaviors (*e.g.*, Hopkins, Schutte, and Garton, 1971; Osborne, 1969). However, increasing concern for the quality of leisure has led researchers to investigate techniques for modifying leisure behavior *per se*. Pierce and Risley (1974) found that membership in an urban recreation center could be increased and disruptive behaviors decreased by contingently adjusting the opening and closing times of the center. Similarly, McClannahan and Risley (1975) found that various techniques, such as prompting and providing prizes increased the participation of elderly nursing home residents in recreation activities. Finally, self-recording

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was found to increase attendance and work output in a swimming program (McKenzie and Rushall, 1974).

Preliminary Descriptive Study²

A preliminary descriptive study was conducted to characterize the leisure behavior of the 14 residents of the half-way house chosen for the present research. An observation instrument similar to that developed by McClannahan and Risley (1975) was used to take 30-min time samples of the residents' behavior on weekday evenings (7:00 to 10:00 p.m.) and on weekends (9:00 a.m. to 10:00 p.m.) for a two-week period. The basic procedure was for an observer to make a sweep of the public areas of the house and property at specified time intervals, recording for each resident encountered the following data: (a) her location, (b) her position, (c) whether she was engaged in verbal conversation (and if so, with whom), and (d) whether she was engaged in any of 16 specified activities, such as watching television, smoking, reading, grooming.

Taken as a whole, the data presented a picture of half-way house residents whose leisure time was spent in relatively inactive and nonproductive pursuits. On the average, 54% of residents were observed on any given observation. Of these, 42% were found in the living room; 68% were sitting or lying down. Although the majority were not so engaged, conversation was the single most popular activity (a mean of 31% of the residents were conversing), followed by watching television (23%), staring into space (12%), and eating (7%). Less than 15% of the observed residents were engaged in more active behaviors, such as arts and crafts, hobbies, reading, and table games. With these data in mind, an experimental study was conducted in which participation in a leisure program as a function of three variables was examined.

Multi-element Baseline Design

The simultaneous investigation of the effects of three variables requires a rather complex research strategy. Ulmann and Sulzer-Azaroff (1975) proposed that the multi-element baseline design, previously described by Campbell and Stanley (1963, p. 43-46) and Sidman (1960, p. 323-340) is suited to complex behavior analyses and is a promising alternative to the more commonly used reversal and multiple-baseline designs. The multi-element baseline design involves repeated measurement of a behavior under alternating experimental conditions. Rather than running each condition over several consecutive sessions until the data are stable, the conditions are alternated within short time periods—generally within sessions or from one session to the next. Using this design, it is possible to make a greater number of experimental manipulations within a given number of sessions. In addition, sequence effects can be minimized or at least assessed by counterbalancing the order of the conditions.

In the present study we sought to determine the factors responsible for nonparticipation in productive leisure activities and then to arrange conditions likely to produce that behavior. Three possible barriers to participation were investigated in this research: (1) nonavailability of materials, (2) lack of instruction in how to use the materials, and (3) inadequate reinforcement to produce and maintain the behavior.

METHOD

Setting and Participants

The study was conducted at Meridian House, a residential facility serving mildly retarded women in Tallahassee, Florida. The purpose of the Meridian House program is to teach residents living skills necessary for independent community living. The majority of residents come to the program from state institutions. While at Meridian House, they learn such skills as handling personal finances, home management, aca-

²An unpublished manuscript on the descriptive study including detailed procedures, reliability data, and detailed results is available from the first author.

demics, and social and vocational adjustment. Typically the residents are involved in a vocational program in the community during the day and spend evenings and weekends at the house.

Fourteen women who were residents of Meridian House during the summer of 1974 were asked to participate in the study. They ranged in age from 17 to 33 yr, and most were mildly retarded, with IQs ranging from 50 to 85 as measured by the Wechsler Scales. Four were competitively employed in restaurants, four participated in sheltered workshops, two received job training through Vocational Rehabilitation, and four were awaiting job placement.

All women participated on a voluntary basis in the Meridian House program. All residents were told by the house staff that a study on leisure would be conducted, that the study would involve offering a leisure program in the dining room five nights a week, and that participation in the leisure program would be voluntary. Arrangements were made with the staff to ensure that the present study did not interfere with any of the usual educational programs offered.

General Procedure

A leisure program was conducted in the dining room of the house on weekday evenings between the hours of 7:30 and 9:00 p.m. for 4.5 weeks. Residents who wished to participate could choose from the following six leisure activities: (1) painting, (2) card games, (3) puzzles, (4) clay, (5) inkle-loom weaving, and (6) latch-hook rug making. Sufficient materials were available for each activity, so that all residents could simultaneously engage in the same activity, if desired.

In choosing the particular activities to be included in the leisure program, a number of criteria were used: (1) the activities could be engaged in within the confines of the dining room, (2) the activities permitted the residents to interact in some way with materials or other people over a fairly continuous period of time, (3) the activities were not hazardous and required minimal supervision, (4) two of the activities required instruction; four did not, and (5) the

activities were appropriate to the interests and ability level of the residents.

The last two criteria were assessed through interviews with the house staff and a leisure questionnaire.³ The questionnaire was developed by the authors and administered orally to the residents before the study began. The questionnaire consisted of open-ended questions designed to elicit information on hobbies, and recreation center usage. The residents were also asked to estimate how often they had participated in each of 29 specific activities (using a five-point rating scale ranging from "never" to "daily"). Finally, the residents were asked to name activities they would like to have provided at Meridian House.

Questionnaire data were consistent with the impressions of the house staff and with the descriptive data, indicating that the residents' leisure interests focused primarily on watching television, sleeping, and conversing. However, the residents did indicate at least some interest in engaging in all of the activities chosen for the leisure program. In addition, most of the responses suggested that the residents had previously engaged in card games, puzzles, clay, and painting, and thus would not require instruction in these activities. In contrast, none reported previous or current participation in rug making or inkle-loom weaving.

Experimental Design: Availability versus Prizes

To determine whether availability of materials alone or availability plus prizes for participation was sufficient to modify the behavior, a multi-element baseline design was used. The leisure program was divided into two 40-min sessions, each conducted under different experimental conditions. Under the availability condition, the materials for the activities were displayed on the dining-room table, and an announcement was made to all residents on the premises that those who wished to do so could participate. Under

³A copy of the leisure questionnaire is available from the first author.

the prize condition, materials were again displayed, and the residents told that all who actively participated would earn tickets exchangeable for prizes at the end of the evening.

Prizes consisted primarily of personal items such as cosmetics, stationery, and record albums and ranged in value from \$0.25 to \$4.00. A variety of prizes was available, and the residents could save their tickets from night to night in order to purchase more expensive items. Participation during one prize session allowed the residents to purchase items costing approximately \$0.50.

Two 40-min sessions were conducted each night, one from 7:30 to 8:10 p.m. and the other from 8:20 to 9:00 p.m. The 10-min time period immediately preceding the second session was used to clear the room of residents, display the materials, and make an announcement concerning the conditions for the following session. On Days 1 to 3, the availability condition was in effect for both sessions. Throughout the remainder of the study, one session was conducted under availability, the other under prizes. The order of the conditions was counterbalanced across nights, so that the availability and prize conditions occurred with equal frequency during each time period.

Experimental Design: Instruction

To investigate the effects of instruction, the activities chosen for the leisure program were categorized according to the level of skills required for successful participation. A multiple-baseline design across activities was then used, so that instruction in certain activities was introduced at different times.

Painting, clay, puzzles, and card games were classified as "existing-repertoire activities", since it was assumed from the leisure questionnaire and staff interviews that they could be engaged in without special instruction. Instruction was not given at any time during the study on the existing-repertoire activities.

None of the residents had been seen to engage in activities involving the use of a loom or in

hook-rug making. Therefore, it was assumed that instruction in the use of these materials would be necessary before much engagement would occur—loom and rug making were classified as "instruction-required activities".

A baseline was obtained on the percentage of residents actively participating in each of the instruction-required activities, as well as the existing-repertoire activities, during nightly availability and prize conditions. On the Saturday following seven nights of baseline data collection, instruction was given in inkle-loom weaving. On the next Saturday, instruction was given in rug making. Using this design it was possible to examine the effects of instruction on participation in weaving and rug making during both the availability and prize conditions.

A multiple-baseline design across two activities requires that the activities be independent, *i.e.*, an individual's behavior in one activity does not influence behavior in the second activity. To prevent participation in one instruction-required activity from competing with participation in the second instruction-required activity, the two activities were never available at the same time. Thus, the availability and prize sessions were further divided, so that weaving was available during the first half of each session, and rug making during the second half. The existing-repertoire activities were available at all times during both sessions. A summary of time schedule and activities available is presented in Table 1. Table 1 also illustrates the counterbalancing of prize and availability conditions across days.

Instructional Workshops

Instruction in weaving and rug making was given by the first author and two student assistants on successive Saturdays. Each workshop lasted some 2 hr and was held in the dining room of the house. The house parents urged all residents to participate, but attendance was not required. Twelve of the 14 residents attended both workshops, two declined to receive instruction in either activity.

Table 1

Summary of the Time Schedule, Activities Available, and Experimental Conditions

Time	Day 4		Day 5	
	Activities	Condition	Activities	Condition
7:30-7:50	Weaving and ERA ^a	Availability	Weaving and ERA	Prize
7:50-8:10	Rug and ERA	Availability	Rug and ERA	Prize
8:20-8:40	Weaving and ERA	Prize	Weaving and ERA	Availability
8:40-9:00	Rug and ERA	Prize	Rug and ERA	Availability

^aERA denotes the "existing-repertoire activities" (painting, clay, puzzles, and cards).

The format for the workshops was similar. The first author gave an introduction, demonstrated the particular craft, and displayed samples of completed work. The residents were then divided into two groups and materials were distributed. The assistant proceeded to use social reinforcement and shaping to teach the sequence of skills involved in the activity. Thus, although the majority of residents were unable to perform the task before instruction, they could perform the entire chain of behaviors after minimal instruction, a few demonstrations, and 2 hr of practice.⁴

Observational Procedures

Time sampling was used to measure the percentage of residents participating in each of the activities during the leisure program. The observer stood at the side of the room and at 4-min intervals observed each resident in the room using a 10-sec observe, 5-sec record procedure. To eliminate observer bias, a seating chart was used to determine the order in which the residents were observed, *i.e.*, the resident sitting or standing in Position 1 at the work table was observed first and her data recorded; next, the resident sitting in Position 2 was observed and so on, until all residents around the tables were observed. Any residents walking or standing away from the tables were then observed. The time required to make one complete observation varied, but never exceeded 4 min. If an observation required less than 4 min, the observer paused

until the next 4-min interval began. Using this procedure, 10 observations were made during each of the 40-min prize and availability sessions, for a total of 20 observations per night.

The following data were recorded for each resident present: (a) name, (b) type of activity engaged in (painting, clay, cards, puzzles, weaving, rug making, or none), and (c) degree of engagement, (*i.e.*, whether the resident was actively or passively engaged in the activity).

A resident was scored as engaging in an activity if she had obviously chosen an activity and was sitting or standing with the materials for that activity in front of her. A resident was scored as not engaging in any activity if she was in the room, but had not chosen an activity (*e.g.*, resident who were observing others or looking at materials on the display table). Type of activity was scored according to the behavior occurring during the majority of the 10-sec observation interval.

Residents who were engaging in an activity were further scored according to passive or active engagement. To define the active and passive dimensions, on-task behaviors appropriate to each of the activities were identified. Active engagement was scored only if the resident exhibited one or more of the behaviors appropriate to the particular activity for the majority of the observation interval. Passive engagement was scored if any other behaviors were exhibited for the majority of the interval.

Appropriate behaviors, indicative of active engagement, included: (a) on-task behaviors, such as dipping brush in paint, shuffling cards, and cutting yarn; (b) preparatory and cleanup behav-

⁴A detailed description of the skill sequences and instructional procedures used is available from the first author.

iors, such as unwrapping clay and wiping up spilled paint; and (c) behaviors that did not involve manipulation or scrutinizing of materials but were nonetheless deemed appropriate, such as waiting for partner to deal cards and pausing briefly to admire completed work. Typical behaviors illustrative of passive engagement included: (a) inappropriate use of materials, such as throwing clay and stacking puzzle pieces, and (b) passive behaviors, such as holding materials but staring off into space.

The percentage of residents actively engaged in each of the activities was used as the dependent variable. In addition, active engagement was used to determine which residents earned tickets under the prize condition. Thus, residents were required to be actively engaged in some activity for four of the five observations made during the prize condition when weaving was available, and four of the five observations made when rug making was available. The residents, then, could earn two tickets each night.

Observers and Interobserver Agreement

Four trained students made the observations using a clipboard, record form, and a large wall clock with a sweep second hand which hung immediately above the work tables. The first author periodically stationed herself approximately 1.5 m from the primary observer (observers were positioned so that they could not see each other's record form) and made simultaneous and independent observations with each observer. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements for two behavior categories.

Interobserver agreement checks were made on 20% of the 4-min time samples (at least four checks were made each night—two during the prize condition and two during the availability condition). Interobserver agreement for type of activity ranged from 50% to 100%, with a mean of 98%. The range for kind of engagement was 50% to 100%, with a mean of 94%.

In all cases, the primary observer's data were used as the dependent measure.

RESULTS

Figure 1 shows the daily mean percentage of residents participating (*i.e.*, actively engaged) in the leisure program under the various experimental conditions. The two graphs at the top of the figure consist of data on the percentage of residents participating in the existing-repertoire activities (painting, cards, puzzles, and clay combined) for the availability sessions (left-hand graph) and prize sessions (right-hand graph). Since the existing-repertoire activities were available to residents at all times during both sessions, a single data point on these graphs represents the mean percentage of residents participating for the 10 observations made at 4-min intervals during the 40-min session.

The two middle graphs in Figure 1 consist of data on the percentage of residents participating in the weaving (loom) activity during the availability and prize sessions. Since weaving was available only during the first half of each availability and prize session, a single data point on these graphs represents the mean percentage of residents participating for the five observations made during the first 20 min of the session. Similarly, the data in the bottom two graphs were obtained by averaging the percentage of residents participating in rug making across the five observations made during the last 20 min of each session.

As can be seen in the top two graphs of Figure 1, merely making the existing-repertoire activities available resulted in approximately 20% participation or a mean of 2.8 residents (first 10 days of the top-left graph and the first three days of the top-right graph). When the prize condition was instituted (top-right graph) participation increased to almost 50% (mean of 6.7 residents). During this time, little participation in either weaving or rug making occurred under either availability or prize conditions.

Fig. 1. Daily mean percentage of subjects participating in weaving (loom), rug making, and the E. R. A. (existing-repertoire activities), as a function of instruction, availability, and prizes.

Instruction alone in the use of the loom was followed by an increase in participation to almost 50% (6.6 residents) and participation in existing-repertoire activities with no prizes dropped significantly; participation dropped slightly for that part of the session when prizes were available. Little difference is seen in using the loom with and without prizes (middle two graphs of Figure 1), although the prize condition appears to produce more stable participation.

The effects of instruction alone in the rug making activity showed an immediate increase in participation with these materials to approximately 50% (6.7 residents) under both the prize and availability conditions. It is also important to note that the residents' participation in existing-repertoire activities dropped to almost zero (top two graphs of Figure 1) following instruction in rug making.

It should be emphasized that the data presented in Figure 1 represent the mean percentage of total house residents scored as actively engaged in the various activities. Data were also obtained on the mean percentage of residents

observed who were passively engaged in some activity, as well as those who were in the dining room, but were not engaged in any activity. These percentages were low throughout the study for both the availability and prize conditions. On average, less than 4% of the observed residents were scored as passively engaged, and less than 7% were not engaged in an activity. Thus, residents who were in the dining room during the program were, for the most part, very active participants.

To determine whether active engagement of the residents actually resulted in a product, data were taken daily on the number of centimeters of fabric woven and the number of knots tied on the rug patterns. As shown in Figure 2, no fabric was produced on the looms before instruction. Immediately following instruction and closely paralleling the high percentage of engagement, some 500 cm per night were produced (it should be noted that there was no actual contingency to produce a product). When instruction was given in rug making, this effect was replicated, with an increase to about 700 knots

Fig. 2. Group output in weaving and rug-making activities as a function of instruction.

tied on the rug patterns per night following instruction.

Sequence Effects

There was an attempt to control for the effect of sequence by counterbalancing the prize and availability conditions, so that each condition occurred with equal frequency during each time period. Nonetheless, it became clear that the order of the conditions each night was having some systematic effect on the data. To examine this effect, participation during prizes and availability (disregarding the types of activities in which the residents were engaged) was analyzed for Days 4 to 22 as a function of the order of conditions.

As shown in Figure 3, a clear sequence effect on participation during the availability condition was obtained. On days when the availability condition was in effect for the first session, a median of 45% of the residents participated; when the availability condition was in effect for the second session, only 10% participated. In contrast, se-

Fig. 3. Median percentage of subjects participating in the leisure program as a function of the order of the experimental conditions.

quence had no effect on participation during the prize condition, with some 50% of the residents participating regardless of the time period involved.

Individual Behavior

The data in Figures 1, 2, and 3 seem to represent accurately the behavior of individual residents. For example, only six of the 14 residents participated during the first three days of the study when all sessions were conducted under availability. Each of these residents typically participated for only one session on one or two of the first three days, so that there were seldom more than two residents participating at any one time. Following Day 3, these six residents began to participate regularly under the prize condition, although their participation remained sporadic under the availability condition. In addition, the introduction of a prize session on Day 4 brought four residents, who had not previously participated, into the program. Of the four remaining residents, one did not participate at any time during the study; three began to participate irregularly, but only after instruction in weaving and rug making and only under the prize condition.

A prize condition was in effect for 19 days of the 22-day study. Eight of the 14 residents earned tickets that could be exchanged for prizes on 10

or more of these days. Three residents earned tickets on four or five of the 19 days, two earned tickets on only one or two days, and one earned no tickets. On the 19 days when prizes were in effect, an average of six residents per day earned prizes. On the whole, both the data and the subjective comments of the residents indicated that the prizes served as effective reinforcers in maintaining sustained participation in the leisure program.

DISCUSSION

The multiple-baseline aspect of the experimental design showed that instruction was the critical factor in increasing participation in the weaving and rug making activities: both engagement and output increased dramatically following instruction. The multi-element aspect of the design contributed further by showing that availability of these activities after instruction was sufficient to maintain high levels of participation—additional reinforcement was not necessary. In contrast, prizes seemed to be more effective than simple availability in motivating the residents to participate in the existing-repertoire activities before they had been instructed in weaving and rug making.

The multi-element aspect of the design also made it possible to analyze systematically the effects of the order of the conditions on participation, which indicated that prizes maintained sustained activity for the full evening. If the first 40-min session was conducted under the availability condition and the second under prizes, the residents tended to participate during both sessions. However, when prizes were first and availability second, participation fell drastically during the second session, because of a "novelty" effect, observed regardless of the type of activity in which the majority of residents were engaged. It suggests that initially novelty may be sufficient to maintain active leisure behavior, but that prolonged performance, at least within a given night, requires additional reinforcement. Although residents appeared to become bored with

the activities within nights, little boredom appeared to occur across nights.

Also, residents did not participate equally in the leisure program. Indeed, one resident who was near completion of the half-way house program and spent much time away from the house, did not participate at all. Three others showed little interest and participated minimally, regardless of experimental conditions. It is possible that greater participation might have been obtained if a wider variety of activities had been offered. This is consistent with the basic philosophy of leisure education as discussed by Corbin and Tait (1973): the individual should be exposed to a variety of desirable leisure alternatives.

A shortcoming of the present study is the lack of objective follow-up data, which were not collected for several reasons. Most important, the authors chose to approach the topic of leisure in a stepwise fashion, focusing first on the development of a methodology for studying leisure and second on a detailed investigation of the variables responsible for initial changes in leisure behavior. Given the extreme complexity of leisure as a psychological, social, and economic phenomenon, and given that the topic is relatively new to the field of applied behavior analysis, this seemed to be a reasonable approach. Data on the long-term maintenance of active leisure is essential; however, it was not thought to be critical in an initial study on the leisure behavior of the mentally retarded. The present study, at the very least, suggests that leisure behavior can be modified and that one strategy in implementing a leisure program in a half-way house might be to: (a) purchase supplies for a limited number of productive arts and crafts activities, (b) provide instruction, and (c) make the activities available.

A final consideration is the desirability of various leisure activities. The particular activities chosen in the present study were not selected because there are empirical data to support their value in terms of furthering community adjustment of the mentally retarded. Indeed the au-

thors have no such data and know of no adequate research on the subject. Instead, the activities were chosen because the residents expressed interest in them on the leisure questionnaire and because it seemed possible to obtain reliable and meaningful data on the residents' engagement in the activities, given the practical constraints on doing research in a half-way house setting.

The significance, then, of the present study depends not so much on the particular activities chosen as on the contribution made to the development of a behavioral technology of leisure. The present research shows that leisure behavior can be measured objectively, and that the overwhelmingly passive behavior of mentally retarded residents of a half-way house can be modified, at least on a short-term basis, by providing access to and instruction in certain arts and crafts activities and by providing extrinsic reinforcement for participation in certain existing-repertoire activities. Whether participation in such activities can be maintained in an independent living situation and whether such participation is associated with ease of community adjustment are empirical questions to be answered in future research.

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