

*THE RELATION BETWEEN CHOOSING  
AND WORKING PREVOCATIONAL TASKS IN  
TWO SEVERELY RETARDED YOUNG ADULTS*

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This study investigated the relation between prevocational preference, as measured by the client's selection of a task object, and the work that followed that choice. After selecting a task object, the clients worked a task previously assessed to be more or less preferred than the one indicated by the object. The results indicated that when the selection represented a task that was *less* preferred than the one actually worked, choices for that object increased on subsequent trials. Conversely, when the selection represented a task that was *more* preferred than the task subject actually worked, choices for the object decreased on subsequent trials. The work that followed object choices reinforced or punished subsequent selections. These findings indicated that the clients' object choices were valid indicators of their preference for working different tasks. They were also consistent with Premack's principle that one class of responses may reinforce or punish a different class of responses for the same individual.

DESCRIPTORS: choice behavior, prevocational tasks, Premack principle, retardates

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Career planning usually begins with an assessment of a person's interests and aptitudes for different jobs. This may occur through written tests or informally through verbal expressions of job preference. Unfortunately, such procedures are not likely to be effective for persons who cannot read, write, or communicate their needs, much less their vocational preferences. For these persons, individualized career planning based upon task or job preference is not possible. One solution to this problem is to develop special interest tests such as the nonreading procedures developed for the educable mentally retarded (Becker & Ferguson, 1969). It may even be necessary to develop a nonverbal procedure for severely handicapped persons for whom verbal communication skills are limited or nonexistent.

The feasibility of this approach has received support in a study by Reid and Hurlbut (1977) who demonstrated that four noncommunicative,

multiply-handicapped individuals could express preferences for different leisure time activities, once the subjects were trained to use a communication board. In another study, Mithaug and Hanawalt (1978) employed a nonverbal method to assess the task preferences of three noncommunicative, severely retarded adults who worked in a prevocational training program. This procedure consisted of presenting the subjects with a tray containing a pair of objects representing different tasks and then requiring the subjects to pick up only one of the objects. The object selected was the task worked for that period. The results indicated that all three subjects consistently selected some objects over others, suggesting that the subjects preferred to work on the tasks represented by the selected objects.

Although the Mithaug and Hanawalt study presented convincing evidence of the consistency of object selections (or preferences), it did not demonstrate that the clients also preferred to work on the tasks represented by those objects. It was possible, for example, that the selections were a function of properties characteristic of the objects rather than the type of work they

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represented. In effect, the study was an incomplete analysis of vocational preference because it did not demonstrate a functional relation between choice behaviors and the responses required to complete the task.

The present study investigates this relation by determining if the responses required to complete different tasks have a reinforcing or punishing effect on the selection response. In a new application of the Premack principle, the study examines the contingency between task responses and choice responses. When a client's selection response (object choice) results in work on a task that has been previously assessed to be less preferred, will subsequent selections of that object decrease? Conversely, when selections result in work on tasks previously assessed to be more preferred, will selections of those task objects increase?

## METHOD

### *Subjects and Setting*

The two clients, Gary and Mary, were 19 and 20 years old, respectively. They were among the three clients of the previous study on prevocational task preferences (Mithaug & Hanawalt, 1978). The third client, James, had graduated to an advanced vocational training program and was not available for this study.

The clients' intellectual levels were assessed to be in the severely retarded range. The communication disorder specialist assessed Gary's expressive and receptive language skills at 28 to 32 months. Mary, who was also diagnosed as having Down's syndrome, had no speech and did not make any speech sounds. Her receptive language skills were assessed at 28 to 32 months.

The sessions were conducted each morning between 9:30 and 11:30 in the prevocational classroom located in a laboratory school in a university setting. The clients sat at a 1.4 × 5.3-m work table, situated in the center of the room and shared by four other clients working at the sides and opposite ends of the table.

### *The Prevocational Tasks*

The tasks were the same as those used in the Mithaug and Hanawalt study: sorting, collating, stuffing, pulley assembly, flour sifter assembly, and circuit board stuffing. The clients had been working on the tasks for approximately two years prior to the study.

### *Method of Pair Choices*

The method of pair choices consisted of 15 pair combination choice trials during which each of the six tasks was paired with the remaining five tasks. Every two days, the clients completed their choices from the 15 possible pair combinations, eight selections on the first day and the remaining seven selections on the second day.

The experimenter presented a 35- × 45-cm tray containing two representative objects taken from each of the tasks. She randomly arranged the objects on the left and right sides of the tray, placed the tray on the table beside the client and said "Pick one up, please." She stood behind and out of sight of the client during the selection. This prevented accidental experimenter cues that could influence the selection process. The client picked up one object from the tray and set it on the table. Then, the experimenter removed the tray with the remaining objects, recorded the choices, and supplied materials for the client to work the task for a 7-min period. At the end of the period, a buzzer sounded to end work, and the clients left their work stations for a 2-min break while the experimenter recorded data and prepared for the next choice.

All choice pairs were presented at random from the available pair combinations. The task selected to work on one trial was paired at random with a different task on the next trial. For example, if collating was chosen over stuffing on trial 1, it was paired at random with a different task on trial 2, i.e., with flour sifter assembly, sorting, circuit board stuffing, or pulley assembly. If collating was chosen again over the flour sifter assembly, it was paired at ran-

dom with one of the remaining three tasks on the next trial. This procedure was repeated for all possible pairs, as long as the client continued to select collating. On the sixth trial, a new pair combination was selected at random and the procedures repeated. For all choices, the task chosen on one trial was included in the pair combination of the subsequent trial, unless all combinations with that task had been presented on previous trials. Then, a new combination was selected at random.

#### *Baseline Conditions*

During baseline conditions the clients worked on the tasks indicated by their object choice. For example, selection of the booklet from the choice tray was followed by work on the collating task and selection of a folded sheet from the tray resulted in work on the stuffing task.

#### *Task Substitution Conditions*

There were two types of task substitutions. During the preferred task substitutions the client's selection of a task object resulted in work on a relatively more preferred task, and during the nonpreferred task substitutions, the selection resulted in work on a relatively less preferred task. Task substitutions alternated with baselines in separate condition sequences.

For Gary, the preferred task substitution condition involved the sorting and stuffing tasks. When he selected the stuffing object (representing a less preferred task), he was assigned to work on the sorting task (a more preferred task). During this sequence, three baselines alternated with two task substitutions over a 56-day period. Gary's nonpreferred task substitutions involved the flour sifter and collating tasks. When he selected the collating object (representing a more preferred task), he was assigned to work the flour sifter task (a less preferred task). This sequence included three baselines interspersed with two task substitutions over a 63-day period.

For Mary, the preferred task substitution conditions involved the stuffing and flour sifter tasks.

When Mary selected the object representing the flour sifter task, she was assigned to work on the stuffing task. In this sequence, two baselines alternated with two task substitutions over a 75-day period. There was no final baseline in this sequence as the school quarter ended and the class schedule changed during the subsequent quarter. Mary's nonpreferred task substitution conditions involved the pulley and stuffing tasks. When Mary selected the object representing the stuffing task, she was assigned to work on the pulley task. In this sequence, three baselines alternated with two task substitutions over a 53-day period.

The method of pair comparisons was used for both of Gary's sequences and for Mary's nonpreferred task substitution sequence. The procedure was modified for Mary's preferred task substitutions as data from a previous sequence indicated that her pulley choices did not increase when they resulted in work on the more preferred stuffing task. Possibly this was because Mary selected the pulley task object so infrequently that she had few opportunities to learn the new contingency. In addition, the scheduling of the pulley choices with the nine other task choices over the 2-day period may have delayed Mary's learning the consequences of that selection.

The comparison procedure used for Mary's preferred task substitutions consisted of a single pair choice presented twice each day. Instead of choosing task objects from the 15-pair combination presented over a 2-day period, Mary selected objects from the same pair combination, sorting and pulley. These tasks were selected because on previous choice trials Mary had selected each with comparable frequencies. This provided a baseline from which to assess the reinforcing effects of working on the stuffing task. During the baselines, there were two choice trials each day with Mary selecting either the sorting or flour sifter objects. The object selected indicated the task to be worked during the 7-min period that immediately followed. During task substitutions, a flour sifter selection resulted in

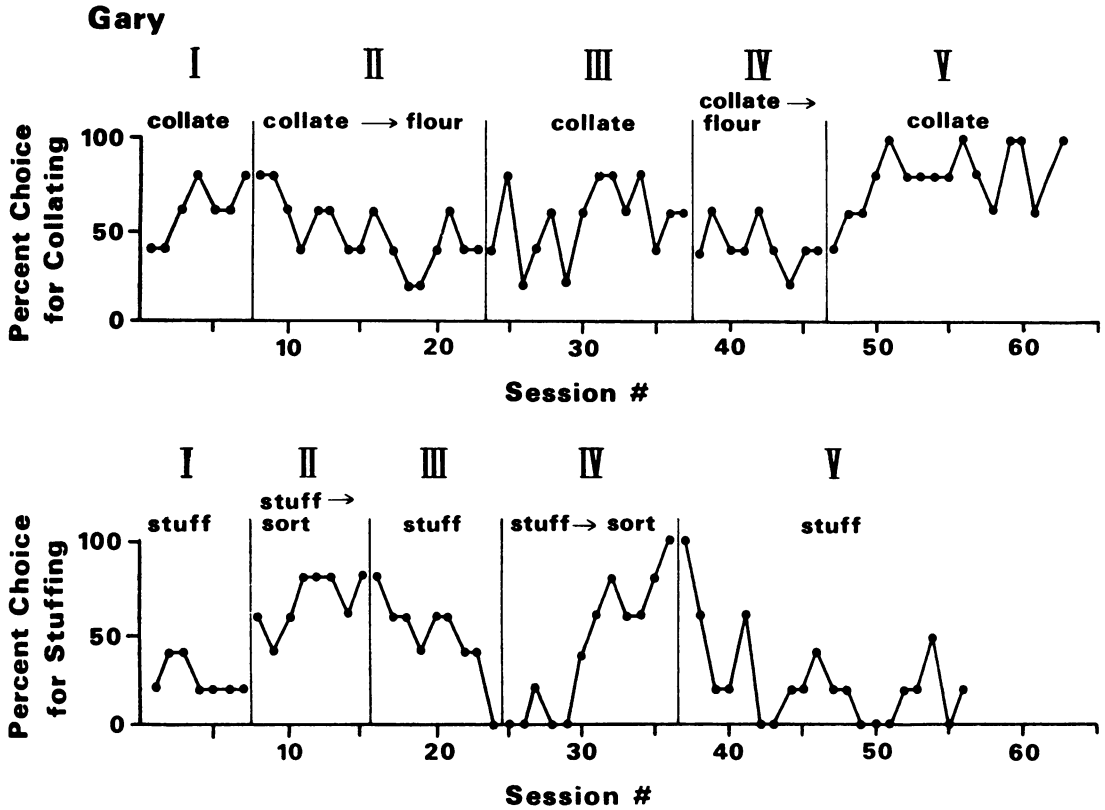


Fig. 1. The upper graph shows Gary's percentage of choices for the collating object during Conditions I, III, and V when those selections resulted in work on that task; and during Conditions II and IV when collating selections resulted in work on the flour sifter task. The lower graph shows Gary's percentage of choices for the stuffing object during Conditions I, III, and V when those selections resulted in work on that task; and during Conditions II and IV when stuffing selections resulted in work on the sorting task.

work on the stuffing task, which was previously assessed to be more preferred than the flour sifter task. Selection of the sorting object, however, resulted in work on that task.

#### Scoring Procedures and Reliability

Choices for task objects were scored when the clients picked up one of the objects from the tray and set it on the table. A choice was not recorded when a client picked up an object and replaced it on the tray. Another teacher in the classroom provided intermittent reliability checks on more than 100 daily sessions throughout each condition of the experiment. An agreement was defined as both observers having recorded the same object choice for a given choice trial with a given client. The percentage of agreement was computed by dividing the

number of agreements by the total number of agreements plus disagreements multiplied by 100. The average percent agreement was 91%.

#### RESULTS

The two graphs in Figure 1 present data on Gary's choices for collating and stuffing during baseline and task substitution conditions. Data in the first graph suggest that choices for the collating object decreased when those selections resulted in work on the flour sifter task. The mean choices for collating were 69% for the three baselines combined and 46% of the two task substitution conditions combined. Data in the lower graph show that choices for the stuffing object increased when those selections resulted in work on the sorting task. The mean

choices for the stuffing object were 31% during the three baselines combined and 52% during the two task substitutions combined.

The two graphs in Figure 2 present data on Mary's choices for the stuffing and flour sifter objects during baseline and task substitution conditions. In the upper graph, Mary's choices for the stuffing object decreased when they resulted in work on the pulley assembly task. The mean choices for the stuffing object were 93% during the three baselines combined and 56% during the two task substitutions combined. In the lower graph, which presents data during the modified choice procedures, Mary's selections of the flour sifter object increased when they resulted in work on the stuffing task. The mean choices for the flour sifter object were 46% during the two baselines combined, and 50% during the two task substitutions combined.

DISCUSSION

These results demonstrate the reinforcing and punishing effects of working different tasks. The effects of working a punishing task were demonstrated when Gary's choices for the collating object decreased during the flour sifter task substitutions and when Mary's choices for the stuffing object decreased during the pulley task substitutions. The effects of working a reinforcing task were demonstrated when Gary's choices for the stuffing object increased during the sorting task substitutions, and when Mary's choices for the flour sifter object increased during the stuffing task substitutions. This relation between selecting objects and working tasks suggests that the selection response is a valid indicator of the client's preferences for different types of work, a relationship suggested by the Mithaug and Hanawalt study (1978).

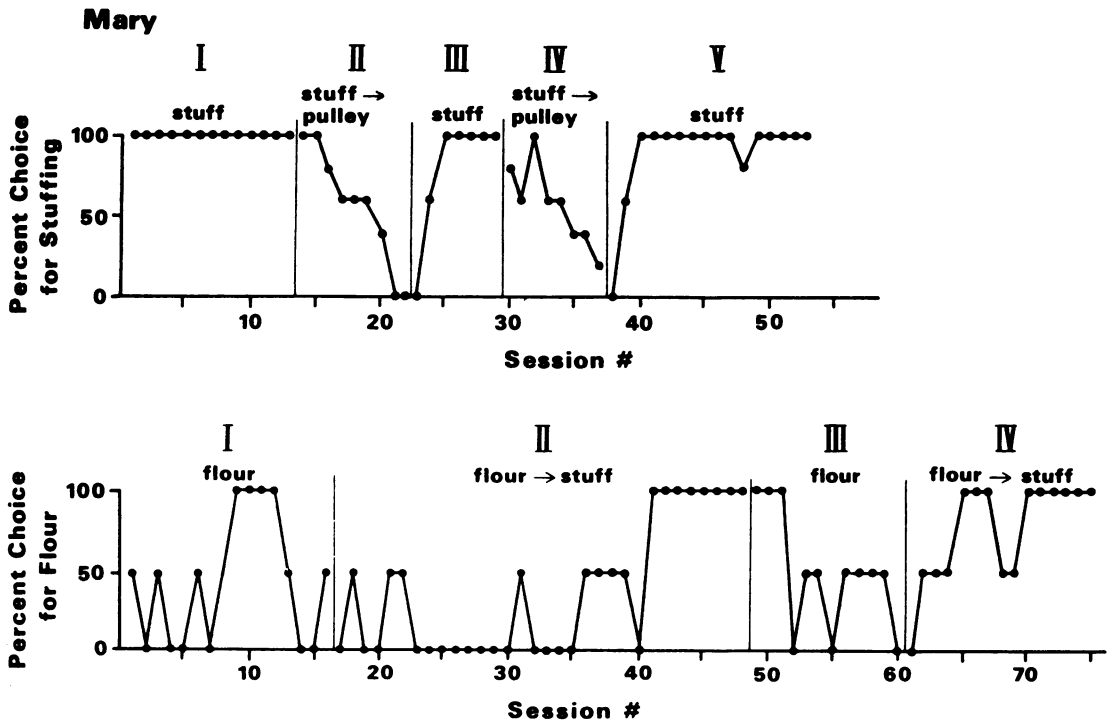


Fig. 2. The upper graph shows Mary's percentage of choices for the stuffing object during Conditions I, III, and V when those selections resulted in work on that task; and during Conditions II and IV when stuffing selections resulted in work on the pulley task. The lower graph shows Mary's percentage of choices for the flour sifter object during Conditions I and III when those selections resulted in work on that task, and during Conditions II and IV when flour sifter selections resulted in work on the stuffing task.

We should note however that only three of the four experimental sequences employed the 15-pair comparison procedure. The fourth sequence used a single comparison procedure in which Mary chose between the same object pairs, flour sifter and sorting. During the two baselines, Mary selected each object with comparable frequencies, i.e., 44% and 56% for flour sifter and sorting during Condition I, and 50% each for the two objects during Condition III. During the last 10 days of the task substitutions when a flour sifter choice resulted in work on the stuffing task, flour sifter selections increased to 85% and 90% during Conditions II and IV, respectively. It took much longer for Mary to choose flour sifter consistently during Condition II than during Condition IV. Mary's learning of the new consequence for the flour sifter choice in Condition II may have been affected by her opportunities to choose the sorting task. In the 24 sessions preceding consistent selections of the flour sifter object, Mary selected the sorting task 100% of the trials for 16 sessions and 50% of the trials for 8 sessions. Each time she selected the sorting task, reinforcement for flour sifter selections was not possible.

This study constitutes yet another demonstration of Premack's principle that high-frequency responses may serve as reinforcers for low-frequency responses (Premack, 1959). It also shows how low-frequency responses may serve as punishers. In a logical extension of the original analysis, Premack (1971) described a punishment procedure in which a less preferred behavior is contingent upon a more preferred one. Krivacek and Powell (1978) employed this pro-

cedure to decrease inappropriate behaviors of three severely retarded adolescents, making the less preferred behaviors of running, tracing, and ball rolling contingent upon the higher frequency behaviors of talking out, self-stimulation, and ritualistic hand movements. The present study replicates this application of the punishment paradigm and, in addition, demonstrates the symmetry of Premack's analysis by employing the same class of behaviors (working on a task) as a punisher and reinforcer for the relatively more/less preferred behavior of choosing (picking up) a task object.

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