# VALIDATING PREDICTED ACTIVITY PREFERENCES OF INDIVIDUALS WITH SEVERE DISABILITIES

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We examined the accuracy of 24 staff members' predictions of activities preferred by 14 individuals with severe disabilities. For each of 144 activities, staff members assigned a client preference rating of "likes a lot," "likes," or "dislikes." Two activities from each category were randomly selected for each individual with disabilities. Pairs of selected activities were presented to the individuals, who were prompted to choose an activity. Staff members' activity preference ratings correctly predicted the choices made by the individuals with disabilities for 78% of the trials. The more divergent the preference ratings of the paired activities, the more likely staff members were to predict correctly the activity selected by a participant.

DESCRIPTORS: preferences, choice, mentally retarded adults

Identifying reinforcing stimuli is a crucial aspect of applied behavior analysis, and for this reason there have been many efforts to assess preferences of individuals with severe intellectual disabilities (e.g., Green, Reid, Canipe, & Gardner, 1991; Green et al., 1988; Pace, Ivancic, Edwards, Iwata, & Page, 1985). Some assessments have documented whether stimuli informally nominated as "preferred" actually functioned as reinforcing stimuli (Mason, McGee, Farmer-Dougan, & Risley, 1989; Parsons, Reid, Reynolds, & Bumgarner, 1990).

For individuals with disabilities, as for all people, expressing preferences and making choices are important behaviors in their own right, regardless of the reinforcing effects preferred stimuli might produce when delivered contingent on an individual's emitting other targeted behaviors (e.g., Bannerman, Sheldon, Sherman, & Harchik, 1990; Guess, Benson, & Siegel-Causey, 1985; Shevin & Klein,

1984). In addition, the importance of expressing preferences and making choices in the lives of participants with disabilities has been empirically bolstered. Expressing preferences or making choices has been associated with increases in leisure activity participation (Dattilo & Rusch, 1985), spontaneous verbal requests (Dyer, 1989), and attention to work tasks (Parsons et al., 1990), and decreases in serious problem behaviors (Dyer, Dunlap, & Winterling, 1990) and social avoidance behaviors (Koegel, Dyer, & Bell, 1987).

Two strategies have been used to identify preferences of individuals with disabilities. One involves inferring a participant's preferences based on responses to individual stimuli, presented one at a time, from a set of options (e.g., microswitch-activated toys). Stimuli that produce the highest rates of responding are considered to be preferred (e.g., Pace et al., 1985; Steege, Wacker, Berg, Cigrand, & Cooper, 1989). A second strategy involves presenting two or more stimuli at the same time and prompting the participant to choose (e.g., Fisher et al., 1992; Reid & Parsons, 1991).

Research has compared results obtained from systematic assessments of preferences of participants with disabilities with caregivers' predictions about their preferences. To date, caregivers have not fared well at predicting preferences (Favell & Cannon, 1976; Green et al., 1988, 1991; Parsons & Reid, 1990).

Identifying preferred activities seems to be an important aspect of improving the quality of life, particularly in community residences in which activity options are numerous. Much of the preference research, however, has been conducted in large public residential facilities and has included only limited stimuli (e.g., Green et al., 1988, 1991; Parsons & Reid, 1990; Reid & Parsons, 1991). This study was undertaken in community residences to determine whether staff members could correctly predict broad activity preferences of participants with severe intellectual disabilities.

## METHOD

### Participants

Fourteen adults with severe or profound intellectual disabilities and 24 direct-care staff members from 10 residential programs participated. A pair of staff members was selected to provide activity information about each individual with disabilities; these staff members had participated in activities with the individual several times each week during the 4 months preceding the study. Staff members had an average of 22 months of direct-care experience in their residential setting. Demographic data regarding the participants with disabilities are presented in Table 1.

### Procedure

*Assessing activity preferences.* Staff members were interviewed with the aid of the Resident Lifestyle Inventory (RLI) (Kennedy, Horner, Newton, & Kanda, 1990) to obtain information about a participant's preferences. The RLI lists 144 typical home and community activities. Staff members were instructed to rate activities the participant "likes a lot" with a "++," activities the participant "likes" with a "+," and activities the participant "dislikes" with a "0." They were asked to refrain from rating activities that they had never seen the participant do, or for which they could not reach consensus. Staff members were instructed to delete any activity the participant could not do in 30 min or less and any activity that could not be delivered to

a participant if he or she chose it in a "preference trial" (described below).

A random numbers table was used to select six activities, two each from the ++, +, and 0 categories for each participant, with the exception of Kelly, for whom staff could identify no "disliked" activities. The selected activities appear in Table 2.

*Identifying choice responses.* Staff members were asked how they would typically present each activity to the participant as a choice option (e.g., verbal cue, verbal cue plus representational object, etc.), and how the participant would typically choose the activity. This information was noted on a data collection form to provide both a standard protocol for presenting each activity and an operational definition of choice.

*Scheduling preference trials.* A participant's six selected activities were grouped in 12 mutually exclusive and exhaustive activity pairs, omitting any pairs with identical ratings. There were four pairs associated with each of the following categories: (a) ++ versus +, (b) ++ versus 0, and (c) + versus 0. Activity pairs were first randomly sequenced and then counterbalanced for presentation to a participant: For the first pair of activities, the one with the higher preference rating was listed first (and was presented to the participant first); for the second pair of activities, the activity with the lower preference rating was listed (and presented) first; and so on.

Staff members were asked to name one additional activity, object, or edible item that was "highly preferred" by the participant and could be consumed or used quickly (e.g., a portion of a soft drink), as well as one activity, object, or edible item that the participant "dislikes" or "feels neutral" about. These two items were presented in a warm-up trial designed to increase the likelihood that a participant would emit a choice response during the preference trials.

*Preference trials.* Preference trials were conducted in the residences by the staff. Each trial consisted of presenting an activity pair in accordance with the protocol. If the participant chose an activity, it was immediately provided. If the participant did not choose an activity within 15 s, the

Table 1
Demographic Data

| Partici-pant | Gender | Age | Level of MR | Years in current residential setting | Years in institutional setting | Communication |
|---|---|---|---|---|---|---|
| Anne | F | 23 | Profound | 5 | 6 | Alternative—<br>Modeling (shows what she wants) |
| Betty | F | 34 | Profound | 3 | Unknown | Alternative—<br>Leading, modeling, gesturing |
| Carl | M | 22 | Severe | 6 | N/A | Verbal—<br>Uses words and is easily understood |
| Dennis | M | 22 | Severe | 6 | N/A | Alternative—<br>Gesturing |
| Evan | M | 55 | Profound | 18 | 23 | Verbal—<br>Uses words and is easily understood |
| Frank | M | 48 | Severe | 18 | Unknown | Verbal—<br>Uses words but somewhat difficult to understand |
| George | M | 43 | Profound | 17 | Unknown | Symbolic—<br>Signing |
| Hank | M | 35 | Profound | 3 | 28 | Verbal—<br>Uses words and is easily understood |
| Irene | F | 38 | Severe | 4 | 16 | Verbal—<br>Uses words but very difficult to understand |
| Janis | F | 50 | Unknown | 4 | 10 | Verbal—<br>Uses words and is easily understood |
| Kelly | M | 28 | Unknown | 4 | N/A | Verbal—<br>Uses words and is easily understood |
| Lisa | F | 54 | Severe | 17 | 22 | Verbal—<br>Uses words and is easily understood |
| Matt | M | 32 | Profound | 3 | 25 | Symbolic—<br>Signing |
| Nancy | F | 34 | Profound | 3 | 5 | Symbolic—<br>Signing |

pair was presented again. If after three such presentations the participant had not chosen, that activity pair trial was terminated and was not rescheduled.

It took an average of 25 days to complete all preference trials for each participant (range, 2 to 73 days). One participant became ill three times over the course of the study and required 73 days to complete all trials. Trials were scheduled in advance in order not to interfere with staff members' regular duties. To ensure that any chosen activity could be provided immediately, some trials were scheduled for evenings or weekends and required planning with both staff and family (e.g., overnight visit with family). The average number of days between trials was 2.5, although in some cases multiple trials were scheduled on a single day.

### Dependent Variables

The dependent variables for the study were the participants' activity choices. A participant made a "predicted choice" when he or she chose the activity that the staff members had rated as more preferred. When a participant chose the activity with the lower

Table 2

Randomly Selected Activities and Predicted Preference

| Partici-pant | Selected activities | Predicted preference |
|---|---|---|
| Anne | (1) Taking a bath/shower (2) Eating a meal | ++ |
|  | (1) Accompanying staff on business (2) Preparing a meal | + |
|  | (1) Dressing/undressing (2) Caring for hair | 0 |
| Betty | (1) Taking a bath/shower (2) Preparing meal | ++ |
|  | (1) Listening to radio (2) Playing table/card games | + |
|  | (1) Receiving/writing letter (2) Changing linens on bed | 0 |
| Carl | (1) Listening to radio (2) Purchasing a snack | ++ |
|  | (1) Playing catch (2) Emptying garbage | + |
|  | (1) Jogging (2) Buying/storing groceries | 0 |
| Dennis | (1) Overnight visit with family/friends (2) Using sit-down restaurant | ++ |
|  | (1) Listening to radio (2) Playing basketball | + |
|  | (1) Maintaining wardrobe (2) Changing linens | 0 |
| Evan | (1) Jogging (2) Purchasing a snack | ++ |
|  | (1) Preparing a snack (2) Doing yard chores | + |
|  | (1) Washing/drying clothes (2) Furniture care | 0 |
| Frank | (1) Riding a bike (2) Receiving/making phone calls | ++ |
|  | (1) Accompanying staff on business (2) Taking a bath/shower | + |
|  | (1) Attending plays/concerts (2) Going to park | 0 |
| George | (1) Watching television (2) Attending plays/concerts | ++ |
|  | (1) Using sit-down restaurant (2) Shopping/buying personal items | + |
|  | (1) Jogging (2) Riding exercise bike | 0 |
| Hank | (1) Using fast-food restaurant (2) Using sit-down restaurant | ++ |
|  | (1) Working on puzzles (2) Making bed | + |
|  | (1) Maintaining wardrobe (2) Using medical services | 0 |
| Irene | (1) Reading/viewing books, magazine, etc. (2) Using cafeteria/snack shop | ++ |
|  | (1) Planning meals (2) Emptying garbage | + |
|  | (1) Dental hygiene (2) Using medical services | 0 |
| Janis | (1) Receiving/making phone calls (2) Using vending machine | ++ |
|  | (1) Watching television (2) Gardening | + |
|  | (1) Using sauna (2) Responding to fire drill | 0 |
| Kelly | (1) Using cassette player (2) Eating a meal | ++ |
|  | (1) Dressing/undressing (2) Preparing meals | + |
| Lisa | (1) Accompanying staff on business (2) Using fast-food restaurant | ++ |
|  | (1) Participating in exercises/calisthenics (2) Buying/storing groceries | + |
|  | (1) Washing/drying clothes (2) Furniture care | 0 |
| Matt | (1) Swimming/diving (2) Purchasing a snack | ++ |
|  | (1) Listening to radio (2) Going to park | + |
|  | (1) Using rebounder/trampoline (2) Cleaning bathroom | 0 |
| Nancy | (1) Walking (2) Taking a bath/shower | ++ |
|  | (1) Completing morning routine (2) Completing evening routine | + |
|  | (1) Washing/drying dishes (2) Floor care | 0 |

Note. ++ = likes a lot; + = likes; 0 = dislikes.

preference rating, the response was recorded as an "unpredicted choice." If a participant did not choose one of the two activities within 15 s, a "no response" was recorded.

### Reliability

*Stability of preference ratings.* Stability of ratings was assessed via test–retest administrations of

Table 3

Participant Choices and Accuracy of Staff Predictions, by Activity Pairs

| Participant | Set 1 | | | Set 2 | | | Set 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | + + | 0 | NR | + | 0 | NR | + + | + | NR |
| Anne | 3 | 0 | 1 | 3 | 0 | 1 | 1 | 3 | 0 |
| Betty | 4 | 0 | 0 | 0 | 0 | 4 | 1 | 3 | 0 |
| Carl | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 0 |
| Dennis | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Evan | 3 | 1 | 0 | 2 | 1 | 1 | 3 | 1 | 0 |
| Frank | 2 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 |
| George | 3 | 0 | 0 | 4 | 0 | 0 | 1 | 1 | 0 |
| Hank | 4 | 0 | 0 | 3 | 0 | 1 | 2 | 1 | 1 |
| Irene | 4 | 0 | 0 | 1 | 0 | 3 | 1 | 2 | 1 |
| Janis | 2 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 |
| Kelly | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 |
| Lisa | 2 | 0 | 2 | 2 | 2 | 0 | 2 | 2 | 0 |
| Matt | 4 | 0 | 0 | 3 | 0 | 1 | 4 | 0 | 0 |
| Nancy | 2 | 0 | 2 | 1 | 0 | 3 | 1 | 2 | 1 |
| Total | 37 | 2 | 6 | 26 | 4 | 16 | 27 | 19 | 4 |
| % correct predictions | 95% | | | 87% | | | 59% | | |

*Note.* + + = likes a lot; + = likes; 0 = dislikes; NR = no response.

the RLI. A previous study of the test–retest measurement stability of the RLI, which also involved individuals with severe disabilities as participants, demonstrated moderate to high reliability (Kennedy et al., 1990). For the present retest, the same pair of staff members who provided the initial preference ratings completed the RLI again. Four of the 14 RLIs (29%) were subjected to the retest. The average interval between the initial and retest RLIs was 7 days (range, 1 to 14 days). An agreement was scored whenever an activity was assigned the same rating on both RLIs. A disagreement was scored whenever an activity was assigned different initial and retest ratings. Percentage agreement was computed by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Overall percentage agreement was 92% (range, 88% to 98%).

*Interobserver agreement on choices.* Agreement concerning chosen activities was determined by using a reliability observer for 111 of the 278 preference trial presentations (40%). A manager or staff member of the residential program or a graduate student served as reliability observer. Reliability observations were conducted with 13 of the 14

participants, with an average of nine reliability observations per participant (range, 3 to 15). Agreement was scored whenever both observers independently recorded the same activity as having been chosen, or whenever both recorded that the participant made no response. Otherwise a disagreement was scored. The percentage of agreement was computed by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Overall agreement was 96% (range, 80% to 100%). Overall kappa was 0.93 (Cohen, 1960).

## RESULTS

Staff members generally were successful at rating preferences (i.e., predicting which of two activities a participant would choose). Table 3 shows that across the three sets of activity pairs, 141 trials were conducted, resulting in 115 choice responses. For example, Anne emitted 10 choice responses across 12 trials and emitted no response on two trials. Ninety of the 115 choices (78%) were for the activity with the higher preference rating. Chi-square analysis indicated that correct staff predictions were

unlikely to have been due to chance ($df = 1$, $N = 115$, $\chi^2 = 36.74$, $p < .05$). The phi coefficient, which provides an index of the relationship between participants' choices and staff members' predictions, was 0.56.

For the set of + + versus 0 pairings, staff members correctly predicted the outcome of 95% of the trials that resulted in a choice ($df = 1$, $N = 39$, $\chi^2 = 31.42$, $p < .05$, phi coefficient 0.90). Correct predictions decreased to 87% for + versus 0 pairings ($df = 1$, $N = 30$, $\chi^2 = 16.2$, $p < .05$, phi coefficient 0.73) and 59% for + + versus + pairings ($df = 1$, $N = 46$, $\chi^2 = 1.4$, ns, phi coefficient 0.17).

## DISCUSSION

Staff members generally were accurate in predicting preferences. The more divergent the preference ratings of the paired activities, the more likely staff members were to predict correctly. These findings are somewhat inconsistent with other studies (Favell & Cannon, 1976; Green et al., 1988, 1991; Parsons & Reid, 1990), perhaps due to differences in participants or procedures. Only half the participants in the present study had profound mental retardation, and most of them had some verbal communication capabilities. All participants in the Green et al. (1988, 1991) studies and the Parsons and Reid (1990) study, however, had profound mental retardation. This study was conducted in small community residences instead of in a classroom or large public residential facility. The preference stimuli were home and community activities instead of toys, edible items, or sensory stimuli. The preference predictions were made by staff members who had done activities with the participants and who had reached consensus on participants' preferences, rather than by individuals who had merely "worked with" participants for an unspecified time and who had independently completed Likert-scaled surveys that were later averaged to rank participants' preferences. Activities in the present study were presented by the staff members themselves rather than by researchers.

Although four different methods were used to present activities to participants based on staff members' information about relevant discriminative stimuli (i.e., verbal cue only, verbal cue plus representational object, verbal cue plus American Sign Language, representational object only), it is unlikely that the results were confounded by this methodology. Of the 82 activities, 66 (80%) were presented with verbal cues only, and for the preference trials that involved mixed modes of presentation (e.g., verbal cue for one activity, and verbal cue plus representational object for the other activity), participants did not restrict choices to activities that were presented in a particular fashion.

The results of this study are qualified by several limitations. Participants were not randomly selected, but rather volunteered; this limited external validity. Also, no valid inferences may be drawn about staff members' ability to predict other activity preferences. (Each participant's six randomly selected activities were drawn from a pool with an average size of only 33 activities. The pool of activities was limited to those that the staff members had seen the participant do, on which they could reach consensus, etc.) Whether staff would have been able to predict preferences for other activities is unknown.

Information about a participant's activity preferences may prove useful in developing an Individualized Support Plan (ISP) (e.g., Newton, Horner, & Lund, 1991), but, even so, two questions arise. To what degree do a participant's daily activities consist of the preferences recorded on the ISP? If preferred ISP activities seldom are experienced by the participant, they are of little benefit. To what degree do a participant's daily activities consist of other (i.e., non-ISP) preferred activities? A life limited to ISP activities would constitute a restricted one, and even participants who frequently engage in non-ISP activities are likewise failing to lead high-quality lives if they do not prefer those activities.

A final issue concerns honoring not only a participant's preferences but also his or her choices. Although one might improve a participant's quality of life by arbitrarily scheduling participation in preferred activities, a better solution would be to ensure

that the participant is presented with a menu of preferred activities and is prompted to choose, in much the way the preference trials were conducted in this study.

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