

Automatic Delivery of a Reinforcer and the Effect on Academic Progress

Jill E. Hunt, Michelle I. Harrington, Matthew L. Israel, Ph.D

Judge Rotenberg Educational Center

The Judge Rotenberg Educational Center (www.judgerc.org) operates day and residential programs for children and adults with behavior problems, including conduct disorders, emotional problems, brain injury or psychosis, autism, and developmental disabilities. The fundamental approach taken at JRC is the use of behavioral psychology and its various technological applications, including behavioral education, programmed instruction, precision teaching, behavior modification, behavior therapy, behavioral counseling, self-management of behavior, and chart-sharing.

At the Judge Rotenberg Center, select students use a reward dispenser that automatically delivers a reinforcer for correct answers while working on computerized academic programs. Various schedules of reinforcement can be used, and the software can be programmed to deliver reinforcers on a fixed or variable schedule. In this study, we will examine how receiving an automatic reward affects answering rates. Time spent on task will also be studied and data will be plotted on the Standard Celeration Chart.

Method

Participants and Setting

There were three participants in this study, two females and one male. Their ages ranged from 18.4 to 19.10 years. Diagnoses included Rett's disorder (a neurodevelopmental disorder that is classified as a pervasive developmental disorder by the DSM-IV), Moderate to Profound Mental Retardation, PDD, and Autism.

These participants were chosen because they were not making substantial academic gains and showed little to no interest in working on computerized academic programs. All participants attended the Judge Rotenberg Center, Monday through Friday from 9AM to 3PM, and were assigned to different classrooms during the academic day. All participants were part of the general group with nine other students in their classroom and did not have a one to one staff assigned to them. A teacher, aide and other classroom staff was assigned to work with the entire group. All participants worked on touch screen computers that were configured to meet their individual behavioral and academic needs. Finally, all participants lived in JRC group homes.

Measures and Instruction

All participants worked on the computer, using JRC's proprietary educational software, learning such skills as touching shapes, matching shapes, matching to sample, receptive vocabulary skills and alphabet skills. Each computer was connected, through USB port, to a reward dispenser. The reward dispenser was configured, through the educational software, so that correct responses earned an automatic reward. The reward dispenser was filled with small servings of rewarding edibles. A small serving consisted of items such as one peanut, one raisin, one jellybean or one piece of trail mix. The reward dispensers could be configured to dispense rewards on a fixed or variable schedule. These participants' reward dispensers were on a fixed schedule, with a reward for every single correct response. Rewards were dispensed within five seconds of the correct response.

Data was collected for each participant's responses on the computer. Responses were collected using a touch screen, and any touch within a timing counted as a response. Data was collected for three weeks before the reward dispenser was put in place and for three weeks while the reward dispenser was in place. Data was collected during the academic day, between the hours of 9AM and 3PM.

Results

All participants showed a significant increase in responses while using the reward dispenser. Participant 1 had 2,285 total responses for the three weeks before the reward dispenser was in place and 3,343 total responses while the reward dispenser was in place. Participant 2 had 1,164 total responses for the three weeks before the reward dispenser was in place and 4,190 total responses while the reward dispenser was in place. Participant 3 had 5,652 total responses before the reward dispenser was in place and 6,204 while the reward dispenser was in place.

Discussion

There is a clear increase in responses when the automatic reward dispenser is used. This indicates that all participants were more motivated to work on the computer when they receive an automatic food reward. Although the participants received rewards when their computers were not hooked up to the reward dispensers, they were not as frequent and were delayed up to three minutes, depending on staff availability. Further study could examine if the responses would remain as high if the reinforcement schedule is changed.



MONTHLY BEHAVIOR CHART (MC-2EN)
6 CYCLE-120 MONTHS (10 YEARS)
BEHAVIOR RESEARCH CO.
BOX 3351-KANSAS CITY, KANS. 66103

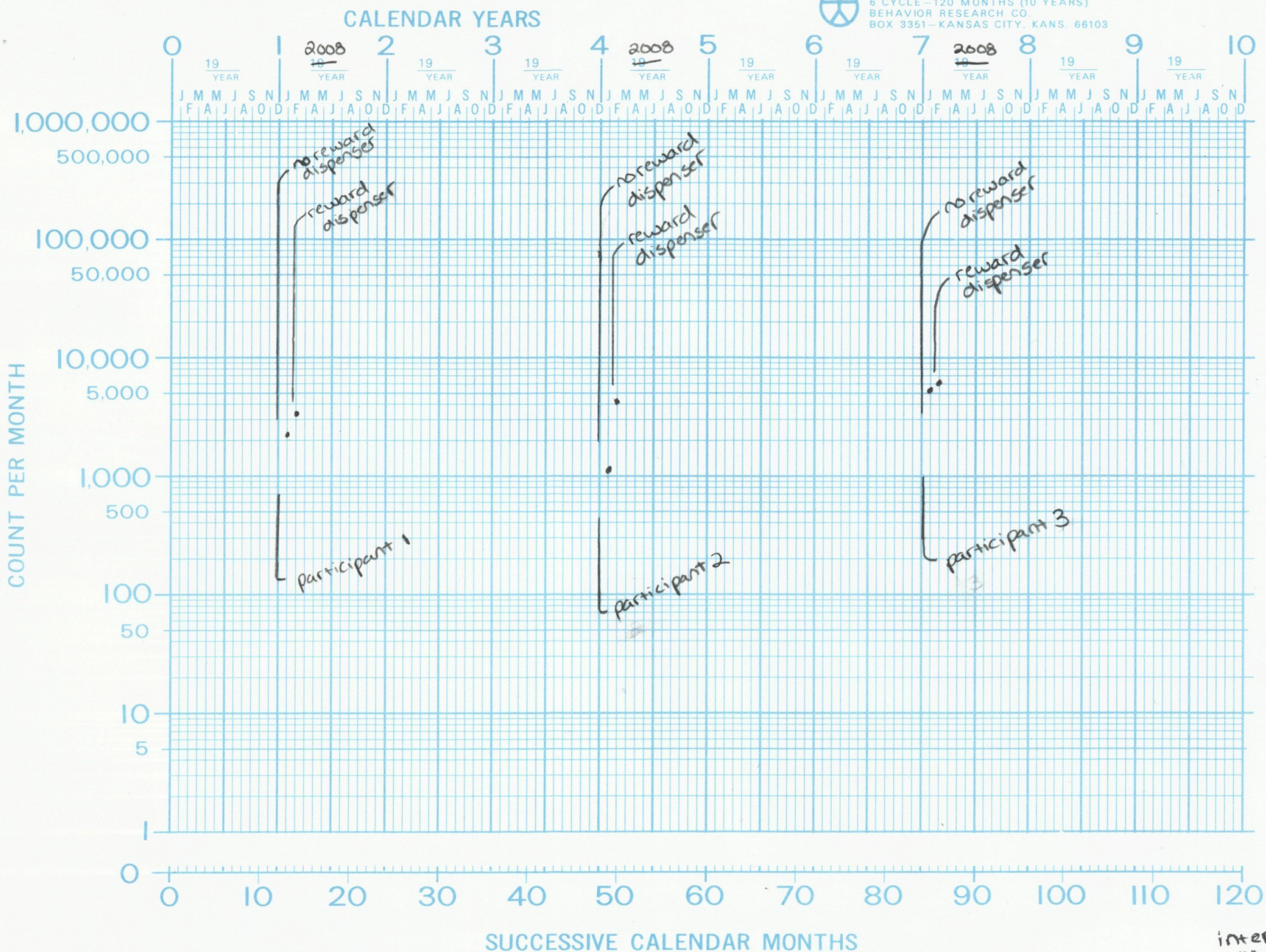


Figure 1

SUPERVISOR

ADVISER

MANAGER

BEHAVIOR

AGE

LABEL

interactions
with computer
COUNTED

DEPOSITOR

AGENCY

TIMER

COUNTER

CHARTER