

ported this to be an impressive reduction. The teachers' estimate of crawling before training was 35 for CT and 15 for JR. While the restraint-priming procedure was in effect, the frequency of crawling was reduced to zero or less than once daily for both children. This low frequency of crawling was reached in about 15 days for both children and was maintained for the next 30 days while training remained in effect. When restraint and priming was discontinued (post-training), the frequency of crawling remained at zero or about once daily.

For the children enrolled in the nursery program, walking necessarily increased as crawling decreased, since the frequency of required locomotion between rooms of the nursery program remained constant at about 25 times per day throughout the study. Since teachers never carried children, a reduction of crawling during these periods necessarily represents an increase in some alternative mode of locomotion. For these children, their only alternative was walking.

Approximately 1.5 yr later, two of the three children were still enrolled in the nursery school program; the restraint procedure, however, had been discontinued for at least a year. The children were observed to be walking almost exclusively and staff members reported that crawling rarely occurred. For a three-day observation period, the mean number of instances of crawling per day was zero for each child.

### DISCUSSION

The training program of restraint-for-crawling and priming-of-walking resulted in all four profoundly retarded children crawling less and walking more. This improvement occurred regardless of the child's degree of walking impairment and in a structured training situation as well as during an ongoing nursery program. During the final phases of training, the children crawled no more than once daily, or less than 10% of the time spent in locomotion, a level acceptable for children of that age.

The training procedures should be easily administered in most settings with retarded children. No expenses for new equipment, apparatus, or reinforcers were required, but rather, the natural setting with its intrinsic reinforcers was used. The amount of staff time devoted to the training program was minimal, requiring 5 sec for restraint, and about 2 sec for priming each time a child crawled. Within one week of training, no child crawled more than seven times a day requiring, therefore, less than 1 min of staff time. After three weeks, only a few seconds were required because the children crawled less than once daily.

Since the training program included two component procedures, restraint-for-crawling and priming-of-walking, a question remains as to whether either component alone would have produced the effect. Two lines of evidence relate to this question. The first was the use of restraint alone with the one child in the structured study. The child did decrease crawling; however, the child also ceased walking. This was not true of the combined procedure, during which walking increased as the child reduced crawling. The second line of evidence is when priming alone was used for weeks before the study. During the combined procedure, however, the children initiated walking themselves. Before the combined use of both component procedures, therefore, neither of the component procedures alone appeared sufficient. A previous attempt to train proper self-feeding to a profoundly retarded child similarly demonstrated that neither facilitation of proper skills nor the inhibition of improper responses was initially effective alone (O'Brien, Bugle, and Azrin, 1972). These results are also in accord with laboratory studies demonstrating the increased effectiveness of combined facilitation and inhibition procedures as compared with either of the component procedures alone (Azrin and Holz, 1966; Catania, 1966; Herman and Azrin, 1964; Holz, Azrin, and Ayllon, 1965).

After restraint and priming were used in combination, restraint seemed effective alone.