

# Effectiveness of Assisted Self-Recording and Assisted Self-Evaluation on Vocational Welding Skills of a Student with Autistic Behaviors

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The purpose of this research was to determine the effectiveness of an assisted self-recording and self-evaluation program with a student with autistic-like behaviors in welding class. The participant's correct bead making in welding was measured. Each weld was evaluated by the participant and first author by using a ruler, as well as mutually agreed upon criteria. The effectiveness of self-recording and self-evaluation and a change in medication was examined using an ABCD single subject replication design. Rewards, in the form of verbal praise, were also given for correct welds. The outcomes indicated an increase of the length and number of correct welds when behavioral self-management procedures were in effect. There was also a decrease in the number of error welds and incomplete welds. There was a slight decrease in correct as well as error welds when the student was placed on Ritalin by his parents. The number of incomplete welds also decreased for assisted self-recording, evaluation, and praise. This finding was replicated when medication was added to the procedures. The use of assisted self-management procedures in prevocational settings is discussed.

Self-management has always been an important goal for students in schools (McLaughlin, 1976; O'Leary & Dubey, 1979; Wilson, 1984; Workman & Katz, 1995). Behavioral self-control can be defined as a procedure in which children are taught to manage their own behavior in the absence of supporting adults and to take responsibility for their own behavior (Workman & Katz, 1995). The components of behavioral self-control, such as: self-recording, self-evaluation, self-determination and self-reinforcement have been widely researched and examined (Brigham, 1978; Mace & Kratochwill, 1988; Nelson, 1977; Workman & Katz, 1995).

Self-control procedures have also been effective with children with various disabilities including learning disabilities, (Hallahan, Lloyd, Kosiewicz, Kauffman, & Graves, 1979), behavioral and emotional disorders (McLaughlin, 1983, McLaughlin, Sackville-West, & Burgess, 1981), attention deficit hyperactivity disorder (Edwards, Salant, Howard, Brouger, & McLaughlin, 1995; Stewart & McLaughlin, 1992), and mental retardation (Boyle & Hughes, 1994; Shapiro & Cole, 1994).

Even with the wealth of data on the use and successful implantation of self control, the use of

behavioral self-control with more involved children needs further analysis. This study extends the use of assisted self-recording and self-evaluation with a student with autistic-like behaviors enrolled in a regular high school, and in a vocational school for all students. The purpose was to determine the effectiveness of assisted self-evaluation and self-recording plus praise on correct bead making. This was made the priority because the participant displayed such a shakiness, making it difficult for him to construct a correct bead in welding.

## Method

### *Participant and Setting*

The participant, a 17-year-old male senior high school student, was enrolled at a local high school for academics and attended the District's Skills Center Welding program for vocational schooling. The student was also working towards a vocational degree in welding. The participant displayed severe shaking and emotional outbursts which required him to have individualized tutoring. During his first days in the welding lab, before a tutor had been assigned to him, the participant had become aggressive,

lost his temper, and welded an iron to one of the walls in the shop. It was at this point that the participant was assigned a tutor (the experimenter).

### *Dependent Variables and Measurements Procedures*

There were three dependent measures. The first was the length of each weld, where the participant and researcher measured the length of each weld. The second measure was frequency of correct and error welds. A correct weld was defined as a bead that was smooth and continuous without ridges, bumps or bits, lacking wagon tracks (parallel indentions along the width), and even thickness. If any of these characteristics were missing, the weld was marked as an error. The final measure was the number of incomplete welds, defined as a weld less than an inch in length.

### *Experimental Design and Conditions*

An ABC design (Kazdin, 1982), was used to evaluate the effects of assisted self-recording, plus ruler, and assisted self-evaluation, praise, and follow up. A description of each follows.

Baseline. The baseline consisted of two, 3-hour lab class periods during one week. During this time, the first author measured and recorded the student's correct bead. The participant was allowed to observe this scoring, but his input was kept to a minimal. For example, the participant requested the researcher use inches instead of metric measurement to record the bead lengths because he was more familiar measuring objects in inches. Data were also recorded on the number of correct and incorrect beads made during the lab period in welding.

Assisted self-evaluation and self-recording, plus praise. The intervention of assisted self-evaluation and assisted self-recording was implemented for two lab periods the second week of the program. The participant was instructed to notice the qualities of correct and incorrect beads and to determine where, if any, measurable areas (at least one inch in length) were done according to the correct definition. During this procedure, the participant had to confer with the researcher and mutually agree as to accuracy and length of each weld. This was required because the participant would occasionally refuse to evaluate

the bead correctly, by declaring "It's perfect", when in fact, the bead did not meet the criteria for a correct bead. When the participant responded in such manner, the researcher would first ask why it was "perfect" and then guide the student through the evaluation process and assist the student to determine the correct and incorrect qualities which the weld contained. The first author and the participant would place the ruler on the bead and measure each weld.

Assisted self-evaluation and self-recording, praise, plus medication. The participant was placed on Ritalin (5 mg./kg. of body weight) at the request of the participant's parents. The addition of medication was in effect for 4 sessions.

## **Results**

### *Length of Welds*

The number and length of correct welds can be found on Chart 1. The participant showed marked increase with the self-recording, self-evaluation. The participant's mean number of corrects rose from 6.0 to 10.5. The average length of welds rose from 2.71 inches during Baseline, to 3.12 inches during assisted self-recording and evaluation. The length of the participant's welds also increased to 3.24 inches when medication was given.

### *Make Welds*

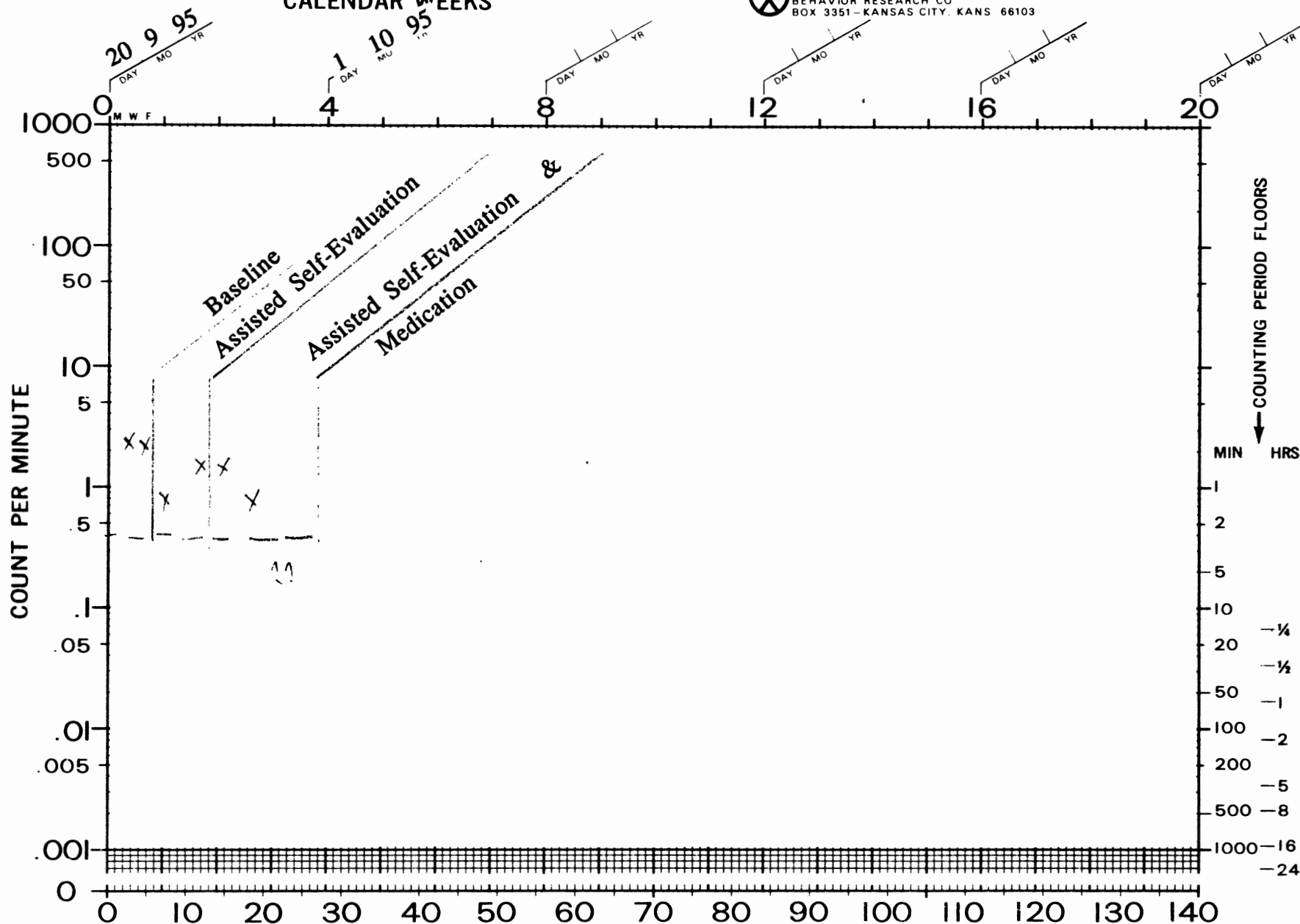
The number of correct and error welds can be seen in Chart 2. During Baseline, the number of correct welds ranged from 4 to 8, while error welds averaged 3.0. During assisted self-recording and evaluation, the number of correct welds increased, range 10 to 11, mean 10.50. The number of error welds decreased, range 1 to 2, mean 1.5. When medication was added, the number of correct welds decreased, range 7 to 10, mean 8.25. The number of error welds also decreased, range from 2 to 0, mean of .75.

The number of incorrect welds can be seen in Chart 3. During Baseline, the number of incorrect welds averaged 3.0. The number of incorrect welds during assisted self-recording evaluation, and praise ranged from 1 to 2, mean 1.5. During the last phase, medication was



DAILY BEHAVIOR CHART (DCM-9EN)  
 6 CYCLE - 140 DAYS (20 WKS)  
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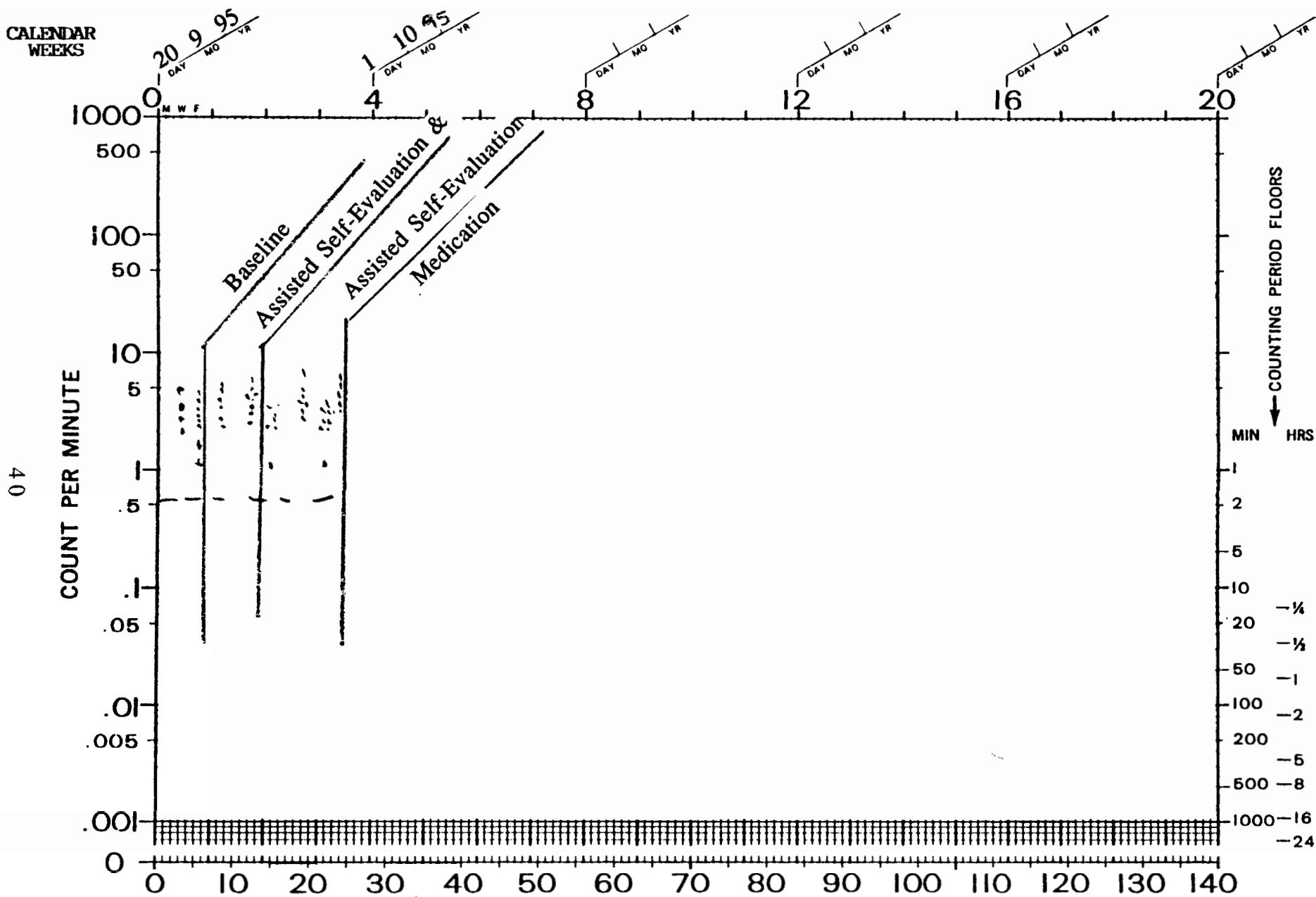
CALENDAR WEEKS



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McLaughlin	McLaughlin	McLaughlin	SUCCESSIVE CALENDAR DAYS	Student	17	BD	Incomplete Welds
SUPERVISOR	ADVISER	MANAGER		BEHAVIOR	AGE	LABEL	COUNTED
McLaughlin	Gonzaga University	LaPorte	LaPorte	LaPorte			

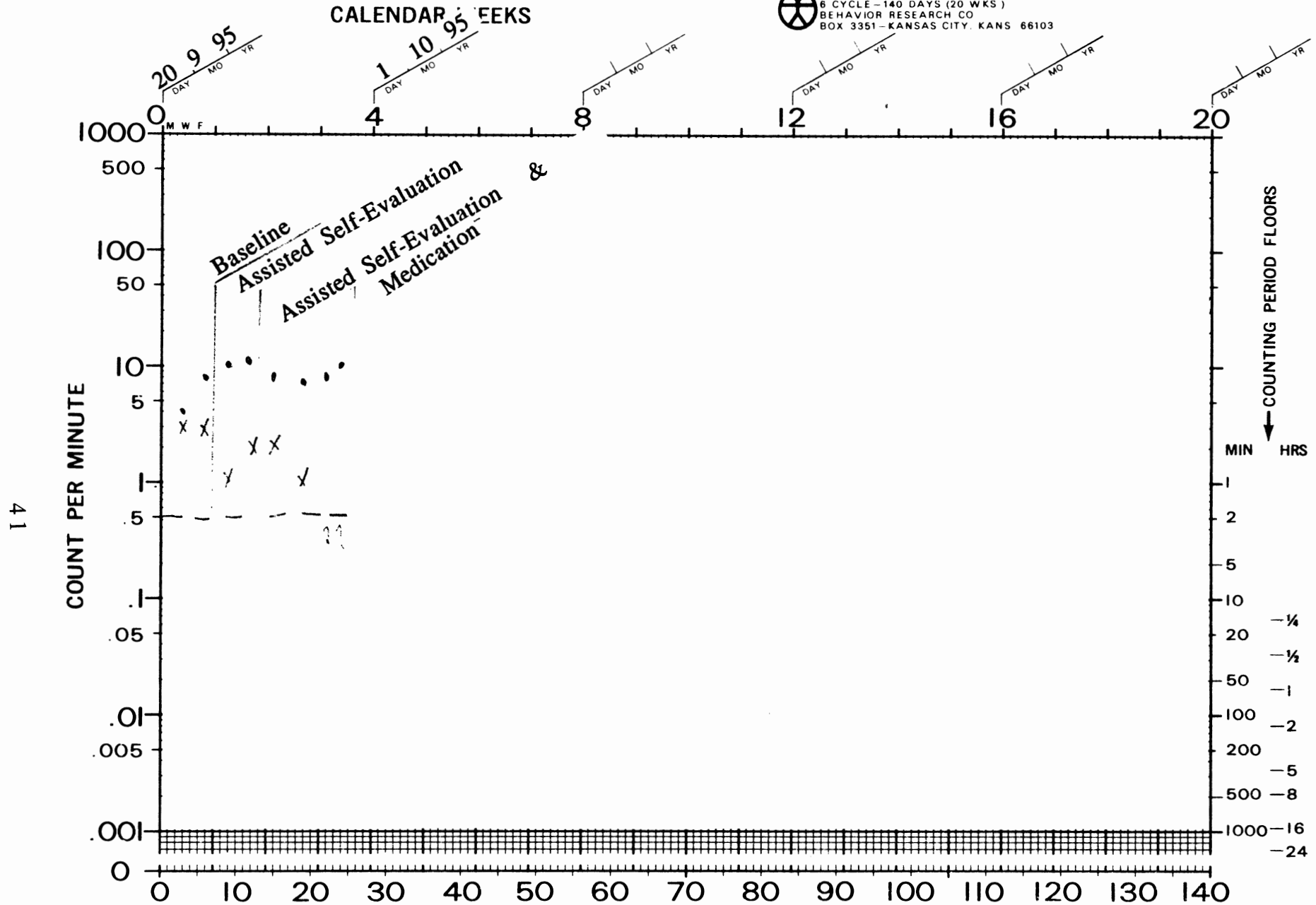
CALENDAR WEEKS



McLaughlin	McLaughlin	McLaughlin	SUCCESSIVE CALENDAR DAYS		Student	17	BD	Bead Length
SUPERVISOR	ADVISER	MANAGER			/ER	AGE	LABEL	COUNTED
McLaughlin	Gonzaga University		LaPorte	LaPorte	LaPorte			
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER			



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McLaughlin	McLaughlin	McLaughlin	SUCCESSIVE CALENDAR DAYS	Student	17	BD	Make Welds
SUPERVISOR	ADVISER	MANAGER		BEHAVIOR	AGE	LABEL	COUNTED
McLaughlin	Gonzaga University	LaPorte	LaPorte	LaPorte			

added, and the number of incomplete welds decreased, range 2 to 0, mean .75.

## Discussion

The results show that assisted self-evaluation and self-recording did increase the subject's performance. The present outcomes extended the efficacy of self-management procedures with children with severe behavior disorders (Boyle & Hughes, 1994; Shapiro & Cole, 1994; Willis et al., 1995). Which aspects of the self-management package (assisted self-recording and self-evaluation, or praise) contributed to the changes in student performance cannot be determined. Additional research which would evaluate the various components of the interventions could be done. Since the package of procedures did not cause undue burdens on the staff, researching such an issue may be unneeded.

The impact of medication on the participant's behavior has been widely documented (Barkley, 1990, 1995). Combining medication therapy with behavioral interventions has led to even greater improvements in social and academic responding with children experiencing attention deficit hyperactivity disorder and attention deficit disorder (Abramowitz, Eckstrand, O'Leary, & Dulcan, 1992; Hoza, Pelham, Sams, & Carlson, 1992).

According to teacher reports, the medication also appeared to help control the student's emotional outbursts. Additionally, the teachers felt that the medication may have made the participant shaky. The teachers also suspect that the participant was not ingesting the medication regularly on weekends, and as a result, the participant appeared more emotional and shaky on Mondays (See Dates 10/2 and 10/9). These results were still above the Baseline. It appeared that assisted self-recording, plus ruler, and assisted self-evaluation, and praise, increased number and length of the student's correct beads. The participant progressed to the next skill on the last day of this study.

Following the termination of formal data collection, the participant was allowed to work

without the assistance of a tutor except when the participant was learning a new task; however, the student has not been taking his medication regularly and so on days when participant arrives moody and irritable, direct signs of not taking the medication, the student is not allowed to do lab work and is instead sent to the Learning Opportunity Center (LOC) to study his welding book. The instructors of the welding lab and the LOC felt that the participant had been absent from school at least one day a week and that this was severely affecting his progress. However, the student did well when he is in attendance and taking his medication.

The participant had a very difficult time with the first author during the study. He said the researcher often embarrassed him because he was the only one in the class with a tutor. His ultimate goal was not to do well, but be able to work without the researcher. The researcher's response was that when he did well, he would no longer have to have a tutor. The participant was unhappy with the answer because he wanted a specific date which the researcher and classroom instructor were unable to give. The participant was very negative throughout the study although he did occasionally enjoy "high-five's" and verbal praise for his good beads. Another use of self-management is to increase the independence of students (L. Dunlap, K. Dunlap, Koegel, & Koegel, 1991), which was a goal in the research but not fully achieved.

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