

# Evaluating the Effectiveness of Home Drill with a Middle School Student with ADHD

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The purpose of this research was to determine the effectiveness of skill-based instruction and home drill with a middle school student with Attention Deficit Disorder (ADHD). An AB single subject design was used to evaluate the impact of skill-based instruction on the student's math performance. During Baseline, the student completed his math work sheets and was provided with instruction by the first author. During home and school instruction, the student was provided with drill and practice sheets that were to be completed at home. The overall outcomes indicated significant increases in correct rate and a small non-significant-deceleration in errors. The benefits of home drill and skill-based instruction for students with ADHD are discussed.

The term "attention deficit" has been recognized for at least the last fifty years. Although the terminology has changed, descriptions of behaviors associated with the condition have remained fairly consistent (Barkley, 1990). In addition, these children were described as impaired in attention and quite overactive. The primary symptoms of ADHD have changed very little since 1902, as was evident in the DSM-IV Diagnostic Criteria for Attention Deficit Disorder (ADHD) with and without hyperactivity published by the American Psychiatric Association in 1994.

Various procedures have been used in attention deficit, such as: self-management training (Edwards, Salant, Howard, Brouger, & McLaughlin, 1995; Stewart & McLaughlin, 1992), token economies (Ayllon, Layman, & Burke, 1972; Ayllon & Roberts, 1974), stimulant medication (Barkley, 1990), or combining stimulant medication and behavioral interventions (Abramowitz, Eckstrand, O'Leary, & Dulcan, 1992). Though research in this area is promising, there are few studies demonstrating their efficacy for middle school students with ADHD.

The use of drill and practice procedures has been suggested to increase the academic skills of students with disabilities (Heward, 1994). Such procedures are response cards (Heward, 1994), guided notes (Lazarus, 1983), class-wide peer

tutoring (Delquadri, Greenwood, Carta, & Hall, 1986), and daily practice sheets (Miller & Heward, 1992), have been shown to improve student achievement in their basic skills. Several authors (Epstein, 1987; Thurston & Dasta, 1990), have suggested using home tutoring and home work to assist students with their academic performance.

The purpose of this study was to determine the effectiveness of a home drill and practice program with a middle school child with ADHD, to increase the correct rate and decrease the error rate in mathematics. A second purpose was to determine if home drill could generalize to the same instructional outcomes as school, with a middle school student.

## Method

### *Participant and Setting*

The subject of this study, a 13-year-old male enrolled in the eighth grade, had medical diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). Reports of the previous year's teachers and the school-based team indicated that the student experienced difficulty in working with other children. Easily frustrated and distracted, he had difficulty working independently. Also, the student did not complete much of his work. The student had

attended a private school for children with learning disabilities and was enrolled half-time in a resource room and spent his afternoons in the general education program. The study took place in a large middle school district in the Pacific Northwest.

### *Dependent Variables and Measurement Procedures*

The dependent variables were correct and error digits. The 22 to 25 minute math sessions were held three times each school week. Worksheets contained from 15 to 25 long division problems with and without remainders and decimal points. Correct rate was calculated by counting each digit and decimal point, with error rate determined in the same manner.

Baseline. During Baseline, the student completed his worksheets, received instruction and feedback from the first author. The student was timed for 1-minute on his work and his data taken for three weeks. If the student was attentive and improved correct rate during the lesson, he was allowed to talk with the first author about sports.

Home drill sheets. The student was given drill and practice sheets for his multiplication tables which he was to complete over the weekend. The same instructional strategies employed in Baseline were also in effect.

## **Results and Discussion**

The number of corrects and errors per minute can be seen in Chart 1. During Baseline, the number of corrects ranged from 29 to 48 digits ( $M = 36.11$ ; range 29 to 47). The number of error movements was low but variable (range 0 to 2;  $M = .89$ ). With the introduction of skill-based instruction and drill and practice sheets, the number of corrects increased, (range 52 to 69;  $M = 59$ ).

A Mann Whitney U Test (Siegel, 1956) between Baseline and skill based instruction and home work drill was significant for corrects ( $U = 0$ ;  $p = .0008$ ), but not for error rate ( $U = 22$ ;  $p = NS$ ).

The study indicates that the home drill procedure holds promise for use with middle school

students with ADHD. For the student with ADHD, a marked improvement was observed. Future use of providing additional drill and practice techniques should be implemented with other individuals in order to enhance the strength of the outcomes.

The authors felt that other factors contributing to the differential improvements might have been variability in subject-matter problems, attention from the first author, and the individualized nature of the instruction.

The other students were aware of the participant's difficulties and accepted the contingencies provided for him in the resource room. On occasion, the non-experimental students also participated, by receiving drill and practice sheets for addition.

The findings of the present study appear to support the notion that home drill can increase opportunities to respond. By providing additional drill and practice, the student is allowed to improve his performance. This finding has been replicated by work of several authors (Delquadri et al., 1983, 1986; Heward, 1994; Sweeney, Omness, Janusz, & Cooper, 1992).

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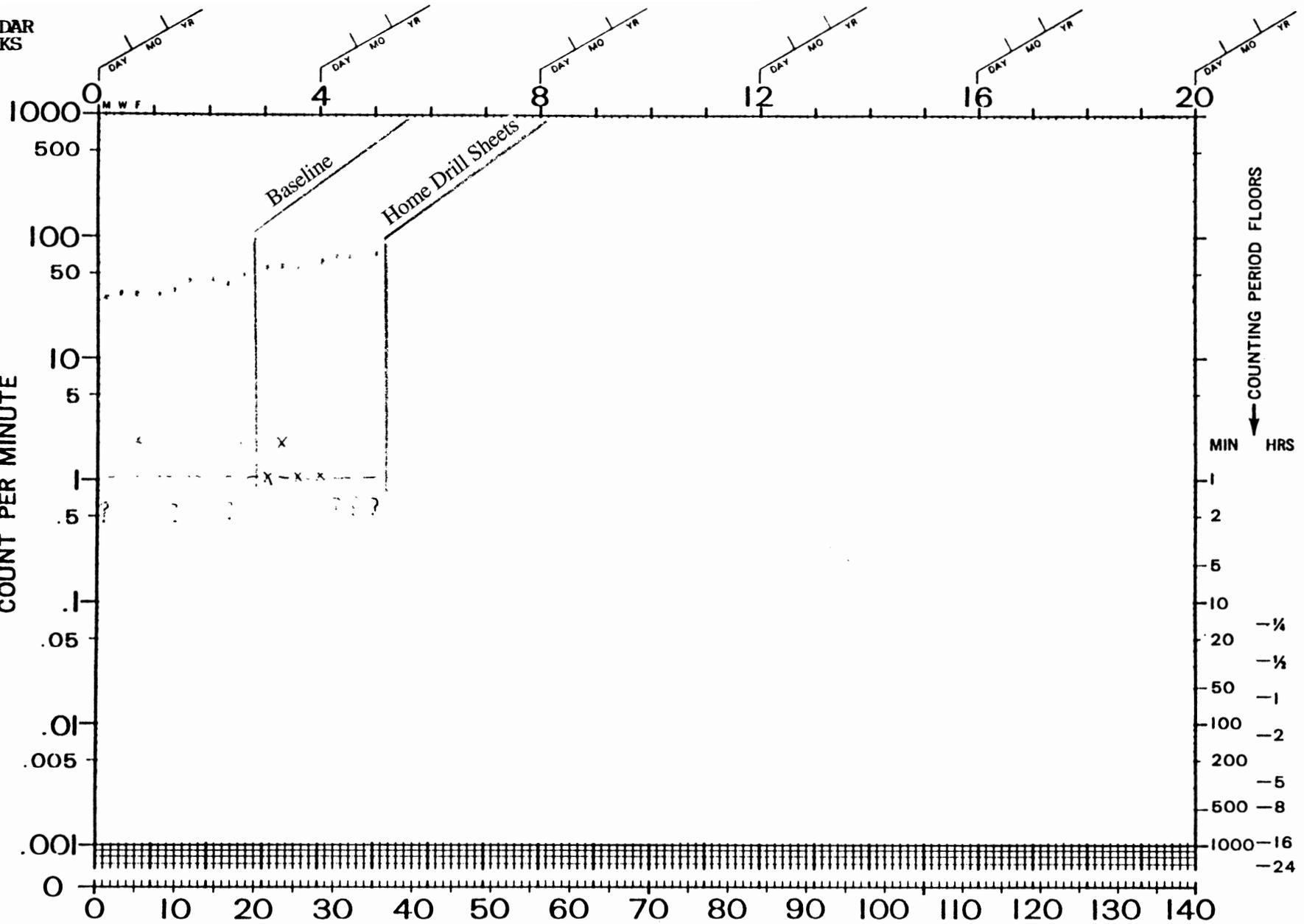
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CALENDAR WEEKS

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McLaughlin	McLaughlin	McLaughlin	SUCCESSIVE CALENDAR DAYS	Student	13	ADHD	See/Write
SUPERVISOR	ADVISER	MANAGER		BEHAVIOR	AGE	LABEL	COUNTED
Farley	Gonzaga University		Farley	Farley			Digits/Decimals
DEPOSITOR	AGENCY		TIMER	COUNTER	CHARTER		