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THE DIFFERENTIAL EFFECTS OF USING *HANDWRITING WITHOUT TEARS® AND MAT MAN* MATERIALS TO TEACH SEVEN PRESCHOOLERS PREWRITING SKILLS USING THE DRAW A PERSON WITH SIXTEEN SPECIFIC BODY PARTS

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ABSTRACT

The purpose of this study was to utilize Handwriting without Tears Mat Man curriculum to introduce beginning basic line formations that will eventually lead to skills needed in handwriting. Thirteen preschool students served as participants. An ABAB single case research design was employed. The overall outcomes indicated large changes in the ability of our participants to draw body parts during Handwriting without Tears' Mat Man curriculum materials. The procedures were easy to implement and monitor by the classroom staff.

Keywords: handwriting, pre-academic, Handwriting without Tears, mat man curriculum, integrated preschool, Early Childhood Education Assistance Program (ECEAP) general and special education students

INTRODUCTION

Handwriting is closely linked to academic achievement, especially composition and literacy skills (Cahill, 2009; Graham, 1999). While preschool may seem like a young age to begin thinking about academic achievement, it is one of the most important times to begin practicing pre-academic skills such as handwriting and fine motor movements. For example, according to Feder and Majnemer (2007), failure to attain handwriting competency during the school-age years often has far-reaching negative effects on both academic success and self-esteem. Handwriting is not simply comprised only of pencil and paper movements to make words. The complex occupational task has many underlying component skills that may interfere with handwriting performance. Fine motor control, bilateral and visual-motor integration, motor planning, in-hand manipulation, proprioception, visual perception, sustained attention, and sensory awareness of the fingers are some of the component skills identified. Feder and Majnemer also state that there is evidence to indicate that handwriting difficulties do not resolve without intervention and affect between 10 and 30% of school-aged children.

Several procedures have been developed to assist students in handwriting. These have ranged from a specific curriculum such as *Handwriting without Tears* (HWT) (Olsen, 1998) to the use of additional drill and practice procedures. For example, Carlson, McLaughlin, Derby and McLaughlin found that employing portions of HWT could improve the handwriting skills of preschool students with autism. McBride, Pelto, McLaughlin, Robison, and Mortenson (2008) implemented HWT in two preschool classrooms and were able improve the legibility of two preschool students with autism spectrum disorder.

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Various handwriting programs have been designed to assist students with their skills in handwriting, or even to intervene before the student is old enough for handwriting to become a major factor in academic learning and success. *Handwriting without Tears* (Olson, 1998) is an example of one of the many programs intended to teach and intervene on handwriting skills for children of many ages and developmental backgrounds. This program begins with a focus on readiness and writing lessons that teach body awareness, cooperation, taking turns, listening, crayon grip, drawing, building, letter and number recognition, capital letter and number formation (Olsen, 2011)

METHOD

Participants and Setting

The participants of the study were seven students from the Pacific Northwest in an Early Childhood Education Assistance Program (ECEAP). The classroom was an integrated preschool classroom containing students from low-income households, students with individualized education plans (IEP), and typically developing peers. All students ranged in age from 3 to 5 years old. Of the thirty-one classroom students, seven participated in the study during the normal classroom routine.

Data collection occurred during the centers and free play routines in both the morning and afternoon preschool classes. Data were collected and sessions were conducted in small groups ranging in size from three to five students. The specific students in each group could change by day based on student attendance.

Materials

The *Handwriting without Tears and the Mat Man* curriculum and the materials were utilized. The curriculum materials included: a wooden piece set of curved and straight lines of different sizes to form the head, ears, arms, legs, and feet. Also included was a flat foam rectangle to pose as the body, and a sing along CD to incorporate instruction, participation, and recognition of each body part and its function. Materials that were not included in the curriculum included: cut out paper hands, circular hollow eyes, a round nose, a round mouth, pencils, plain white paper, and a black piece of felt to build Mat Man on top of added visibility and spatial recognition and awareness.

Dependent Variable and Measurement

The purpose of the study was to increase student ability to draw lines and curves to later assist in the development of letters in handwriting. Another purpose of the study was to introduce body parts and the spatial location of these body parts to assist the students in drawing a person with at least sixteen body parts. As requested by many parents, and also stated in some of the children's IEP goals, it is required that students draw a person with a certain number of body parts.

Each participant was scored on the same criteria. For each session, the student produced a permanent product picture of a person (or Mat Man). This picture, according to instruction and the assisting sing along CD, should have 16 body parts all together. The score received by the student was according to how many body parts were clearly drawn. If the student did not have both eyes drawn, it was counted as zero, but if both eyes were drawn and present, it was counted as two. The same rule applied to both ears. Ten to 17 sessions were conducted for each student and permanent product data were collected at the end of every session.

Data Collection and Inter-observer Agreement

Permanent product data was collected following every session. Each child was given a plain white sheet of paper and a pencil, and instructed to, "draw along with our song" following group

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participation in the *Handwriting without Tears Mat Man* song and person building incorporated in the curriculum.

Inter-observer agreement was calculated by dividing the number of agreements (with-in two) by the sum of agreements and disagreements and multiplying by 100. The percent of inter-observer agreement was 86.15%.

Experimental Design and Conditions

The design of this study was an ABAB reversal design (Kazdin, 2010). A description of the various experimental conditions follows.

Baseline 1 (BL 1). During the first baseline, all students were given a plain white sheet of paper and a pencil, and instructed to, "draw a person." This condition lasted for 1 or 2 sessions.

Handwriting without Tears® + mat man (HWT 1). Following baseline sessions, all students would participate in group instruction and construction of Mat Man (a person) using the materials from the *Handwriting without Tears, Mat Man* curriculum as well as the added materials during the sing along song. After the first presentation of the song, the song was played a second time during which the students then only had a sheet of plain white paper and a pencil and were instructed to, "draw with the song." This condition was in effect twice for 5 to 7 sessions

Baseline 2. During the second baseline, students were once again given a plain sheet of white paper and asked to, "draw a person." This condition also lasted from 1 to 2 sessions.

Handwriting without Tears® + mat man (HWT 2). During the second phase of *Handwriting without Tears, Mat Man,* curriculum, the students again participated in group instruction and construction of Mat Man (a person) using the materials from the *Handwriting without Tears, Mat Man* curricula (Olsen, 1998). The added materials during the sing along song in the first intervention phase were also employed. After the first presentation of the song, the song was played a second time during which the students then only had a sheet of plain white paper and a pencil and were instructed to, "draw with the song." The second replication was in effect for 2 to 5 sessions.

RESULTS

Baseline 1.

The number of body parts correctly drawn by the seven participants in baseline can be seen in Figures 1 through 4. The number of parts correctly drawn ranged from 0 to 10. The grand mean across all participants for baseline 1 was 3.31 (grand mean range 0 to 7.5).

Handwriting without Tears 1

There was an increase in performance for all seven participants. There was a large an immediate increase in performance for 6 of our 7 participants. The number of body parts correctly drawn ranged from 0 to the maximum of 16. The grand mean for this phase was 9.85. The means for each participant for this condition ranged from 4.2 body parts to 15.29.

Baseline 2.

The return to baseline results in a decrease in performance for 5 of our 7 participants. The overall grand mean for baseline 2 was 6.06. The overall means by participant ranged from 0 to 15 correct body parts.

Handwriting without Tears 2

The return to Handwriting without Tears produced an increase in the number of correctly drawn body parts for 6 of our 7 participants. The overall grand mean for this condition was 9.57 with a range of individual means from 3.5 to 15.5.

DISCUSSION

The results of this study evaluating the effectiveness of *Handwriting without Tears*® produced an increase in performance for all the students. These outcomes can be seen in Figures 1 through 4. Increases in the number of body parts were found for all seven participants. In addition, two students did generalize the concepts of the curriculum and did not show a decline or decrease in ability to draw a person when *Mat Man* was removed for the in the second baseline.

The *Handwriting without Tears* curriculum (Olsen, 1998, 2005) was an effective and beneficial means for teaching students concepts and skills needed in the pre-writing stages of handwriting. The skills taught not only assist in the students' preparation for learning basic fine motor functions for writing the alphabet and their name, but it also emphasizes learning the main body parts and their physical location on oneself as well as others. This curriculum was easily and effectively useful with children of varying ages, economical and ethnic backgrounds. The consistent tune, melody, and lyrics provide repetition easily memorized by special education students, students with multiple language homes, and academic difficulties.

We feel that this curriculum would be most effective if used every day during school and class instruction. Due to the inconsistent session implementation and tight time frame of the day to day schedule, not all sessions took place at the same time each day. While the curriculum displayed and increase in student ability, it would be even more effective with all students if it part of the everyday classroom routine.

The present outcomes replicate the research of others employing either the H*andwriting without Tears* workbook or procedures (Carlson et al., 2009; Cosby et al., 2009; McBride et al., 2009). However, in the present research a much larger sample was employed than those employed by Carlson et al, Cosby et al., or McBride et al.).

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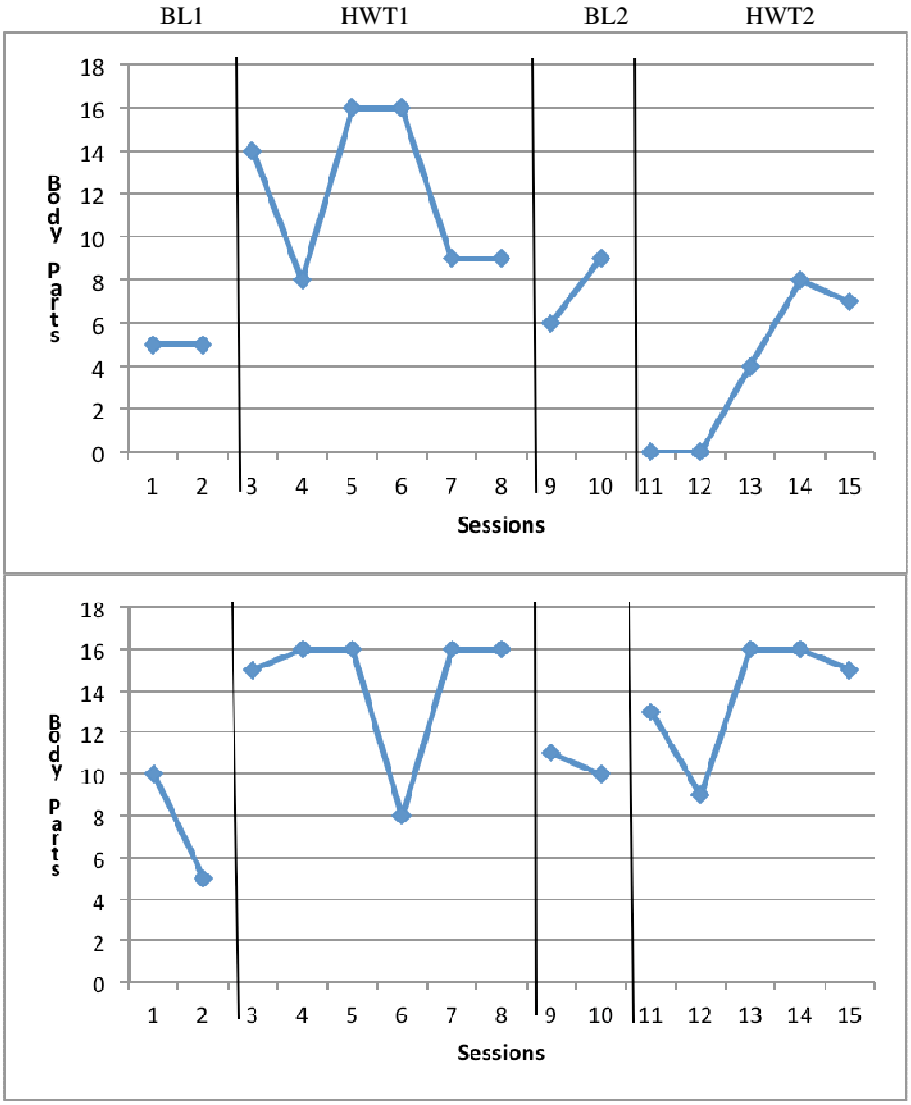

Figure 1. The number of correct body parts during baselines (BL1 and 2) and the handwriting without tears procedures (HWT1 and 2) for Participants 1 and 2.

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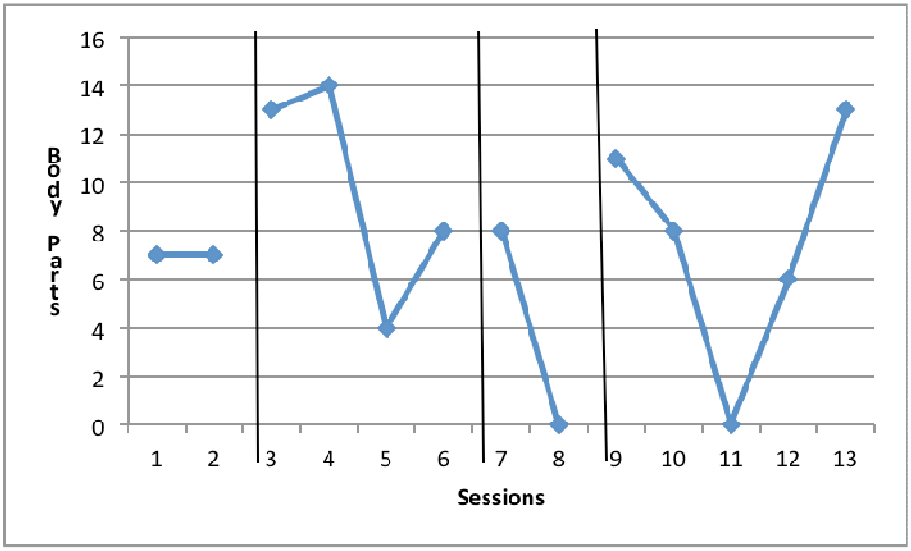

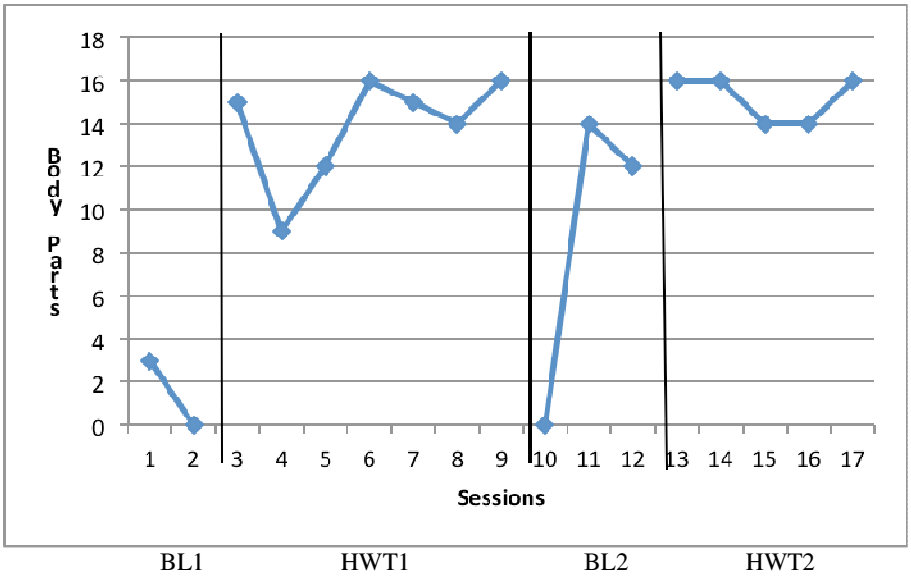

Figure 2. The number of correct body parts during baselines (BL1 and 2) and the handwriting without tears procedures (HWT1 and 2) for Participants 3 and 4.

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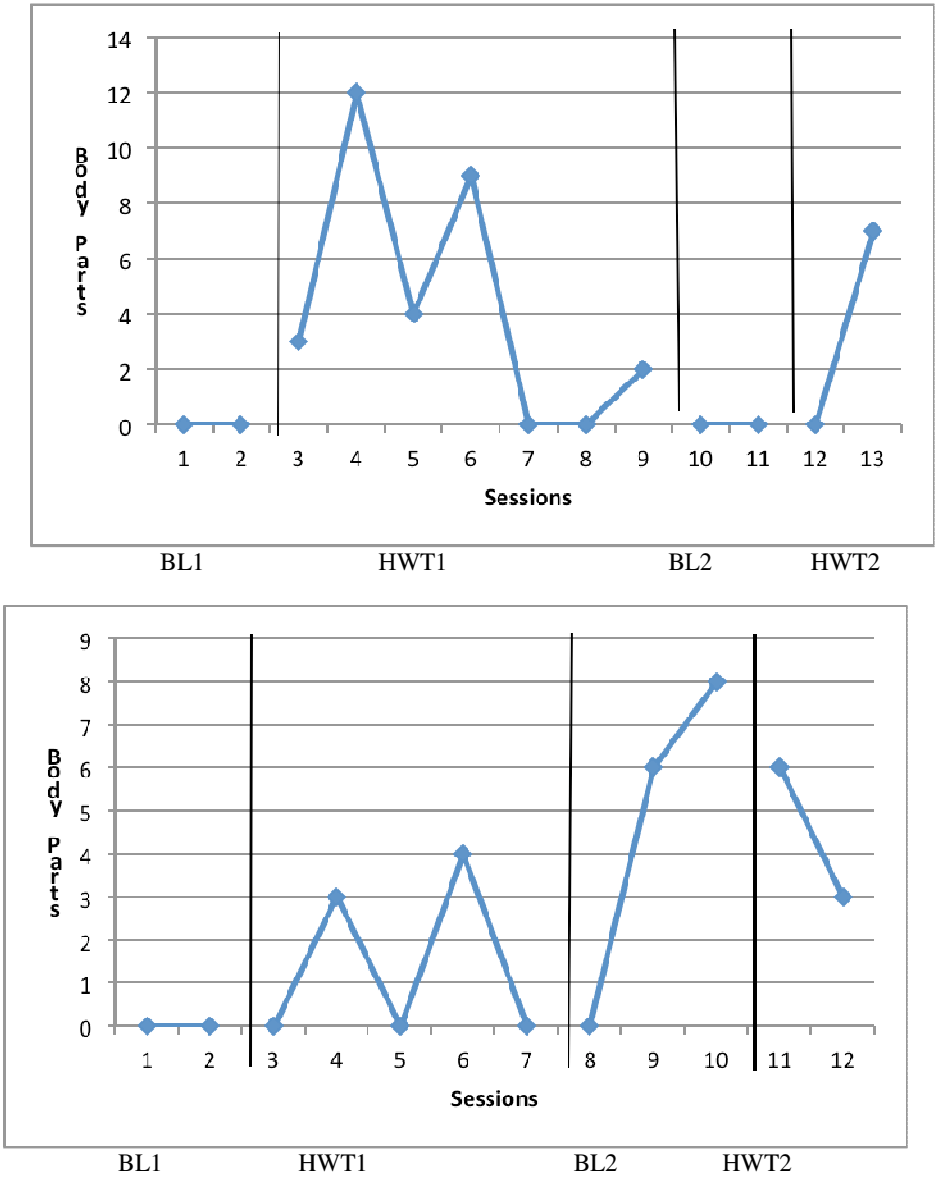

Figure 3. The number of correct body parts during baselines (BL1 and 2) and the handwriting without tears procedures (HWT1 and 2) for Participants 5 and 6.

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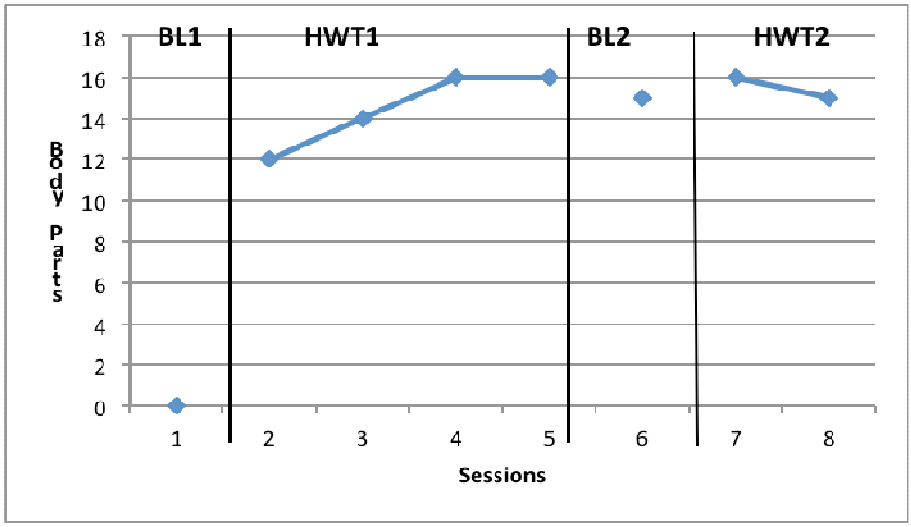

Figure 4. The number of correct body parts during baselines (BL1 and 2) and the Handwriting without Tears procedures (HWT1 and 2) for Participant 7.