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THE EFFECTS OF USING VISUAL PROMPTS, TRACING, AND CONSEQUENCES TO TEACH TWO PRESCHOOL STUDENTS WITH DISABILITIES TO WRITE THEIR NAMES

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ABSTRACT

The purpose of this study was to evaluate a treatment package involving tracing, prompting and consequences with handing writing using a teacher-made tracing worksheet with two preschool students. The two participants attended a self-contained special education classroom. During baseline, each student was prompted to write specific letters and no feedback was provided. During intervention, the students traced the letters in their first name using a teacher made worksheet with letters written in thick ink, thin ink and then wrote two letters without prompts. At the end of each session, the students traced their full name and then did so on the lines at the bottom of the teacher-constructed work sheet. The dependent measure was the number of handwriting points. The participants could earn one point per letter. To receive a point, the letter had to be legible. The results suggested that tracing letters using teacher made worksheets and employing consequences was effective. A return to baseline with the second participant led to a decrease in legibility. The applicability of the teaching handwriting with tracing and consequences was outlined.

Keywords:handwriting, name writing, preschool students with disabilities, action research

INTRODUCTION

Handwriting is a functional and an important skill to teach in our schools (Graham, 1999; Graham, Harris, &Gavins, 2004; Graham, Harris, & Fink, 200). In addition, handwriting is an important skill with lifelong benefits. Unfortunately, it is often neglected within the typical kindergarten and elementary school curriculum. For example, when presented the same papers twice, one written by ninth graders and one written by handwriting experts, the papers with proper handwriting received significantly higher scores when holistically evaluated (Sloan & McGinnis, 1978). Given these outcomes, handwriting should be embraced as an important skill to teach beginning in preschool (Park, Weber, & McLaughlin, 2007).

Legible handwriting has been shown to have lifelong benefits (Graham et al., 2000, 2004; Graham, Harris, Mason, Fink-Chorzempa, Moran & Saddler, 2008). Graham and colleagues (2008) found that primary teachers teach handwriting for only 70 minutes per week. In addition, these teachers have had little formal training in the teaching of handwriting. All children should be given the opportunity and assistance to learn handwriting. Handwriting is seen as a functional skill to teach children with or without disabilities (Carlson, McLaughlin, Derby, &Blecher, 2009; Graham, 1999; Grenot-Scheyer&Falvey, 1986; McLaughlin, 1981). Since these students generally take more time to acquire skills than typically developing same-age peers, teaching handwriting in preschool teaches skills which are beneficial in their elementary years (Park et al., 2007).

Being able to write one's own name continues to be functional skill because it can be used to write checks, communicate with others, or fill out a job application (Ford et al., 1989; Grenot-

Scheyer&Falvey, 1986; Graham et al., 2004, 2008). Handwriting has been shown to be a pre-skill for reading and written composition (Graham, 2010). Without the skill of writing, reading will be more difficult. Prompts and skill-based instruction have been employed to improve the name writing skill of middle school students with mild to moderate intellectual disabilities (McLaughlin & Walsh, 1996). It appears that both consequences and skill-based interventions can help students improve their written language.

The use of commercially available curricula has also been suggested as a way to teach handwriting. Recently, one such curriculum as *Handwriting without Tears* (Olsen, 1998) has been recommended to teach handwriting to elementary students with and without disabilities.Our recent research has involved adapting part of this program to improve the handwriting of preschool children with autism or developmental delays (Carlson et al., 2009; Cosby, McLaughlin, Derby, &Huewe, 2009; Morris, McLaughlin, Derby, & McKenzie, 2012). DeAngelis, McLaughlin, and Sweeney, (1995) found that allowing error correction and additional practice has been successful employed with the D'Nealian handwriting program (Thurber, 2008) improved the legibility of student work in a resource room setting.

Employing consequences from applied behavior analysis (Alberto & Troutman, 2008) have been effective in teaching children handwriting skills These have ranged from using contingent free time for improved legibility and speed (Hopkins, Schutte, &Garton, 1971) to awarding of token reinforcement points for increased legibility for students with behavior disorders (McLaughlin, 1981). Finally, we compared the use of response cost procedures (removing points exchangeable for back up reinforces (McLaughlin &Malaby, 1978) to comparing response cost or error drill for writing illegible letters (McLaughlin, Mabee, Byram, & Reiter, 1987). Using behavioral self-management procedures, Sweeney, Salva, Cooper, and Talbert-Johnson, (1993) were able to improve the legibility of secondary students with poor handwriting, when they were allowed to self-evaluate their own handwriting?

The purpose of this study was to introduce tracing, prompting and consequences on student performance using teacher-made tracing worksheet. Tracing worksheets were implemented to teach two preschool students with disabilities to write the letters in their names. An additional goal for the study was to determine if two preschool students with disabilities could master the skill of handwriting, an important academic skill that is needed for a successful transition to a regular education kindergarten classroom.

METHOD

Participants and Setting

The participants of the study were two male preschool students with disabilities in a self-contained special education preschool classroom. Participant 1 was a 4-year-old boy diagnosed with developmental delays due to a brain tumor. He was qualified for special education in the areas of fine motor and gross motor in which handwriting skills fall under. Participant 2 was a 5-year-old boy labeled with developmental delays. He was scheduled to be moving up to a new classroom in the fall of 2008. Therefore, an important skill for him to master would be writing his name.

The study took place in a special education preschool classroom located in a public elementary school. The number of adults in the classroom at the time of the sessions ranged from four to six. Both Participant 1 and 2 attended a self-contained special education preschool classroom in the afternoon with nine other students. The classroom was staffed by a certified teacher, one student teacher (first author), and three instructional assistants.

Dependent Variable and Measurement Procedures

Data were collected in the beginning of the afternoon session at a table typically used for centers. The students were taken from a free-play activity. Each session lasted up to ten minutes and included one-on-one instruction and monitoring by the first author and an instructional assistant. Each participant's data were gathered individually. Both participants were also given a choice of one sticker after the completion of each session. The dependent variable was the total number of letters that were legible in each participant's name. To be defined as legible, the rater had to be able to judge the letter as the

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symbol in his name. The rater employed was "is this a t?" One point was given for each letter. These data were gathered following the verbal prompt "Please write your name." Each of the participants was provided with a data sheet on which to trace and write their own letters and then trace their name and write their name independently. The data sheet had lines on which to write their letters. The lines were divided in half by a dashed line. These data were collected four days a week for approximately seven weeks of school.

Experimental Design and Conditions

A combination multiple baseline and reversal design across participants (Kazdin, 2010) was employed. A description of each follows.

Baseline 1

For baseline 1 both participants were given a blank sheet of paper and a choice between two colors of crayons with the prompt "please write your name." For Participant 1, baseline data were collected over three sessions. For Participant 2, baseline was collected for eight sessions. At the end of each session for both baselines, if the participant had completed all the tasks during the session, they could earn a single sticker from two different sheets. They were then allowed to put on their shirt or hand.

Visual prompts, tracing, stickers, and consequences

For each session the participants were given a teacher made worksheet with each letter in their name. Each letter was written twice in thick ink, twice in thin ink, and then the rest of the line was left for the participants to write two independently for each specified letter. At the end of the worksheet the student was required to trace their name on one line and then on the next line the student independently wrote their name following the prompt "please write your name." At the end of each session, if the participant had completed what was required of them during the session they were allowed pick one sticker from two different sheets of stickers to put on their shirt or hand.

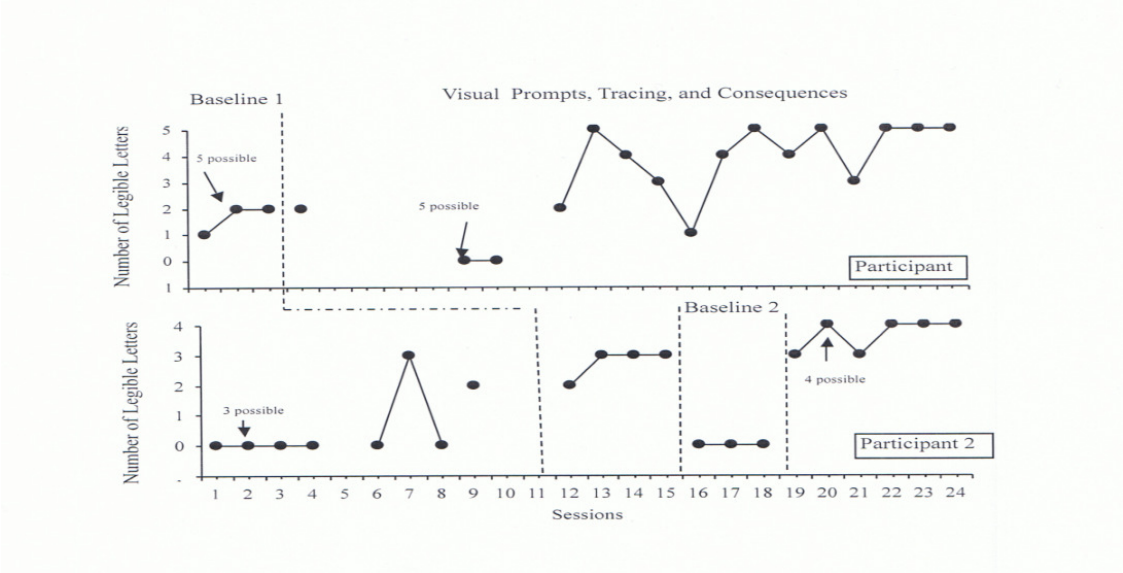

Figure 1.The number of legible letters for each of the participants during baseline and visual prompts, tracing, and consequences. Omitted data points indicate student absences.

Baseline 2

For participant 2, a return to baseline was carried out. In baseline 2, this student was provided with a single sheet of lined sheet of paper that was separated with a dashed line running along the middle. The student was again given the prompt "please write your last name." The student was then required to write his last full last name.

Reliability of Measurement for the Dependent and Independent Variables

Reliability of measurement for the dependent variable was collected for 100% of sessions for both participants. The first author working with the participant first scored the letter written on the lined paper and then these were later rescored at local private university. The first author's scoring was masked and a independent grader rescored each of the participant's handwriting. If a letter was scored in the same manner, it was defined as an agreement. Any deviation in scoring was scored as a disagreement. The number of agreements was divided by the number of agreements and disagreements and multiplied by 100. Agreement as to the number of points earned ranged from 90% to 100% with an overall mean of 98%. Reliability, as to the implementation of the independent variables, was determined by having two adults monitor the handwriting instruction in the classroom. Reliability as to the implementation of the visual prompts, tracing, and consequences was 100%.

RESULTS

Overall the outcomes once the participant began tracing the worksheets with visual prompts, the legibility of the letters increased (See Figure 1). During baseline, Participant 1 and 2 both scored below 100% and Participant 2 formed all of his letters in uppercase prior to the use of worksheets. After using the tracing worksheets, both participants increased their number of legible letters. They were also observed engaging in conversation with the first author about the formation of each letter. Participant 1's scores improved during intervention to a mean of 3.31 when the use of the teacher made worksheets was began (range of 0 to 5). Participant 2 also improved his handwriting during the first intervention. It increased to a mean of 2.67 with a range of 2 to 3. For visual prompts, tracing, stickers, and consequences phase, his performance increased to a mean of 3.67 with a range of 3 to 4. The study ended with Participant 1 mastering his first name and Participant 2 mastering letters his first and last name.

DISCUSSION

Overall, results of this study indicated that the presentation of the teacher made tracing worksheets increased the participants' ability to write their specific letter of their name. To fairly assess the presentation of the teacher made tracing worksheets, the present study would need to be continued for a couple more weeks or longer and daily practice would increase the chances of the participants' continuing to be successful. Participant 1 did not have enough time to use that method of writing for his last name.

Several strengths of the study should be noted. First each participant was able to work on the letters that made up their name. This had been determined through the use of curriculum-based assessment (Haring, Lovitt, Eaton, & Hansen, 1978; Howell, Fox, &Moorehead, 1993). Participant 1 enjoyed the consequence of a sticker for working hard and being willing to leave free play to work with the first author. A functional behavioral assessment (Alberto & Troutman, 2008) had been carried out with Participant 2. From this assessment, it was determined that Participant 2 was attention maintained. Therefore, being rewarded with a sticker as well as the one-on-one time with the first author, appeared to help increase his handwriting legibility as well as working hard. Another strength of the study was that the researchers found that it was more beneficial for the participants to have the letters legible to read, than to grade the letters based on formation, slant, and size (Haring et al., 1978). Finally, an additional strength is that this study can easily be carried in a classroom setting with more than one student. The data collection and analysis were easy to implement and monitor. The materials needed for the study were inexpensive and easy to make, unlike that of *Handwriting wiithout Tears* (Olsen, 1998). Finally, the use of a single case design indicated which type of instruction was effective and for which participant. This should be a strong point in getting preschool special education teachers to gather data and implement the tracing worksheets to improve the handwriting skills for their preschoolers (Park et al., 2007).

Some weaknesses of the study included the limited time to teach the current letter and other letters of the participants' names. At times, it was sometimes difficult to get the students to comply with coming to work with the author. However, one each sat down, they both very motivated to finish if they knew that they could earn a sticker at the end and specific praise throughout the session. Finally, a longer analysis of employing the handwriting materials appears needed with participant 1.

Participant 2 was found to have completed the study successfully, but daily practice should be recommended to ensure that the skills be maintained.

One of the purposes of the research was to determine if the preschool children with developmental disabilities would be able to improve their handwriting skills. From the data presented in this study, each participant demonstrated improved handwriting skills. By teaching handwriting skills, each of the participants should be able to successfully attend general education kindergarten classrooms. This finding replicates our prior research on handwriting with preschool children with disabilities (Carlson et al., 2008; Cosby et al., 2009; Park et al., 2007). The outcomes also demonstrate that preschool students with disabilities can be taught a wide variety of skills reserved for students in general education (Heward, 2010; Howard et al., 2010). Behavior analysts have long advocated for the more intensive and academic skill instruction (Heward, 2010) and providing preschool children with a wide range of skills and behaviors (Balenzano, Agte, McLaughlin, & Howard; 1991; Tabacheck, McLaughlin, & Howard, 1992). Additional research should be conducted to determine if these skills maintained over time and across classroom settings.

REFERENCES

Alberto, P. A., & Troutman, A. (2008). *Applied behavior analysis for teachers* (8thed,). NJ: Prentice-Hall.

Balenzano, S., Agate, L.J., McLaughlin, T.F. & Howard, V.F. (1993).Training tutoring skills with preschool children with disabilities in a classroom setting.*Child & Family Behavior Therapy, 15*(1), 1-36.

Brunner, M., McLaughlin, T. F. ,& Sweeney, W. J. (1993). Employing error drill and feedback to improve the legibility of manuscript and cursive handwriting.*The Journal of Precision Teaching*, *11* (1), 32-37.

Carlson, B., McLaughlin, T., Derby, K., &Blecher, J. (2009).Teaching preschool children with autism and developmental delays to write.*Electronic Journal of Research in Educational Psychology*, *7*(1), 225-238. Retrieved from http://www.investigacion-psicopedagogica.org/revista/new/english/anteriores.php

Cosby, E., McLaughlin, T. F., & Derby, K. M., &Huewe, P. (2009). Using tracing and modeling with a handwriting without tears® worksheet to increase handwriting legibility for a preschool student with autism. *Open Social Science Journal, 2,* 67-69. Retrieved from: http://www.benthamscience.com/open/tosscij/

DeAngelis, M., McLaughlin, T. F., & Sweeney, W. J. (1995).The use of error drill, feedback, praise, and fading to increase the legibility of D'Nealian handwriting with two special education students.*Journal of Precision Teaching and Celeration, 13,* 25-34.

Ford, A., Schnoor, R., Davern, L., Black, J., & Kaiser, K. (1989). Reading and writing. In A. Ford, R. Schnoor, L. Davern, J. Black, & P. Dempsey (Eds.), *The Syracuse community-referenced guide for students with moderate and severe disabilities*. Baltimore: Paul H. Brookes.

Graham, S. (1999). Handwriting and spelling instruction for students with leaning disabilities: A review. *Learning Disability Quarterly, 22*, 78-98.

Graham, S. (2010). Want to improve children's writing? don't neglect their handwriting. *Education Digest: Essential Readings Condensed for Quick Review, 76*(1), 49-55

Graham, S, Harris, K., & Fink, B. (2000). Extra handwriting instruction: Prevent writing difficulties right from the start. *Teaching Exceptional Children 33*(2), 88-91.

Graham, S., Harris, K. R., Mason, L., Fink-Chorzempa, B., Moran, S., & Saddler, B. (2008). How do primary grade teachers teach handwriting? A national survey.*Reading and Writing: An Interdisciplinary Journal*, *21*(1/2), 49-69.

Graham, S., Harris, K .R.,&Gavins, M. (2004). Early handwriting intervention can help to prevent writing difficulties. In A. Pincus (Ed.), *Tips from the experts: A compendium of advice on literacy instruction from educators and researchers*. Long Valley, NJ: NJIDA.

Grenot-Scheyer, M., &Falvey, M. A. (1986).Functional academic skills.In M. A. Falvey (Ed.).*Community based curriculum* (pp. 187-215). Baltimore: Paul H. Brookes.

Heward, W. E. (2010). *Teaching exceptional children: An introduction to special education* (9th ed.). Upper Saddle River, NJ: Merrill/Prentice-Hall/Pearson.

Hopkins, B. L., &Schutte, R. C., &Garton, K. L. (1971). The effects of access to a playroom on the rate and quality of printing and writing of first and second-grade students. *Journal of Applied Behavior Analysis, 4*, 77-88.

Howard, V. F., Williams, B. F., &Lepper, C. (2010). (4th ed.). *Very young children with special needs: a foundation for educators, families, and service providers*. Upper Saddle River, NJ: Prentice-Hall/Pearson.

Howell, K. W., Fox, S. L., & Morehead, M. K. (1993). *Curriculum-based evaluation: Teaching and decision making* (2nd ed.). Belmont, CA: Brooks/Cole.

Ladenberg, S., McLaughlin, T. F., & Sweeney, W. J. (1994).The effects of drill and practice on increasing accurate formation of lower-case calligraphy letters.*Journal of Precision Teaching, 12*(1), 67-72.

McLaughlin, T. F. (1981). An analysis of token reinforcement: A control group comparison with special education youth employing measures of clinical significance. *Child Behavior Therapy, 3*, 43-51.

McLaughlin, T. F., Mabee, S. W., Byram, B.& Reiter, S. (1987). Effects of academic positive practice and response cost on writing legibility of behaviorally disordered and learning disabled junior high school students. *Journal of Child and Adolescent Psychotherapy*, *4*, 216-272.

McLaughlin, T. F. & Walsh, A. L. (1996).Training pre-adolescent and adolescent students with moderate mental retardation name writing skills.*Journal of Developmental and Physical Disabilities, 8,* 105-115.

Morris, K., McLaughlin, T. F., Derby, K. M., & McKenzie, M. (2012). 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.*Academic Research International*, *2*(1), 590-598. Retrieved from: http://174.36.46.112/~savaporg/journals/issue.html

Olsen, J. Z. (1998). *Handwriting without tears* (Workbook). Brookfield, IL: Fred Sammons, Inc.

Park, C., Weber, K. P.& McLaughlin, T. F. (2007).Effects of fading, modeling, prompting, and direct instruction on letter legibility for two preschool students with physical disabilities.*Child & Family Behavior Therapy, 29*(3), 13-21.

Sweeney, W. J., Salva, E., Cooper, J. O.& Talbert-Johnson, C. (1993).Using self-evaluation to improve difficult to read handwriting of secondary students.*Journal of Behavioral Education, 3,* 427-443.

Tabacek, D. A., McLaughlin, T. F., & Howard, V. F. (1994). Teaching preschool children with disabilities tutoring skills: Effects on preacademic behavior.*Child & Family Behavior Therapy*, *16*(2), 43-63.

Thurber, D. N. (2008). *D'Nealian handwriting 2008 for grades 1-8.* NJ: Pearson/Scott Foresman.