

THE EFFECTIVENESS OF THE WHAM HANDWRITING INTERVENTION FOR  
SECOND TO FIFTH GRADE STUDENTS

A THESIS

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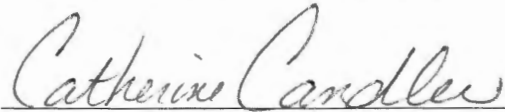
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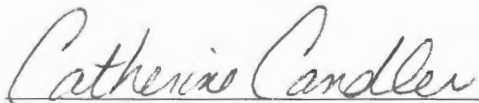
To the Dean of the Graduate School:

I am submitting herewith a thesis written by Jyoti Arora entitled "The Effectiveness of the WHAM Handwriting Intervention for Second to Fifth Grade Students." I have examined this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts with a major in Occupational Therapy.



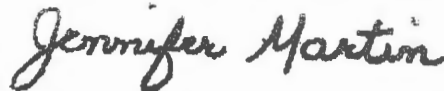
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We have read this thesis and recommend its acceptance:



Interim Director

Accepted:



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## ABSTRACT

JYOTI ARORA

### THE EFFECTIVENESS OF THE WHAM HANDWRITING INTERVENTION FOR SECOND TO FIFTH GRADE STUDENTS

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Handwriting is an essential skill for school assignments and projects. Elementary school students spend up to 50% of the school day engaged in paper and pencil tasks. Occupational therapists assist children to overcome handwriting difficulties through varied intervention approaches and techniques. The purpose of this retrospective study was to examine the effectiveness of a handwriting program for 2<sup>nd</sup> to 5<sup>th</sup> grade students based on motor learning principles of feedback, practice, and task relevance. Thirty students' handwriting samples were examined. The handwriting quality was analyzed using a modified scale based on the *Minnesota Handwriting Assessment*. The results showed significant improvement between pre and post for all measures of legibility, form, alignment, size and spacing.

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## CHAPTER I

### INTRODUCTION

Handwriting is one of the most important and complex skills that is learned and taught. It requires motor, sensory, perceptual, praxis and cognitive functions and the integration of these functions. When the complex nature of this skill is considered, it comes as little surprise that many children experience difficulty in mastering this area (Chu, 1997). Handwriting is one of the main means of communicating ideas that children acquire and use throughout the school years as part of their occupation as students. At school, children are required to write for a variety of academic purposes, including in-class assignments and tests. At home, children may be required to take phone messages, complete homework assignments, or write letters to family members (Woodward & Swinth, 2002). When handwriting skills are deficient, children suffer from various consequences related to their academic performance and social interactions, thus limiting their successful participation in everyday school activities (Preminger, Weiss & Weintraub, 2004). Poor handwriting interferes with teachers' perceptions and grading of students' tests and assignments.

The prevalence of handwriting problems in typically developing children has been estimated to range from 5% to 25% (Hamstra-Bletz, 1993). Children with handwriting difficulties are often diagnosed with developmental coordination disorder or, learning disorder. These children are often referred to occupational therapy for handwriting



intervention. The occupational therapist then assists the child to overcome handwriting difficulties through various intervention approaches and techniques.

## CHAPTER II

### LITERATURE REVIEW

Handwriting is one of the most essential and valuable skills for students in order to accomplish school assignments and projects. In school, handwriting is a major deciding factor in educational development and quality of schoolwork. Elementary school students spend up to 50% of the school day engaged in paper and pencil tasks (McHale & Cermak, 1992). The use of handwriting is in fact the primary method by which elementary school students convey their knowledge to teachers about the extent to which they have mastered academics (Amundson & Weil, 2001). Handwriting is a complex skill therefore its development is very essential in children.

#### Factors Effecting Handwriting Performance

Handwriting performance can be restricted through intrinsic and extrinsic factors (Alston & Taylor, 1987). Intrinsic factors, which refer to the child's actual handwriting capabilities include: kinaesthesia, fine motor skills, eye-hand coordination, orthographic coding, visual perceptual and visual motor integration skills.

Children who have difficulty in perceiving and storing kinesthetic information will face a new handwriting task every time they repeat previous writing attempts (Lazlo & Broderick, 1991). A well-expanded web space and full range of motion of the carpometacarpel joint in the thumb are components essential for the dexterity needed for good handwriting (Benbow, 1995). Children with poor handwriting do worse than those

with good handwriting on fine motor and dexterity tasks measured by the Bruininks-Oseretsky Test of Motor Proficiency (Tseng & Murray, 1994). Fine motor Skills and finger functions have been found to be essential factors for handwriting performance (Tseng & Chow, 2000).

Visual motor skills affect a child's ability to measure position in space, figure ground perception and copying letters or words (Case-Smith, 2002). Difficulties in this particular area make it challenging for a child to write within a line boundary and to correctly write letters and words. Poor perceptual motor function is a cognitive problem which leads to a poor coordination between vision and fine motor skills. Difficulty in perceptual motor skill results in slow handwriting speed and poor consistency in handwriting (Tseng & Chow, 2000). Teaching method is one of the external factors. If a child does not receive sufficient instruction and feedback during handwriting learning process, errors can become habitual and result in poor legibility (Alston & Taylor, 1987; Graham, 1992).

### Handwriting Assessment

The methods and assessment tools used to gather evaluation information of a child with handwriting problems must be carefully selected and sequenced. When evaluating the actual task of children's handwriting several variables should be identified as components of legibility which include letter formation, alignment, spacing, slant, and size (Amundson & Weil, 2001). The most commonly used assessment tools used by occupational therapist are *the Minnesota Handwriting Assessment* (MHA) (Riesman, 1999) and *the Evaluation tool of Children's Handwriting* (ETCH) (Amundson, 1995).

ETCH evaluates the speed and legibility of a child's handwriting. It has both print and cursive versions. MHA evaluates the rate, legibility, form, alignment, size, and spacing of handwriting. It has only print version. The print version requires students to copy words using their best handwriting.

### Review of Studies

Some previous studies have examined the effectiveness of different approaches and techniques for handwriting intervention. A survey of 198 school-based occupational therapists practicing in the United States indicated that 92.1% of the therapists used a multisensory approach for remedying handwriting difficulties (Woodward & Swinth, 2002). The sensorimotor approach is also commonly used by occupational therapists.

Case-Smith (2002) investigated the effects of school-based occupational therapy services on students' handwriting. Children were diagnosed with poor handwriting legibility. Her intervention techniques were based on multisensory approaches, behavioral and motor learning techniques. The study showed that 29 students in the intervention group improved an average of 14.2% in total legibility as measured by the ETCH. However, 9 students who did not receive intervention remained unchanged over the course of the year.

Lockhart and Law (1994) examined the effectiveness of a multisensory writing program for improving the cursive writing ability of four children with learning and sensorimotor difficulties. The participants received one hour of occupational therapy every two weeks using a multisensory cursive writing program. The study indicated that all participants demonstrated improvement in handwriting quality.

Oliver (1990) conducted a pilot study to examine the effectiveness of occupational therapy intervention which included a sensorimotor program for improving writing readiness skills in three groups of children aged 5 to 7 years. His study involved 24 children. Therapy intervention included multisensory stimulation, large movement patterns and writing readiness skills such as attention to lines and designs. Oliver concluded that multisensory intervention may be of benefit for students who have deficits in writing readiness skills. It is not clear from his study if the therapy had any influence on the children's actual handwriting skills.

Jan McClesky (2002), an occupational therapist developed the *First Strokes Multisensory Print Program* for handwriting intervention. She is also the founder of The Handwriting Clinic in Plano, TX. The *First Strokes Multisensory Print Program* was developed for use by students at Handwriting Clinic to learn print. It uses multi-sensory techniques in teaching handwriting. This program reduces the number of students facing handwriting problems. Jan conducts a number of handwriting intervention classes based on the diagnosis of learning disability. The Writing, Handwriting, and Math Legibility class or WHAM is one of the handwriting intervention classes which help in improving the handwriting performance. It is based on the *First Strokes Multisensory Print Program*. The focus of the WHAM class is to improve legibility, eliminate reversals of the letter and generalize sizing to handwriting. WHAM class is good for children if sizing is the primary problem. It is also good if the child has speedy handwriting with poor legibility. This class uses the multisensory approach on sizing letters through fun motor activities. Each class has 5 students from 2 to 5<sup>th</sup> grade. This class has 8 sessions

each week for 8 consecutive weeks. Time duration for each class is one hour. Students use One Hour to Legibility Workbook. The WHAM class appears to be successful but no formal study has been conducted. Therefore, the purpose of this study is to evaluate the effectiveness of the WHAM class which is based on the *First Strokes Multisensory Print Program* in improving handwriting problems.

#### Statement of the Problem

WHAM is a handwriting intervention class for 2<sup>nd</sup> to 5<sup>th</sup> grade students. Presently no research data is available on the effectiveness of this handwriting class.

#### Purpose

The purpose of this study was to determine the effectiveness of the Writing, Handwriting and Math Legibility class (WHAM) in 2<sup>nd</sup> to 5<sup>th</sup> grade students for their handwriting performance. This study sought to the question: “How effective is the WHAM class in improving the legibility, form, alignment, size and spacing component skills of handwriting?”

#### Definitions of Terms

The following definitions are offered to ensure proper interpretation of the terminology used in this study:

Multisensory approach to handwriting remediation – Involves using a variety of sensory experiences, media, and instructional materials to stimulate the child’s sensory systems, including the proprioceptive, vestibular, tactile, visual, and auditory senses (Woodward & Swinth, 2002).

Visual motor integration – Is the coordination between eyes and hands. Visual motor integration has been operationally defined as the ability to copy geometric shapes (Tseng & Cermak, 1993).

Visual perception- Is the brain's ability to interpret and make sense of visual images seen by the eyes.

Legibility –Is defined as a letter or word that is recognizable out of context (Reisman, 1999).

Alignment- Refers to the proper placement of letter above or below the baseline (Reisman, 1999).

Size- The measurement of the letter to evaluate whether ascenders and descenders are an appropriate size above or below the reference (Reisman, 1999).

Space- Refers how letters are spaced within words and words within sentences (Reisman, 1999).

Form- Refers to the correct formation of the letter in one continuous stroke with or without an obvious change in direction (Reisman, 1999).

Kinaesthesia- It is the sense of position and movement. It is necessary for maintenance of posture, error detection, correction and provides the necessary information from the hand and arm to memorize movement (Lazlo & Broderick, 1991).

Dysgraphia- Is a learning disability resulting from the difficulty in expressing thoughts in writing and graphing. It generally refers to extremely poor handwriting.

### Limitations

The major limitation in this study is that this is a retrospective study. There is no control for how the children were asked to write the samples or the conditions under which they wrote the samples.

### Assumptions

It is assumed that students in the WHAM class have already received instruction and practice in how to form the letters of the lower case alphabet. It is also assumed that students have sufficient grasp development for handwriting.



## CHAPTER III

### METHODOLOGY

This study will be a pilot study using a retrospective one group repeated measures design. Data will be collected from The Handwriting Clinic in Plano, TX.

#### Participants

Handwriting samples from 2<sup>nd</sup> to 5<sup>th</sup> grade students who attended the WHAM class in summer 2008 were used in this study. Thirty students' files were collected for this study. To be included in the study each file must have had pre and post samples of lower case alphabet. Samples from students with poor handwriting or diagnosed with dysgraphia were included. Samples for students who attended less than 6 of the 8 WHAM sessions were excluded. Two files did not meet the inclusion criteria so they were excluded from the study. Five files had evaluation samples along with the pre and post samples.

#### Instrument

Criteria from the *Minnesota Handwriting Assessment* (MHA) (Riesman, 1999) was used to measure handwriting quality. The MHA was developed to assist occupational therapists and others in qualifying selected aspects of a student's printed handwriting sample. The handwriting sample is scored for quality in 5 categories; legibility, spacing, alignment, size, and form. Two studies were conducted to assess the test's inter-rater reliability. The first one was done using the pilot version of the MHA. Six inexperienced

research assistants independently scored three sets of ten samples. The author gave feedback regarding scoring errors. The third set of samples was analyzed using the Pearson correlation. Inter-rater reliability was .77-.88. In the second study, two experienced raters and one inexperienced rater scored 20 samples independently. Inter-rater reliability was determined by Pearson correlation. Among experienced scorers inter-rater reliability was found to be .90 for the form section which is somewhat subjective, and .99 for the size and alignment sections which have strict guidelines. Inter-rater reliability between the inexperienced and experienced rater ranged by category from .87 for Form to .98 for Alignment and Size. Therefore, MHA has significantly high inter-rater reliability. Test-Retest stability was assessed with 99 second grade students who were tested twice within 5 to 7 days. Scores were grouped into 3 categories, like peers, above peers, below peers. Decision consistency ranged from 64% (legibility) to 86% (alignment). Test- retest reliability was conducted with a group of 56 at risk first and second grade students. Correlations ranged from .60 (legibility) to .89 (size).

For the purpose of this study scoring criteria was modified. The handwriting samples were scored in five categories, legibility, form, alignment, sizing and spacing. They were scored on regular notebook paper. The handwriting sample consisted of the printed lower case alphabet from a-z. In the handwriting sample each letter was assigned 1 point. Therefore, in the modified scoring criteria the total number of error points in each category are subtracted from 26.

The scoring criteria for legibility and form was the same as used in MHA guide. The scoring direction for alignment was the same as used in MHA guide except that each letter should rest within 1mm of an inch above or below the baseline.

Size measures the relationship of all other parts of each letter to the middle line, top line for ascenders, and bottom line for descenders on the notebook paper. In MHA guide the letter should not be more than  $1/16^{\text{th}}$  of an inch above or below the reference line. In the modified scoring criteria the letter should be within 1mm of an inch above or below the reference line. Error points in the letter size in relation to the top line, reference line and bottom line were also scored separately. The total number of error points in relation to the top, reference and bottom line were divided by 6, 25 and 4 respectively.

Letter spacing refers to the space between letters of a word. In MHA guide spacing between letters should not be more than  $1/4^{\text{th}}$  of an inch. In the modified scoring criteria spacing between letters should not be more than  $1/8^{\text{th}}$  of an inch.

### Procedure

After obtaining the required permissions from The Handwriting Clinic in Plano, TX and the institutional review board all the files from WHAM class of summer 2008 were collected. With the help of clinic staff, samples from files that met the inclusion criteria were copied. All identification information was removed from the samples. To remove bias from the study an assistant made a key and marked the samples. Handwriting samples were scored by the primary investigator using the modified MHA scale. After scoring, using the key the scores were tallied and dependent variables were entered into a computer spreadsheet for analysis.

## Data Analysis

The dependent variables were legibility, form, alignment, sizing and spacing. Number of error points were counted and divided by total number of letters to yield the percentage of error points. The dependent variables were compared for differences between the pretest and posttest using dependent t-tests. Descriptive statistics are displayed in tables.

## CHAPTER IV

### RESULT

This study evaluated the effectiveness of the WHAM class in improving the legibility, form, alignment, size and spacing component skills of handwriting in 2<sup>nd</sup> to 5<sup>th</sup> grade students. The data was analyzed using dependent t-tests in a retrospective one group pre-post design.

Table 1 displays the descriptive results of the WHAM handwriting samples class. It shows the mean, standard deviation and difference scores of all component skills of handwriting.

Table 1:  
*Mean Percentage of Error Points Pre and Post (N=28)*

Component	Pretest		Posttest		Difference		p
	M	(SD)	M	(SD)	M	(SD)	
Legibility	.16	(.16)	.02	(.04)	.14	(.15)	<.001
Form	.38	(.18)	.12	(.06)	.27	(.18)	<.001
Alignment	.46	(.18)	.13	(.10)	.32	(.18)	<.001
Size	.77	(.17)	.22	(.16)	.55	(.23)	<.001
Size Top	.54	(.32)	.09	(.11)	.45	(.34)	<.001
Size Reference	.69	(.21)	.15	(.14)	.54	(.24)	<.001
Size Bottom	.90	(.14)	.35	(.27)	.55	(.29)	<.001
Space	.55	(.22)	.34	(.22)	.22	(.25)	<.001

Referring to table 1, a paired t-test revealed significant differences in the legibility scores before and after the WHAM class,  $t(27) = 4.897, p < .001$ . The mean score for the

legibility component after the WHAM class ( $M=.02$ ) was significantly lower than the mean before the WHAM class ( $M=.16$ ).

Form component showed significant differences before and after the class,  $t(27) = 7.953, p < .001$ . The mean score after the class ( $M=.12$ ) was significantly lower than the mean before the class ( $M=.38$ ).

Alignment component showed significant differences before and after the class,  $t(27) = 9.717, p < .001$ . The mean score after the class ( $M=.13$ ) was significantly lower than the mean before the class ( $M=.46$ ).

Size component also showed significant differences before and after the class,  $t(27) = 12.706, p < .001$ . The mean score after the class ( $M=.22$ ) was significantly lower than the mean before the class ( $M=.77$ ). We also scored the letter size in relation to the top line, reference line and bottom line. Size top showed significant differences before and after the class,  $t(27) = 7.069, p < .001$ . The mean score after the class ( $M=.09$ ) was significantly lower than the mean before the class ( $M=.54$ ).

Size reference showed significant differences before and after the class  $t(27) = 11.903, p < .001$ . The mean score after the class ( $M=.15$ ) was significantly lower than the mean before the class ( $M=.69$ ). Size bottom showed significant difference before and after the class,  $t(27) = 9.993, p < .001$ . The mean score after the class ( $M=.35$ ) was significantly lower than the mean before the class ( $M=.90$ ).

Similarly space component also showed significant difference before and after the class,  $t(27) = 4.660, p < .001$ . The mean score after the class ( $M=.34$ ) was significantly lower than the mean before the class ( $M=.55$ ).

In 28 samples there were five samples with evaluation data. The five samples are too small to statistically analyze. Table 2 reports the means of all components. We see that the difference between the evaluation mean scores and the pretest scores is minimal.

Table 2  
*Descriptive Results for Samples with Evaluation Data N=5*

Component	Evaluation M	Pretest M	Post test M
Legibility	.08	.09	.02
Form	.26	.29	.12
Alignment	.35	.32	.09
Size	.73	.68	.18
Size Top	.66	.46	.11
Size Reference	.55	.58	.10
Size Bottom	.96	.97	.32
Space	.56	.55	.29

## CHAPTER V

### DISCUSSION

The purpose of the study was to determine the effectiveness of the WHAM class in 2<sup>nd</sup> to 5<sup>th</sup> grade students for their handwriting performance. This study has provided a valuable analysis of the techniques for improving handwriting through the WHAM class. WHAM, a *First Strokes Multisensory Print Program*, appeared to have a positive effect on the handwriting of the students who participated in this class. It is interesting to note that all students showed remarkable improvements in all component measured. The post-t scores clearly show this improvement.

The hypothesis for this study was that there would be statistically significant improvement in all components of handwriting in students who receive WHAM class. The majority of the previous research has examined the effectiveness of handwriting intervention in students with handwriting difficulties. There was sufficient evidence in the literature to suggest that handwriting intervention would result in handwriting improvement. Participants in the Case-Smith's (2002) study improved an average of 14.2% in handwriting as measured by the ETCH. The Lockhart and Law (1994) study demonstrated improvement in handwriting quality. Oliver (1990) concluded that handwriting intervention may be of benefit for students who have deficits in writing readiness skills. Jan McClesky (2002) the founder of the WHAM class reported that she found this class to be very effective and she was seeing improvement in the students'



handwriting. However no research data was available to confirm the effectiveness of this class. The findings of this study did support the hypothesis. The effectiveness of WHAM class was anecdotally perceived but this study has statistically shown effectiveness. I believe that this study will provide the data for therapists considering various options for handwriting improvement.

The limitation of this study is that this is a retrospective study. We do not know how and under what conditions students were asked to write samples. There is possibility of prompting or help during the evaluation. I observed the WHAM class sessions and did not see any help or cues being given during the pre and post evaluations. So it is equally possible the results are not skewed due to helping or prompting.

This study only looks at lower case alphabet samples. Further study needs to be done to analyze the effectiveness of WHAM class in usage of letters in words, sentences or paragraphs. Research can also be done in analyzing WHAM class's effectiveness in math or numeral legibility.

### Conclusion

This study has shown the effectiveness of the WHAM class for 2<sup>nd</sup> to 5<sup>th</sup> grade students. This study shows that students benefited from this class. Students with handwriting difficulties are often referred to occupational therapy. Based on this study occupational therapists should consider using WHAM for handwriting intervention.

## REFERENCES

- Amundson, S. J., & Weil, M. (2001). Prewriting and handwriting skills. In J. Case-Smith (Ed.) *Occupational therapy for children (4th Ed.)*. St. Louis, MO: Mosby.
- Amundson, S.J. (1995). *Evaluation tool of children's handwriting*. Homer, AK: O.T. KIDS.
- Alston, J., & Taylor, J. (1987). *Handwriting: Theory, research, and practice*. New York: Nichols Publishing.
- Benbow, M. (1995). Principles and practices of teaching handwriting. *Hand Function in the child: Foundations for Remediation*. St. Louis: Mosby.
- Case-Smith, J. (2002). Effectiveness of school-based occupational therapy intervention on handwriting. *American Journal of Occupational Therapy*, 56, 17-25.
- Chu, S. (1997). Occupational therapy for children with handwriting difficulties: A framework for evaluation and treatment. *British Journal of Occupational Therapy*, 60, 514-520.
- Graham, S. (1992). Issues in handwriting instruction. *Focus on Exceptional Children*, 25(2), 1-14.
- Hamestra-Bletz, E. (1993). A longitudinal study on dysgraphic handwriting in primary school. *Journal of Learning Disabilities*, 26, 689-699.
- Laszlo, J.I., & Broderick, P. (1991). Drawing and handwriting difficulties. *Development of Graphic Skills* (pp. 259-285). New York: Academic Press.
- Lockhart, J., & Law, M. (1994). The effectiveness of a multisensory writing programme for improving cursive writing ability in children with sensorimotor difficulties. *Canadian Journal of Occupational Therapy*, 61, 206-214.
- McCleskey, J. (2002). *First strokes: multi-sensory print program, instructor's manual*. Plano, TX: Author.
- McHale, K. & Cermak, S.A. (1992). Fine motor activities in elementary school: preliminary findings and provisional implications for children with fine motor problems. *American Journal of Occupational Therapy*, 46(10), 898-903.

- Oliver, C. E. (1990). A sensorimotor program for improving writing readiness skills in elementary-age children. *American Journal of Occupational Therapy*, 44, 111-116.
- Preminger, F., Weiss, P.L., & Weintraub, N. (2004). Predicting occupational performance: Handwriting versus keyboarding. *American Journal of Occupational Therapy*, 58, 193-201.
- Reisman, J. (1999). *Minnesota Handwriting Assessment*. United States: The Psychological Corporation.
- Tseng, M. H., & Chow, S. M. K. (2000). Perceptual-motor function of school-age children with slow handwriting speed. *American Journal of Occupational Therapy*, 54, 83-88.
- Tseng, M. H., & Murray, E. (1994). Differences in perceptual-motor measures in children with good and poor handwriting. *Occupational Therapy Journal of Research*, 14, 19-36.
- Tseng, M. H., & Cermak, S. (1993). The influence of ergonomic factors and perceptual motor abilities on handwriting performance. *The American Journal of Occupational Therapy*. 47, 919-926.
- Woodward, S. & Swinth, Y. (2002). Multisensory approach to handwriting remediation: Perceptions of school-based occupational therapists. *American Journal of Occupational Therapy*, 56,305-315.