

## CHAPTER FOUR

### Research Findings

This study utilized a quasi-experimental, one-group pretest post-test design, with both qualitative and quantitative characteristics. Both descriptive and inferential statistics were utilized in this overview of statistical procedures. The statistical techniques were implemented to analyze the results for statistical significance, and to determine if the visual perceptual development promotion program was positively impacting the study participants in all four art skill areas. The qualitative information for this study was created through a review of descriptive field notes, a content analysis of the artwork and correlating written stories, case studies, as well as interviews conducted with classroom teachers to document improved art and visual perceptual skills.

#### *Description of Findings Pertinent to the Hypothesis*

The hypothesis explored in this study was a therapeutic art program targeting behaviors associated with learning disorders will contribute to an increase in age-appropriate art skills; sound gestalts, figure/ground discrimination, and detail elaboration. Uhlin's (1972) research to improve perceptual experiencing using reversed field/ground art materials provided structure for this inquiry. Cheyne-King's (1990) theory that "surface-oriented art activities can help remediate perceptual dysfunctions, or at least help compensate for them" was also utilized.

#### *Quantitative Study Results*

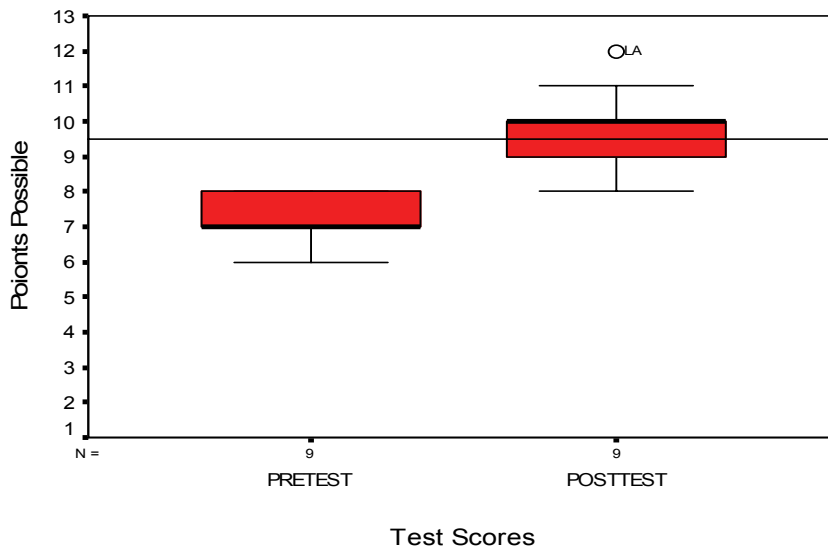
The results of this study provided evidence that the TASS (1992) identified children whose art skills were assessed as at least 1 standard deviation (1SD) below the group norm. A total of 74 first grade students were administered the TASS by a team of art therapy graduate students to assess for art skills developmentally below age appropriate level. Pretest screening found that 14 first grade students were at least 1SD below the group norm in 2

or more art skill areas. A comparison of pretest and posttest results was undertaken for the 14 participants. *Drawing Results*

At pretest screening (see Table 4.10 and Figure 4.18), 9 participants (13%) performed below the age appropriate skill level for drawing ( $SD=.83$  from the 9.5 total group mean) as well as another skill area, and were invited to participate in the visual perceptual development program. In posttest screening, 2 children (3%) performed at a below age appropriate level, which indicated that 97% of first graders demonstrated age appropriate skills in drawing.

Table 4.10 *Drawing Scores*

	Pretest Scores	Posttest Scores
$\geq M=9.5$	$N = 59$	$N = 66$
$\leq SD=.83$	$N = 9$ $M=7.22$	$N = 2$ $M=9.66$



Note: Total group mean = 9.5

Figure 4.18 *Drawing Graph*

These results indicated a 10% increase in the number of study participants who demonstrated an improvement in age

appropriate art skills for drawing. In addition, the Eta test (see Table 4.11) estimated power for the drawing skill results to be at the medium effect size ( $ES=.488$ ), a level which Lipsey (1990) consider to be an important finding for educational studies.

Table 4.11 *Estimate of Effect Size*

			Value
Nominal by Interval	Eta	PRETEST Dependent	.721
		POSTTEST Dependent	.488

Further, the Paired Sample Correlations *t*-test provided evidence of 2-tailed statistical significance at the  $p=.004$  level (see Table 4.12).

Table 4.12 *Drawing Scores T-Tests for Paired Samples T-test for Correlated Means*

		N	Correlation	Sig.
Pair 1	PRETEST & POSTTEST	9	-.378	.316

*Paired Samples Statistics*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETEST	7.2222	9	.8333	.2778
	POSTTEST	9.6667	9	1.3229	.4410

*Paired Samples Test*

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 PRETEST - POSTTEST	-2.4444	1.8105	.6035	-4.4694	-.4195	-4.051	8	.004

In addition, the posttest mean for the study participants ( $M=9.6$ ,  $SD=1.32$ ), compared with the pretest mean of 7.2, was above the total group mean of 9.5, which further indicated that drawing skills had improved. Furthermore, the pretest mean, 7.2, was more than 1SD from

the total group mean of 9.5, with 13% of the participants performing below the age appropriate skill level for drawing. Therefore, those 9 pretest participants were deemed appropriate for inclusion in the visual perceptual promotion program.

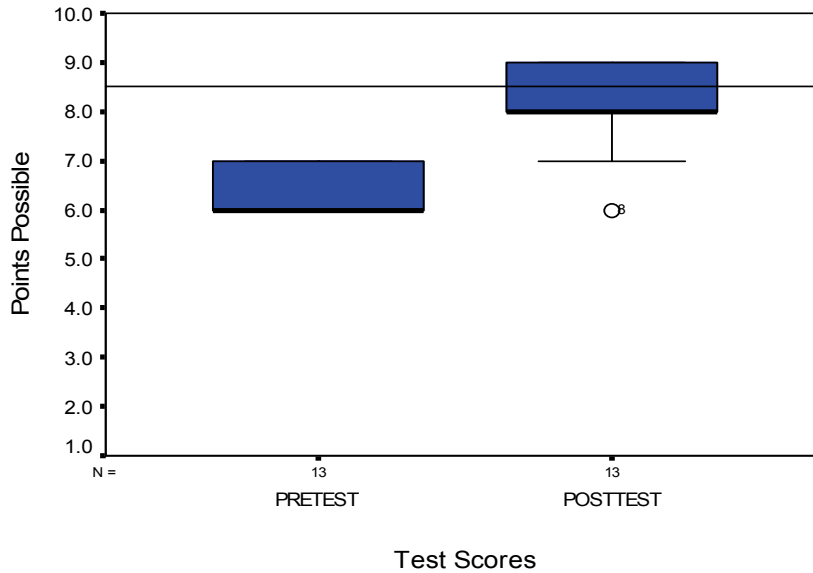
These findings provided some evidence that the VPTAP was effective in increasing the number of age appropriate drawing skills, based on effect size and the significance of the *t*-test.

#### *Painting Results*

During pretest screening, 13 students (18%) performed at below age appropriate skill level for painting (*SD*=.52 from the 8.5 total group mean) as well as another skill area, and were invited to participate in the visual perceptual development program. In posttest screening, 3 children (4%) performed at a below age appropriate level (see Table 4.13 and Figure 4.19), which indicated that 96% of first graders demonstrated age appropriate skills for painting.

Table 4.13 *Painting Scores*

	Pretest Scores	Posttest Scores
$\underline{>M=8.5}$	<i>N</i> =58	<i>N</i> =68
$\underline{<SD=.52}$	<i>N</i> =13 <i>M</i> =6.5	<i>N</i> = 3 <i>M</i> =8.1



Note: Total Group Mean = 8.5

Figure 4.19 Painting Graph

These results indicated a 14% increase in the number of participants who demonstrated an improvement in age appropriate art skills for painting. The Eta test estimated power for the painting skill results to be at the small effect size ( $ES=.259$ ), which was below the level regarded as an important finding (see Table 4.14).

Table 4.14 *Estimate of Effect Size*

		Value
Nominal by Interval	Eta	
	PRETEST Dependent	.617
	POSTTEST Dependent	.259

In contrast, the Paired Sample Correlations t-test provided evidence of 2-tailed statistical significance, at the  $p=.0001$  level (see Table 4.15).

Table 4.15 *Painting Scores T-Tests for Paired Samples T-Test for Correlated Means*

	N	Correlation	Sig.
Pair 1 PRETEST & POSTTEST	13	.259	.393

Table 4.15 Continued

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 PRETEST	6.4615	13	.5189	.1439
POSTTEST	8.0769	13	.9541	.2646

**Paired Samples Test**

	Paired		Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 PRETEST - POSTTEST	-1.6154	.9608	.2665	-2.4293	-.8014	-6.062	12	.000

The posttest mean for this group of study participants ( $M=8.1$ ,  $SD=.95$ ), compared with the pretest mean of 6.5, was within the range for age appropriate skills, and indicated an improvement in painting for 14% of study participants.

These findings provided evidence that the VPTAP was effective in increasing age appropriate painting skills for study participants, based on the significance of the  $t$ -test. However, the effect size was small.

**Scissors Results**

At pretest screening, 14 students (19%) performed at below age appropriate skill level for scissors use ( $SD=.43$  below the total group mean score of 8.0) as well as another skill area, and were invited to participate in the visual perceptual development program. In posttest screening, 3 children (4%) performed at a below age appropriate level (see Table 4.16 and Figure 4.20), which indicated that 96% of first graders demonstrated age appropriate skills for scissors usage.

Table 4.16 Scissors Scores

	Pretest Scores	Posttest Scores
$\geq M=8.0$	$N=59$	$N=70$
$< SD=.43$	$N=14$ $M=6.8$	$N=3$ $M=8.4$

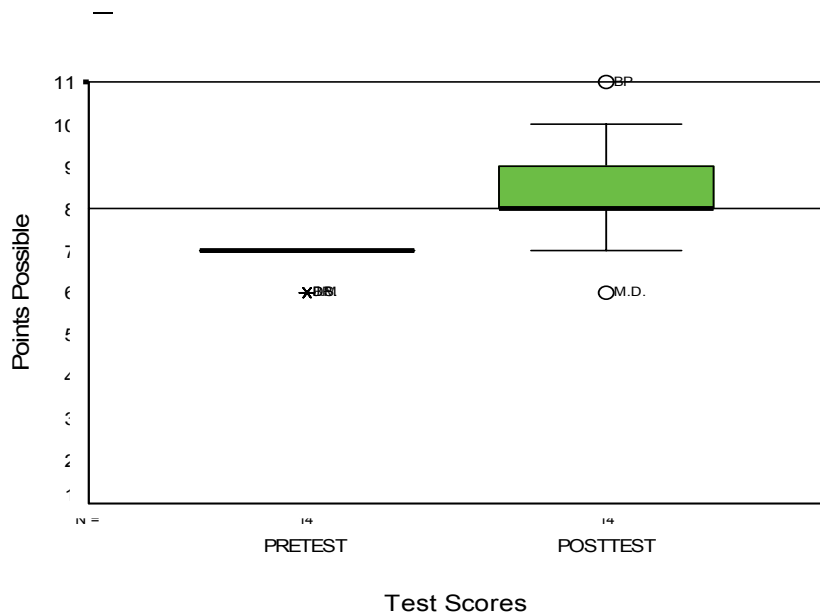


Figure 4.20 Scissors Graph

These results indicate that 15% of the participants demonstrated improvement in age appropriate art skills for scissors. However, the Eta test estimated power for the scissors skill results to be at the small effect size ( $ES=.096$ ), which was below the level regarded as an important finding (see Table 4.17).

Table 4.17 *Estimate of Effect Size*

			Value
Nominal by Interval	Eta	PRETEST Dependent	.670
		POSTTEST Dependent	.096

The  $t$ -test for paired sample means provided evidence of 2-tailed statistical significance, at the  $p=.001$  level (Table 4.18).

Table 4.18 *Scissors Scores T-Tests for Paired Samples T-Test for Correlated Means*

Pair 1	PRETEST & POSTTEST	N	Correlation	Sig.
		14	-.096	.744

Table 4.18 *Continued*

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 PRETEST	6.7857	14	.4258	.1138
POSTTEST	8.4286	14	1.3425	.3588

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRETEST - POSTTEST	-1.6429	1.4469	.3867	-2.8077	-.4780	-4.249	13	.001

The pretest mean ( $M=6.8$ ,  $SD=.43$ ) was more than 1SD below the total group mean of 8.0. The posttest mean for this group of students ( $M=8.4$ ,  $SD=1.34$ ), compared with the pretest mean of 6.8, was above the range for age appropriate skills, which indicated that scissor skills had improved for 15% of the participants.

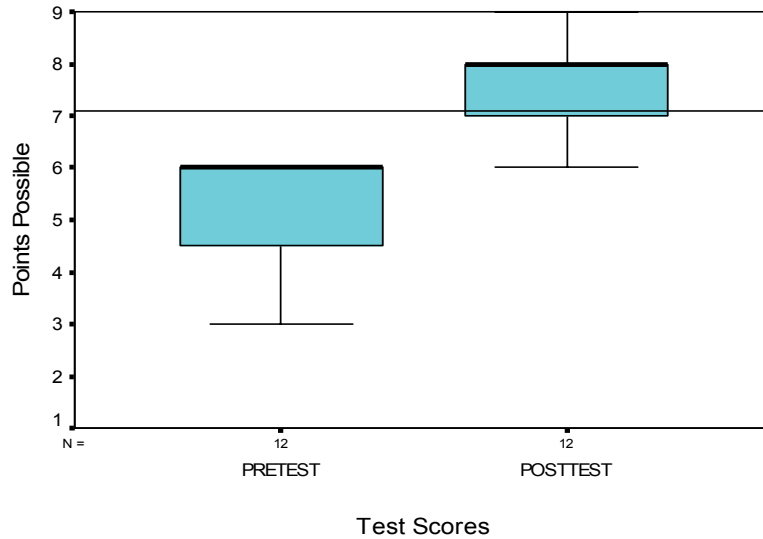
These findings provided evidence that the VPTAP was effective in increasing age appropriate scissors skills for participants, based on the significance of the t-test. However, the effect size was small.

*Clay Results*

During pretest screening, 12 students (16%) performed at below age appropriate skill level for clay ( $SD=1.19$  below the total group mean score of 7.1) as well as another skill area, and were invited to participate in the visual perceptual development program. In posttest screening, 1 child (1%) performed at a below age appropriate level (see Table 4.19 and Figure 4.21), which indicated that 99% of first graders demonstrated age appropriate skills for clay usage.

Table 4.19 Clay Scores

	Pretest Scores	Posttest Scores
$\geq M=7.1$	N=61	N=73
$\leq SD=1.19$	N=12 M=5.2	N= 1 M=7.8



Note: Total Group Mean = 7.1

Figure 4.21 Clay Graph

These results indicate that 15% of the participants demonstrated improvement in age appropriate art skills for clay usage. In addition, the Eta test estimated power for the clay skill results to be at the small effect size ( $ES=.255$ ), which is below the level considered to be an important finding (see Table 4.20).

Table 4.20 Estimate of Effect Size

		Value
Nominal by Interval	Eta	
	PRETEST Dependent	.342
	POSTTEST Dependent	.255

The  $t$ -test for paired sample means provided evidence of 2-tailed statistical significance, at the  $p=.0001$  level

(Table 4.21).

Table 4.21 *Clay Scores T-Tests for Paired Samples T-Test for Correlated Means*

	N	Correlation	Sig.
Pair 1 PRETEST & POSTTEST	12	-.220	.492

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 PRETEST	5.1667	12	1.1934	.3445
POSTTEST	7.7500	12	.8660	.2500

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 PRETEST - POSTTEST	-2.5833	1.6214	.4680	-4.0370	-1.1297	-5.519	11	.000

The pretest mean ( $M=5.2$ ,  $SD=1.19$ ), was more than 1SD below the total mean score of 7.1. The posttest mean for this group of students ( $M=7.8$ ,  $SD=.86$ ) compared with the pretest mean of 5.2, was above the age appropriate skill range, which indicated that clay skills had improved.

These findings provided evidence that the VPTAP was effective in increasing age appropriate clay skills for participants, based on the significance of the t-test. However, the effect size was small.

*Summary of Study Quantitative Results*

In summary, data collected from young children suggested that a therapeutic art program might be effective in increasing age appropriate art skills. Several subjects had improved results in each of the art skill categories: 10% ( $N=7$ ) of the study participants demonstrated increased art skills in drawing, 14% ( $N=10$ ) improved painting skills, 15% ( $N=11$ ) increased scissors skills, and 15% ( $N=11$ ) improved clay skills.

Only one of the art skill results was assessed at an effect size level that may be regarded as an important finding (drawing skills). However, all of the art skill area results provided evidence of statistical significance.

Therefore, the VPTAP results provided some evidence of improved art skills in those study participants who demonstrated below age appropriate skill levels during pretest.