

INFORMATION TO USERS

This was produced from a copy of a document sent to us for microfilming. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help you understand markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure you of complete continuity.
2. When an image on the film is obliterated with a round black mark it is an indication that the film inspector noticed either blurred copy because of movement during exposure, or duplicate copy. Unless we meant to delete copyrighted materials that should not have been filmed, you will find a good image of the page in the adjacent frame.
3. When a map, drawing or chart, etc., is part of the material being photographed the photographer has followed a definite method in "sectioning" the material. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.
4. For any illustrations that cannot be reproduced satisfactorily by xerography, photographic prints can be purchased at additional cost and tipped into your xerographic copy. Requests can be made to our Dissertations Customer Services Department.
5. Some pages in any document may have indistinct print. In all cases we have filmed the best available copy.

University
Microfilms
International

300 N. ZEEB ROAD, ANN ARBOR, MI 48106
18 BEDFORD ROW, LONDON WC1R 4EJ, ENGLAND

8106311

LE, NGOC-SAN

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION: A
STUDY OF VIETNAMESE REFUGEE CHILDREN IN THE UNITED STATES

The University of Oklahoma

PH.D.

1980

University
Microfilms
International 300 N. Zeeb Road, Ann Arbor, MI 48106

Copyright 1980

by

Le, Ngoc-San

All Rights Reserved

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark .

1. Glossy photographs _____
2. Colored illustrations _____
3. Photographs with dark background _____
4. Illustrations are poor copy _____
5. Print shows through as there is text on both sides of page _____
6. Indistinct, broken or small print on several pages
7. Tightly bound copy with print lost in spine _____
8. Computer printout pages with indistinct print
9. Page(s) _____ lacking when material received, and not available from school or author
10. Page(s) _____ seem to be missing in numbering only as text follows
11. Poor carbon copy _____
12. Not original copy, several pages with blurred type _____
13. Appendix pages are poor copy _____
14. Original copy with light type _____
15. Curling and wrinkled pages _____
16. Other _____

The University of Oklahoma

Graduate College

Effects of Visual Training in Decentering of Perception:

A Study of Vietnamese Refugee Children in

the United States

A Dissertation

Submitted to the Graduate Faculty

in Partial Fulfillment of the Requirement for the

degree of

Doctor of Philosophy

by

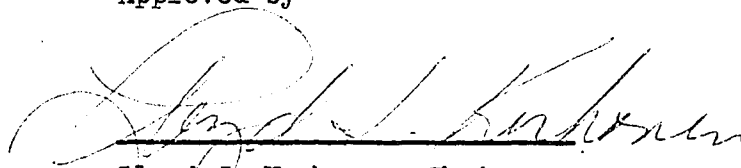
Le Ngoc-San

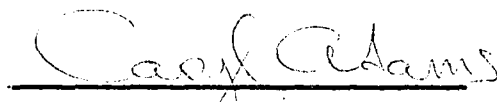
Norman, Oklahoma

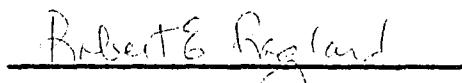
December 1980


Effects of Visual Training in Decentering of Perception:
A Study of Vietnamese Refugee Children in
the United States

Approved by


Lloyd J. Korhonen, Chairman


Caryl Adams, Member


Robert E. Ragland, Member


Omer J. Rupiper, Member

Dissertation Committee

Table of Contents

	Page
Acknowledgments	i
Abstract	1
Chapter	
I. Introduction	2
Statement of the Problem	
Hypotheses	
Delimitations	
Need for the Study	
Definition of Terms	
II. Review of the Related Literature	7
III. Methodology	
Subjects	
Research Designs	
Materials	
Procedures	
IV. Results	20
Presentation of the Data	
Analysis and Interpretation of the Data	
V. Discussions, Conclusion, and Recommendations	24
Reference Notes	32
References	34
Appendix A	38
Appendix B	39
Appendix C	40
Appendix D	44

Acknowledgments

I wish to thank Drs. Caryl Adams, Robert E. Ragland, and Omer J. Rupiper for counsel as members of the committee. I particularly wish to thank my chairman, Dr. Lloyd J. Korhonen, for his encouragement during the preparation and development of this investigation.

Abstract

The purpose of this study was to investigate the effects of visual training on decentering perception of Vietnamese refugee children at the preoperational period by means of ambiguous pictures of Elkind (1964). These children were reared in a male chauvinistic society in which the male child has a very auspicious opportunity to enhance his full development in every aspect: physical, psychological, and intellectual. In addition, for thousands of years young children had to commit to memory a series of grapheme-phoneme combinations and were forced to write them a number of times as exercises in the first stage. Based on a sample of 80 randomly selected high socioeconomic status and low socioeconomic status Vietnamese refugee boys and girls ranging in age from 4 to 5 and 6 to 7 years living in five counties of Northern California, the results of this study showed that at the preoperational period: a) there were no significant differences in the centering process of perception in Vietnamese refugee boys and girls of different socioeconomic backgrounds at different age levels, and b) there were significant differences in the decentering process of perception between the control group with no training and the experimental group with special training. The results were interpreted from the standpoint of Piaget's genetic theory of perception.

Chapter I

Introduction

Perception as defined by Piaget (1958) is not an innately fixed mechanism for registering stimuli but a developing system which becomes increasingly adaptive with age.

Initially, perception and elementary movement (prehension, etc.) are concerned with objects that are close and viewed statically; then later, memory and practical intelligence permit the representation of earlier states of the object as well as the acquisition of their future states resulting from as yet unrealized transformation. Still later intuitive thought reinforces these two abilities. Logical intelligence in the guise of concrete operations and ultimately of abstract deduction terminates this evolution by making the subject master of events that are far distant in space and time (Piaget, 1967, p. 8).

In the young child—during the sensorimotor period (from 0 to about 2 years) and the preoperational period (from about 2 to about 7 or 8 years)—perception is passive and dominated by the "best" organization of the visual field which Piaget (1970) calls "centering of perception." In the older child—during the concrete operational period (from about 7 or 8 to about 11 or 12 years)—perception, however, becomes active and spontaneously restructures the fields into many possible organiza-

tions (Piaget, 1970). The development from the passive, "best" form dominated perception of the young child to the active, operation directed perception of the older child is defined by Piaget (1970) as "decentering of perception," yet, the average at which the child passes through this evolution can vary widely from one social setting to another, or from one country to another, or even one region within a country to another (Piaget, 1967). In other words, if the child can "decenter," it is not only because his/her organism has attained sufficient maturity, but also because his/her social environments give him/her opportunities to exercise and experience different meaningful activities more frequently. Accordingly, if the child at the preoperational period is exposed to special training he/she might attain the decentering of perception sooner than his/her actual age.

Statement of the Problem

This study was designed to investigate the effect of visual training on decentering of perception of Vietnamese refugee children. Comparing these to American counterparts, the majority of these children had started from a deficit base line. First, they were descendents of several generations of people who suffered from sixty years of French colonial rule. During this period, only two percent of the children were getting elementary education and one-half of one percent were going to secondary school (Greene, 1966; Thompson, 1937).

Secondly, these refugee children were reared during a period where war activities increased every day. Because of this, the government did not have time and money to spend for education. Except for a few who

could afford schooling, the masses, abandoned by the government, retreated into themselves (as during the colonial period) and continued to follow the way their ancestors had for thousands of years—Confucianism (Tu Chung, 1964). According to Confucius' teachings, academic training was reserved exclusively for men and initiated at a very early age (Gentlemen, 1965; Hammer, 1966; Tô, 1942).

Thirdly, for centuries, literacy in Vietnam was confined to bureaucracy and reading. Teaching methods were practiced primarily through writing and as a result children had to commit to memory a series of grapheme-phoneme correspondences and write these many times as exercises in the first stage (Reference Note 1). Consequently, culture has favored some segments of Vietnamese society and, also, teaching methods have had a profound impact upon the development of several skills, especially visual perception of these children. In the present study two questions were examined:

1. Do Vietnamese refugee boys and girls from different socio-economic backgrounds, at the preoperational period, perform in accordance with Piaget's theory of development of the centering of perception?

2. Can the decentering process of development of perception of these children be accelerated by special training?

Hypotheses

1. At the preoperational period, there is no significant difference in the centering process of development of Vietnamese refugee children by sex, socioeconomic status, and age.

2. At the preoperational period, there is no significant difference in the decentering of perception between the control group with no training and the experimental group with special training by sex, socioeconomic status, and age.

Delimitations

This study did not attempt to investigate the effect of special training in decentering of perception at the preoperational period on children of different socioeconomic statuses and races in American society, but was limited to Vietnamese refugee boys and girls of different socioeconomic backgrounds, at the preoperational period, now living in California.

Need for the Study

The developmental psychology of Jean Piaget has recently made an impact on educational and psychological theories of cognitive development in the United States (Phillips, Jr., 1975), and an essential part of these theories concerns the development of perception. However, as Leeper (1935) pointed out, the learning of perceptual organization was the neglected field of psychological study; and he suggested the use of ambiguous pictures for its investigation. Indeed, with the exception of the work on perception of the brain-damaged, retarded, and psychotic persons initiated by Harrower (1939), that with autistic persons initiated by Schafer and Murphy (1943), and that with normal children initiated by Elkind and associates (Elkind, 1964; Elkind, Anagnostopoulou & Malone, 1970; Elkind, Koegler & Go, 1962, 1964; Elkind & Scott, 1962; Whiteside, Elkind & Golbeck, 1976), ambiguous

pictures have been little used in the exploration of perceptual processes, least of all with children who have been reared in a culture different from the Western civilization. In addition, the above studies have neglected the socioeconomic factors of their subjects. This study, therefore, did focus on the effect of visual training in decentering of perception of male and female Vietnamese refugee children of different socioeconomic backgrounds at the preoperational period by using the proposed ambiguous pictures of Elkind (1964). The results of this investigation might provide some ground for further investigations which in turn might help educators know these children better and develop a more accurate educational program for them.

Definition of Terms

Centering: Refers to the child's tendency to focus attention on one detail of an event and, in fact, to the inability to shift attention to other aspects of a situation (Inhelder, 1960).

Decentering: Refers to the coordination of centerings representing the ability to consider several aspects of a situation simultaneously (Piaget, 1970).

Chapter II

Review of the Related Literature

An examination of psychological and educational and indexes revealed that no scientific study dealing specifically with the centering of perception of Vietnamese refugee children was reported. However, a very few studies which appeared to be related to this area were those of Elkind (1964); Elkind, Anagnostopoulou, and Malone (1970); Elkind, Koegler, and Go (1962, 1964); Elkind, Larson, and Van Doorninck (1965); Elkind and Scott (1962); and Whiteside, Elkind, and Golbeck (1976).

Early study designed to explore perceptual development by means of a set of ambiguous pictures (Elkind & Scott, 1962) attempted to clarify two opposed theoretical interpretations of figure-ground reversal. The first interpretation derives from the developmental psychology of Jean Piaget. According to Piaget (Piaget & Morf, 1958), perception is not an innately fixed mechanism for registering

stimuli but is a developing system which becomes increasingly adaptive with age. In the young child perception is passive and dominated by the "best" organization of the visual field or "centering of perception." However, with the development of perceptual operations, i.e., internalized actions, the child's perception becomes active and spontaneously restructures the field into many possible organizations. ^{The progress} from the passive, "best" form dominated perception of the young child to the active, operation directed, perception of the older child, Piaget (1958) defines as "decentering of perception." This interpretation is in direct contradiction to the viewpoint of Kohler and Wallach (1944) who attribute the phenomenon to passive neural processes. According to them, the perception of a figure results from a corresponding "figure process" in the brain, and the continuation of the "figure process" alters the excitability of the nervous elements in which it occurs. In other words, when neural tissue is "satiated" the flow of current is deflected along new paths which result in a new "figure process" and a corresponding change in the psychologically experienced figure. Consequently, Kohler and Wallach (1944) suggest that figure-ground reversal should decrease with age. The theoretical issue between Piaget (1958) and Kohler and Wallach (1944) is quite sharply drawn. Both theories predict age changes in the ability to reverse figure and ground, but in different directions. Therefore, in their study, Elkind and Scott (1962) tried to determine in what direction figure-ground reversal should increase with age as Piaget (1958) postulates or decrease with age as Kohler and Wallach (1944) advocate. In addition, Elkind and Scott (1962) also attempted to find out

how children will respond to figure-ground reversal in accordance to their rate of mental development. They hypothesized that a child with a high intellectual quotient (IQ) would develop perceptual operations at an earlier age than would a child of average IQ, and that a child of average IQ would develop perceptual operations before a child of low IQ. The results of their findings showed that success in perceiving figure-ground reversal increased significantly with age and with IQ. They concluded that Piaget's theory regarding centering of perception in early childhood, and the gradual decentering with age and with IQ "gave the most consistent and economical account of the obtained results" (p. 230).

The study of Elkind et al. (1964) was the second in a series of studies devoted to the systematic exploration of Piaget's (1958) theory of perception as it applied to meaningful materials. In this study, Elkind et al. (1964) sought to determine whether the decentering of perception can also be demonstrated in the development of part-whole perception when both parts and wholes have different and independent meaning. The results of the study showed that in 4-5 year-old children there was a "complete centration" in the sense that they usually saw only the parts (e.g., reported only "apple," "pear," "fruit"), and in 6-7 year-old children there was an "intuitive decentration" in the sense that they usually mentioned both wholes and parts but without trying to integrate them in any way (e.g., "a scooter, candycanes, suckers," "some fruit, a clown"), while in the 7-8 year-old children there was "complete regulational decentration" in the sense that not only were the part and whole both perceived but they also simultaneously attributed to the same

perceived form (e.g., a man made of fruit," "a scooter made of candy"). Elkind et al. (1964) concluded that "the age-changes in whole-part perception involving the identification of meaningful figures are in accord with Piaget's developmental theory of perception" (p. 89).

Subsequent to the above study, Elkind et al. (1970) attempted to see why children at the same age group (7-8 year-old) responded differently on parts and wholes in combination ("a man made out of fruit," "a scooter made out of candy"). In other words, according to Piaget (1969), as the child grows older, regulative organizations increasingly supplant or superimpose themselves on the more elementary Gestalt organizations in perception, but why some children of the 7-8 year-old group (Elkind et al., 1964) reported only parts and an occasional whole, whereas the others reported primarily whole and part-whole combinations? To examine this phenomena, 20 children (10 boys and 10 girls) were selected as High Combination (HC) group and other 20 (10 boys and 10 girls) as Low Combination (LC) group on the basis of their scores of the previous study of part-whole perception (Elkind et al., 1964). These two groups were examined by the Reconstruction Test, the Verbal-Formula Test, and the Test of Logical Addition. The results of this investigation showed that HC children were significantly superior to the LC children on all three types of performance. Elkind et al. (1970) concluded that "the growth of part-whole perception reflects the progressive elaboration of perception regulations" (p. 396). This suggests that maturation alone is not responsible to the process of the development of perception, but the social environment, exercise, and experience must

be taken into account (Piaget, 1967).

Derived from the earlier work of Elkind et al. (1964) concerning the development of part-whole perception in children, Whiteside et al. (1976) attempted to test the premise that if decentering and the ability to employ operation-like perceptual regulations are developmental achievements that allow the older children to see both aspects of the part-whole figures and to perform the infra-logical multiplication necessary to realize that an object can belong to two classes at once, i.e., the apple is a piece of fruit and also a head, what would be the effect of exposure duration on part-whole in which both parts and the general whole are mentioned but in which no mention is made of the whole being made up of parts and whole being integrated (e.g., "man, apple, pear") and the integrated responding, the whole is composed of parts (e.g., a man made of an apple, a pear and so on). The results of their study (Whiteside et al., 1976) showed that the ability to see both parts and wholes together improved with age, confirming the earlier study (Elkind et al., 1964). In addition, the results suggested that for younger children exposure duration did not affect the ability to see parts and wholes in a hierarchical relationship. These results were in agreement with Piaget's (1969) theory of perception which holds that perceptual development consists in the gradual liberation of perception through the interaction of maturation and experience.

The studies which would appear most closely related to the present study were the ones of Elkind et al. (1962) and Elkind et al. (1965). The purpose of the first study (Elkind et al., 1962) was to test the

Piaget's (1969) premise that perceptual phenomena—such as illusions, size constancy, figure-ground reversal—are neither entirely innate nor entirely learned but rather derive from the interaction of maturation and experience. Therefore, Elkind et al. (1962) attempted to test this developmental hypothesis by trying to train children at different age levels to reverse figure-ground when both figure and ground have had meaningful images. Figure-ground reversal involving the identification of meaningful image was chosen for the study because, even in absence of special training, the reversal increases gradually at the end of the preoperational period and at the beginning of the concrete operational period (Elkind et al., 1962). They found that: a) all children improved greatly with special training; and b) young children required more intense training and reached a lower level of performance than did the older ones. They concluded that these results were in accord with the Piaget's (1969) theory of perception.

Elkind et al. (1965) study may be said to parallel that of Elkind et al. (1962), however, its results were quite controversial and inconclusive. The purpose of this study was to test the hypothesis which stated that slow readers would perform at a lower level and show less learning ability on a measure of figural decentration than would average readers of comparable age and intelligence. The tests and procedures were the same as those employed in previous study (Elkind et al., 1962). Each child was pretested on one set of cards (Set A) immediately prior to training. Immediately after being tested with set A, the child was trained on the second set of cards (Set B). Also immediately after

training the child was again tested on set A. The results of this study did not support the investigations previously done with the ambiguous pictures. In all the previous investigations (Elkind et al., 1962; Elkind & Scott, 1962) there was a regular increase with age in the untutored and tutored ability to reverse figure and ground and to perceive the hidden figures. In this study the results showed that: a) there was an increase with age in the pretraining performance of average but not in the pretraining performance of the slow readers; b) neither the average nor the slow reading groups made much improvement with age in the post-training. The authors concluded that for the average, "the lack of improvement with age in posttraining scores was probably more a function of the low ceiling of the test than the lack of change in the children under investigation" (Elkind et al., 1965, p. 56). For the slow readers, however, "this explanation does not hold since their posttraining scores did not approach the maximum attainable score at any age" (Elkind et al., 1965, p. 56). These slow readers might have a special disability with respect to perceptual decentering.

To sum up, although the use of materials and procedures were different in nature, the results, with the exception of the ones of the study of Elkind et al. (1965), remained the same: a) there was a regular increase with age in the untutored ability to reverse figure and ground and perceive the hidden figures, and to reconstruct part-whole from memory; b) with special training, although younger children required more intense teaching, decentering of perception improved significantly in all children at different age levels. These findings support the premise of

Piaget (1969) which postulated that decentering of perception was developmental in nature, however, it changed significantly with age through the interaction of maturation and experience.

Chapter III

Methodology

Subjects

This study was concerned with Vietnamese refugee children at the preoperational period, now living in California. Two major steps had been followed in the selection of the sample. First, two simple random samplings of areas and counties were conducted (Reference Note 2). Five counties of Northern-California were selected: Alameda, Contra Costa, San Francisco, San Joaquin, and Santa Clara. Secondly, a sample of 80 subjects was stratified-randomly selected for the study. This sample size was calculated to be $n = 5$ for each cell and based on having 90% power for detecting an interaction between experimental and control and pretest and post test of one standard error difference at $\alpha = .05$ (Scheffe, 1959). One half of this sample was randomly assigned to the experimental group and one half to the control group. They were closely matched as to sex, socioeconomic status (SES before the evacuation in 1975; Reference Note 3), and age.

At the time of pretesting the subjects ranged in age from 4 to 5 and 6 to 7 years. The mean chronological age in months with the corresponding standard deviations for each group are presented in Table 1. As can be seen from this table, the groups were almost identical with respect to the matching variables.

Research Designs

The analysis of covariance $2(\text{sex}) \times 2(\text{SES}) \times 2(\text{age}) \times 2(\text{experimental-control}) \times 2(\text{pretest-post test})$ was utilized to determine whether or not the differences between subject factors and within subject factors were statistically significant. A t-test was also applied to the results of the pretest to determine whether the differences between experimental and control groups were statistically significant. The alpha for all interpretations was .05.

Materials

The materials were divided into two categories: a) materials for testing, and b) materials for training. Following is a description:

Materials for testing. The materials consist of two black and white sets (A & B) of ambiguous pictures of Elkind (1964). Both sets A and B presented in Appendixes A and B have 7 cards and contain 21 different figures. They are:

	Set A	Set B
Card 1	A butterfly Face (left) Face (right)	A leaf Face (left) Face (right)
Card 2	A tree A cat	A tree (or head) Face (left, bottom) Face (left, top) Face (right, bottom) Face (right, top)

Table 1

Means (\bar{X}) and Standard Deviations (SD) Related to Ages
(in months) of High SES and Low SES Boys and Girls of
the Experimental and Control Groups

Age	Sex	SES	Experimental N = 40; n = 5		Control N = 40; n = 5	
			\bar{X}	SD	\bar{X}	SD
4 - 5	Boys	High	53.8	2.93	53.2	2.64
		Low	55.4	2.73	55.6	3.26
	Girls	High	54.0	3.03	53.8	3.31
		Low	54.2	3.31	53.6	2.65
6 - 7	Boys	High	78.2	2.71	78.2	3.54
		Low	76.0	3.90	77.0	4.15
	Girls	High	78.6	2.73	76.8	3.36
		Low	77.6	3.72	77.2	2.32

Card 3	A tree (or head) Face (left, bottom) Face (left, middle, inverted) Face (left, top) Face (right)	A tree A duck
Card 4	A vase Face (left) Face (right)	A vase Face (left) Face (right)
Card 5	A vase Face (left) Face (right)	A vase Face (left) Face (right)
Card 6	Face (left) Face (right)	Face (left) Face (right)
Card 7	A vase Face (left) Face (right)	A vase Face (left) Face (right)

Prints of these pictures are mounted on tagboard sheets.

These materials were also evaluated by Elkind (1964). Results of this evaluation showed that: a) these two sets of pictures had comparable means and standard deviations at each age level; b) the correlations between two sets were positive and tended to increase with age (.50 at $\alpha = .05$); and c) there was also a low but positive correlation (.34 at $\alpha = .05$) between scores obtained on the ambiguous pictures and those obtained on a widely used group test of intelligence, the Kuhlmann-Anderson.

Materials for training. The materials consist of two groups of pictures: a) hide and seek play, and b) overlapping pictures. Hide and seek play is a very old game existing in almost every civilization. In each big picture there are many little figures that are hidden. The overlapping pictures are the kinds of figures used by Teuber (1950) to test the perception of normal children and children with brain-injury.

Two or more pictures are overlapped in order to give a complex picture (details in Appendix C).

Procedures

Each child was given a pretest on one set of ambiguous pictures (Set A). The pictures were administered one at a time and in a fixed order. The position of each picture in the sequence of presentation was given by the number beneath it. These numbers, however, did not appear on the card used in testing.

Prior to presenting the pictures, the examiner said: "I am going to show you some pictures, one at a time, and I want you to tell me what you see, what it looks like to you." The child was given 2 minutes for each card. Throughout the testing, the examiner's only comment was: "What do you see in this card?" For each figure correctly recognized the child was given one point. No additional point was given for more than one response to the same figural area. If the child saw only a part of a whole (such as the eye in a face) he/she was credited $\frac{1}{2}$ point.

After the pretest, the experimental group was trained on two groups of pictures of the training materials (details in Appendix C). When the child was trained to the point where he/she could indicate all the figures in the training materials, he/she was immediately tested again with other set of ambiguous pictures (Set B). The procedure for the post test was the same as for the pretest.

Concerning the control group, the post test was given about 15 minutes after the pretest for the subjects ranging in age from 4 to 5 years, and 10 minutes for the subjects ranging in age from 6 to 7 years.

These periods of time corresponded to the durations of time that children in the experimental group spent for training (Reference Note 4).

Chapter IV

Results

Presentation of the Data.

Pretest and post test scores obtained from two administrations of the instruments described in Chapter III, i.e., the ambiguous pictures of Elkind (1964) are presented in Table 2. The two hypotheses H_{o_1} and H_{o_2} were tested with an analysis of covariance to determine any significant difference among variables where the relationships between pretest and post test were considered. The data were computed by means of the Statistical Package for the Social Sciences (SPSS), Type H, Version 8 of Hull and Nie (1979). This version includes many features and changes (Appendix D; Introductory part of the ANOVAVN Job 681). A t-test was also applied to the results of the pretest to determine whether the differences between experimental and control

Table 2

Raw Data on All Subjects

SEX	SES	AGE	Subject Pairs	Experimental N = 40		Control N = 40	
				Pretest	Posttest	Pretest	Posttest
Boys	High	4 - 5	1	6.0	13.0	7.0	7.5
			2	7.0	12.0	7.0	8.0
			3	7.0	13.0	6.5	7.5
			4	7.5	14.0	7.5	8.5
			5	6.5	12.0	5.5	6.5
		6 - 7	6	8.5	16.0	8.5	8.5
			7	8.5	15.0	8.5	7.5
			8	8.0	14.0	8.5	9.0
			9	8.5	16.0	8.5	9.0
			10	7.0	18.0	8.0	8.5
	Low	4 - 5	11	7.0	11.5	6.0	7.0
			12	6.0	11.0	8.0	8.5
			13	9.0	14.0	7.5	8.0
			14	6.5	16.0	5.5	5.5
			15	9.0	13.5	6.5	7.0
		6 - 7	16	7.0	11.0	8.0	8.5
			17	7.0	13.0	8.0	8.5
			18	8.0	14.0	7.5	8.5
			19	9.0	16.0	7.0	8.5
			20	8.5	14.0	9.0	9.5
Girls	High	4 - 5	21	7.5	12.0	5.5	6.0
			22	6.0	11.0	7.0	7.5
			23	6.0	12.0	6.5	7.5
			24	6.0	10.0	7.0	7.5
			25	7.5	13.0	7.0	7.5
		6 - 7	26	8.0	13.0	8.0	9.0
			27	8.0	14.0	8.0	9.0
			28	8.0	13.0	7.0	8.0
			29	7.5	14.0	9.5	10.0
			30	8.5	14.0	7.0	8.0
	Low	4 - 5	31	7.5	12.0	6.0	6.5
			32	7.5	14.5	6.5	7.0
			33	7.0	14.0	7.0	6.5
			34	7.5	13.0	7.0	7.0
			35	6.0	10.5	8.5	9.0
		6 - 7	36	7.0	13.0	7.5	7.5
			37	7.0	13.0	7.5	8.0
			38	8.0	13.0	7.5	7.0
			39	8.0	13.5	8.5	9.0
			40	8.5	15.0	7.5	8.5

group scores were statistically different. The level of significance set for all interpretations was .05.

Analysis and Interpretation of the Data

Checking pretest score differences. Results of the t-test revealed no significant differences between experimental and control pretest scores. The observed t , $t_{.05}(78) = .0038$, laid comfortably within the theoretical chance of distribution and indicated that the two groups were statistically different.

Testing hypotheses.

Hypothesis I. At the preoperational period, there is no significant difference in the centering process of development of Vietnamese refugee children by sex, socioeconomic status, and age.

Results of the testing of this hypothesis showed that the observed F value for sex ($F_{1,63} = 3.73 > .05$) was not significant. This was an expected finding since all previous works with ambiguous pictures was always found to be not significant (Elkind, 1964; Elkind et al., 1962). However, examination of the mean scores for the male group ($\bar{X} = 10.92$) and the female group ($\bar{X} = 10.36$) showed the male group had a higher mean scores. In addition, looking at the significance of F (Table 3), this value approached closely the level of significance .05, i.e., $p(F_{1,63} \geq 3.73) = .06$.

The F for SES was 1.64 and was not significant at the .05 level. The significance of F was .20, i.e., $p(F_{1,63} \geq 1.65) = .20$. The mean scores of the high SES and the low SES were respectively 10.76 and 10.52. The data in this instance support the above hypothesis.

Despite the differences between the mean scores of the age group

4 to 5 years ($\bar{X} = 9.99$) and the ones of the age group 6 to 7 years ($\bar{X} = 11.31$), the F value for age was not statistically significant. The observed F value was 3.05 and the significance of F was .09, i.e., $p(F_{1,63} \cong 3.05) = .09$. These results would not allow a rejection of this hypothesis and it was concluded that there was not a significant difference between two age groups of Vietnamese refugee children, i.e., 4 to 5 and 6 to 7 years. This was an unexpected finding in view of previous works of Elkind (1964) and Elkind et al. (1962). The results of the above mentioned works always showed a regular increase with age in the ability to perceive the hidden figures and the F's for age were significant even beyond the .01 level. Possible explanations for this finding will be presented in Chapter V.

Concerning this hypothesis, the interactions SEX x SES, SEX x AGE, SES x AGE, and SEX x SES x AGE were also not significant. Their observed F values and their significances of F were:

SEX x SES	$p(F_{1,63} \cong 1.07) = .31$
SEX x AGE	$p(F_{1,63} \cong 0.06) = .81$
SES x AGE	$p(F_{1,63} \cong 0.91) = .34$
SEX x SES x AGE	$p(F_{1,63} \cong 0.00) = .95$

Hypothesis II. At the preoperational period, there is no significant difference in the decentering of perception between the control group with no training and the experimental group with special training by sex, socio-economic status, and age.

The F for experimental and control group (GRP) was 622.99 and was significant at the .05 level, i.e., $p(F_{1,63} \cong 622.99) = .0$.

Examination of the mean scores of the experimental group ($\bar{X} = 13.39$)

and the mean scores of the control group ($\bar{X} = 7.90$) indicated that this F resulted from the fact that experimental group did better than the control group in the ability to perceive the hidden figures in the post test. Previous work of Elkind et al. (1962) showed the same results. Thus hypothesis II was not supported by the data.

The interaction GRP x SEX x SES was also significant, $F = 5.64$ and the significance of F was .02, i.e., $p(F_{1,63} \geq 5.64) = .02$. None of other interactions, however, was significant. They were:

GRP x SEX	$p(F_{1,63} \geq 2.23) = .14$
GRP x SES	$p(F_{1,63} \geq 0.16) = .69$
GRP x AGE	$p(F_{1,63} \geq 1.38) = .24$
GRP x SEX x AGE	$p(F_{1,63} \geq 1.18) = .28$
GRP x SES x AGE	$p(F_{1,63} \geq 3.02) = .09$
GRP x SEX x SES x AGE	$p(F_{1,63} \geq 2.51) = .12$

Table 3 presents the summary for all above results.

Finally, the dispersion of time related to training of the experimental group presented in Table 4 required some considerations. On one hand, for the age group 4 to 5 years, the variability of the training time of the low SES (boys: $\bar{X} = 13.6$, $SD = 1.96$; girls: $\bar{X} = 16.20$, $SD = 3.25$) was more clustered than the ones of the high SES (boys: $\bar{X} = 15.80$, $SD = 2.24$; girls: $\bar{X} = 14.20$, $SD = 4.20$). On the other hand, for the age group from 6 to 7 years, the variability of the training time of the low SES (boys: $\bar{X} = 8.00$, $SD = 1.41$; girls $\bar{X} = 8.60$, $SD = 1.50$) was more widely scattered than the one of the high SES (boys: $\bar{X} = 7.90$, $SD = 1.33$; girls: $\bar{X} = 8.40$, $SD = .49$). Possible explanations will be discussed in Chapter V.

Table 3

Summary Table of the ANCOVA Used to Test
Hypotheses I and II

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Main Effects	586.90	4	146.73	157.07	0.00 ^v
GRP	581.95	1	581.95	622.99	0.0 ^v
SEX	3.49	1	3.49	3.73	0.06
SES	1.55	1	1.55	1.65	0.20
AGE	2.85	1	2.85	3.05	0.09
2-Way Interactions	5.47	6	0.91	0.98	0.45
GRP x SEX	2.09	1	2.09	2.23	0.14
GRP x SES	0.15	1	0.15	0.16	0.69
GRP x AGE	1.29	1	1.29	1.38	0.24
SEX x SES	1.00	1	1.00	1.07	0.31
SEX x AGE	0.06	1	0.06	0.06	0.80
SES x AGE	0.85	1	0.85	0.91	0.34
3-Way Interactions	9.20	4	2.30	2.46	0.05 ^v
GRP x SEX x SES	5.27	1	5.27	5.64	0.02 ^v
GRP x SEX x AGE	1.10	1	1.10	1.18	0.28
GRP x SES x AGE	2.82	1	2.82	3.02	0.09
SEX x SES x AGE	0.00	1	0.00	0.00	0.95
4-Way Interactions	2.34	1	2.34	2.51	0.12
GRP x SEX x SES x AGE	2.34	1	2.34	2.51	0.12
Explained	691.74	16	43.23	46.28	0.00
Residual	58.85	63	0.93		
Total	750.59	79	9.50		

Table 4

Means (\bar{X}) and Standard Deviations (SD)
of Time (in minutes) Related
to Training of the
Experimental
Group
(N = 40; n = 5)

AGE	SEX	Low SES		High SES	
		\bar{X}	SD	\bar{X}	SD
4 - 5	Boys	13.6	1.96	15.8	2.24
	Girls	16.2	3.25	14.2	4.20
6 - 7	Boys	8.0	1.41	7.8	1.33
	Girls	8.6	1.50	8.4	.49

Chapter VI

Discussions, Conclusion, and Recommendations

A discussion of the effects of visual training in decentering of perception of Vietnamese refugee children at the preoperational period is presented in this chapter. First, a discussion of the findings of this study is presented. Second, the conclusions of the study are summarized. Finally, the last section contains recommendations for future studies.

Discussions

The major findings of the present study were that success in perceiving ambiguous pictures: a) did not vary significantly with sex, socioeconomic status, and age, but b) did vary significantly with training. Each of these findings will be commented on in this section.

Sex difference. The results of this study have shown that sex difference had no significant effect on the centering of perception of either group. The results were consequently in agreement with previous works of Elkind (1964) and Elkind et al. (1962). However, looking closely at the mean scores of the male group ($\bar{X} = 10.92$) and the female group ($\bar{X} = 10.36$), and especially at the significance of $F (.06)$ these figures showed that: a) the male group did better than the female one in perceiving ambiguous pictures, b) although the results of the test had no significant effect, the significance of F almost reach the

rejection region. If these considerations could be accepted, they seemed to confirm the position of Piaget (1967) that socio-cultural environment might have some impact upon the development of centering of perception, that is, in Vietnamese refugee families, the male child has been receiving more attention and reinforcement than the female one.

Socioeconomic status difference. Results of this study showed that the centering performance of the low SES group did not significantly differ from that of the high SES group. It would appear that socioeconomic status had little, if any, effect upon the performance of centering of perception of Vietnamese refugee children. This suggests that socio-cultural environment would provide some grounds for the development of centering of perception of these children. Indeed, the name of the United States of America (USA) was not unfamiliar, but the USA herself was a mystery for many Vietnamese. These people had given up their fortunes, their positions, risked their lives, and so on, to trade the known for the unknown. Once on American soil, food stamps, medicare programs, English classes, etc. levelled their status. All, with no exception, started their lives from zero, and were willing to be assimilated to the new culture. However, it seems that socioeconomic status still has some influences upon the performance of centering of perception of the children being discussed, but not long enough when they grew older. Looking at the dispersion of time spent for training of the experimental group (Table 4) it appears that low SES young children were more homogeneous than their high SES counterparts. On the contrary, in older children the variability of training time of the low SES was more widely scattered than the ones of the high SES. Possible expla-

nations were that low SES families have been less exposed to media and American culture. The influence of Confucius' teachings still have had more impact on the education of their children. Absolute obedience, strict discipline (Reference Note 5) have forced these children to concentrate more than the ones in high SES families. However, when low SES children grew older and have experienced comparatively wide and intensive contact with American culture in public schools, they have been clouded by their doubts about their parents' traditional culture and their ambivalence about the one of their teachers and classmates since they have learnt no one culture fully yet. They have been somehow having one foot planted in the traditional way of life and the other probing gingerly for new pathways. This, therefore, might impair their ability to sustain attention, the time they spent for training became widely scattered. In the meantime, high SES children have been acquainted with the new culture, their attention was more stable and training time became more homogeneous.

Age difference. Piaget (1958) contends that the perception of the young child is "centered." Its organization is dominated by the Gestalt-like principles of proximity, closure and good form which Piaget (1969) calls field effects. However, with age the development of new, structured processes, the child's perception is progressively freed from its domination by field effects and becomes increasingly logical in form—decentering.

The results of this study did not support this position and the results of works previously done with ambiguous pictures. In all previous

studies (Elkind, 1964; Elkind et al., 1962; Elkind et al., 1965; Elkind & Scott, 1962) there was a regular increase in the untutored ability to perceive the hidden figures. In this study, however, no significant age difference in performance scores were found. This suggests that success in perceiving ambiguous pictures did not increase significantly with age in Vietnamese refugee children. Plausible explanations were that:

a) education, the traditional vehicle for social mobility and stature in Confucian order, still remains in every Vietnamese heart. Every Vietnamese still believes that only education could provide means by which an individual can move upward in the social scale. At the present time, most Vietnamese feels he/she is degraded: he/she is in the bottom of the social scale. Consequently, everyone has shown a strong desire to secure educational advantages for his/her children. b) Unlike in Vietnam where the less well-off in both the cities and the rural areas, because of the lack of money and facilities, encountered an insurmountable obstacle to education even beyond the elementary level. Most secondary schools and institutions of higher education were inaccessible to the majority of the population. On the contrary, everybody can do that here, in America. Thus, Vietnamese refugee parents have made every effort to give their children a head start at home, at least in the rudiments of reading and writing. c) At the present time, Vietnamese parents have felt more secure psychologically, emotionally, and perhaps financially: they can give their younger children more attention than parents did three years ago. In other words, in younger Vietnamese refugee children the perfect equilibrium has been reinstated. They have been well prepared

for life, thus demonstrating Piaget's (1967) notion that maturation alone is not responsible for the process of development of perception; social environment, exercise, and experience must be taken into account also.

Training versus no-training. The findings indicated that all children improved with special training in reversing figure and ground. Younger children required more training time and reached a lower level of performance than did the older ones. These findings were consistent with the conclusions of Elkind et al. (1962) although their training materials and methods seemed to provide children only an appropriate opportunity to learn how to find the hidden figures in the test. Certainly these training materials and methods might enhance the maturation of perceptual structures, but there is not much of a possibility for this. Indeed, in Elkind et al. (1962) it is shown that training methods involve providing the child with successively more direct and revealing clues to the perception of hidden figures.

The first clue was the statement, "some children see more than one thing. Do you see anything else besides a ____? (whatever the child had seen). If this clue did not prompt a reversal of figure and ground, a second clue was given, "sometimes children see a ____ (whatever figure the child had not seen) in the picture. Do you see a ____?" If the child replied that he did see the figure, he was asked to point out the parts to insure that he was not responding to suggestion. Those children who still did not see the figure were given a third clue. This time the cardboard shield was superimposed on the drawing and the previous question was repeated. The youngster was again asked to point out the parts to insure that he actually saw the reversed figure (p.755).

Consequently, many younger children remembered (from their training Set B) that they had seen "faces" or "animals" in the cards and claimed they saw them in testing materials, i.e., Set A (Elkind et al. 1962).

In addition, looking at the testing and training materials (sets A and B), except for few details and picture sequences, they are almost identical. Therefore, if the child had been trained to the point he/she could indicate the parts of all hidden figures in the training set, certainly he/she could "improved greatly with special training in reversing figure and ground" (Elkind et al., 1962, p. 756).

On the contrary, in the present study, testing and training materials were very different from each other. The child did not have to reverse figure and ground in training materials to perceive the hidden and overlapping figures. These figures were there and the child had only to learn how to find or unscramble them. This was true even though when the training session was over, the child could reverse to some degree figure and ground of the pictures in the test. Consequently, it seems that the results of this study were more valid than the ones of Elkind et al. (1962), and were in agreement with the Piaget (1969) theory of perception which holds that perceptual development consists in the gradual liberation of perception from the constraints of the field effects. This evolution, according to Piaget (1969), could be attained with frequent exercise and experience of meaningful activities.

Conclusions

This exploratory study on the effects of visual training in de-centering of perception of Vietnamese refugee children suggests the following conclusions:

1. Although the Confucian notion of the male's inborn superiority still remains in every Vietnamese family, there were no significant differences

in centering of perception between sex groups. However, the mean scores for males were higher. This suggests that cultural environment might have some effects upon the development of perception of Vietnamese refugee children at the preoperational period.

2. Although Vietnamese refugee children in this study came from different socioeconomic backgrounds, there were no significant differences in centering of perception between high SES and low SES groups. This suggests that former socioeconomic backgrounds of Vietnamese refugee children at the preoperational period might not have any effect upon their development of perception.

3. Although age levels were represented in the study, there were no significant differences in centering of perception of Vietnamese refugee children between age groups. However, the younger group, i.e., 4 to 5 years, was less able than the older one, i.e., 6 to 7 years. This suggests that at the preoperational period maturation might have an influence in the development of perception but not so much as to obtain a significant effect on the ability to decenter.

4. The achievement gains made by the experimental group receiving special training exceeded those made by the control group with no training. The data indicated that there were significant differences of decentering of perception between mean scores of the experimental group and that of the control group. This suggests that exercises and experiences might help to accelerate the decentering process of perception of Vietnamese refugee children at the preoperational period.

In summary, it can be concluded that the data from this study

support Piaget's notion that perceptual development consists of gradual liberation of perception through the interaction of maturation and experience.

Recommendations

The experience gained from this study has been helpful in formulating questions and indicating future directions for study in the areas of sex, socioeconomic status, and age differences of Vietnamese refugee children at the preoperational period. The following recommendations have been suggested for future studies:

1. That research be designed to study the influence of socio-cultural environment upon the development of centering of perception of male and female Vietnamese refugee children at the preoperational period.

2. That research be designed to study the dual effect of socio-cultural environment and socioeconomic status upon the development of centering of perception of Vietnamese refugee children of different age levels at the preoperational period.

3. That research be designed to study the impact of American culture upon the development of centering process of perception of the high SES and the low SES Vietnamese refugee children at the preoperational period.

4. That other research techniques and instruments be used to study the development of decentering of perception of Vietnamese refugee boys and girls at different age levels and from different socioeconomic backgrounds at the preoperational period.

Reference Notes

1. Vietnamese language ~~---Chữ Quốc Ngữ~~ (Romanized writing system) ~~---~~ although less cumbersome than Chữ Nho (Chinese writing system) and Chữ Nôm (demotic writing system), has composed not only a rich system of vowels and consonants, but also rich in accents (Huang, 1963). For example, the simplest word ma has six different meanings according to the tone which the word has carried:

Phantom, ghost	ma
Cheek	má'
But	mà
Tomb	mả ²
Horse	mã
Young rice seedling	mạ

2. According to Mr. Nguyễn Văn Bé, Consultant at the Department of Health, Education and Welfare in Washington D.C., about 50% of Vietnamese refugees have chosen this area and Los Angeles and Vicinity to settle in the USA. Following are the rough figures given by Mr. Bé during a telephone interview in August 14, 1979.

	1976	1979
Northern California	17,000	32,000
Southern California	13,000	27,000
Texas	10,000	18,000
Pennsylvania	12,000	9,000
Virginia	10,000	8,000
New York		7,000

Illinois	8,000	6,000
Missouri	5,000	4,000
Michigan	5,000	
Indiana	4,000	
Maryland		4,000
Louisiana		1,500
Washington D.C.		1,000

Total	84,000	117,000
-------	--------	---------

The remainder of about 125,000 refugees scattered	in different camps	all over in the USA
--	-----------------------	------------------------

3. Half of the subjects were designated members of the high SES group and half were designated members of the low SES one. This classification was based on the traditional custom of Vietnam (Tủ Chung, 1964). According to this custom, the high SES was differentiated from the low SES by its wealth, its advanced education, and the concentration of its male head of the households in high- and middle-ranking positions in the military services, in the government, in different liberal professions (professors, doctors, politicians, etc.), and in different free enterprises (factory managers, farm owners, etc.). The occupations of the head of the households of the experimental and control groups before the evacuation 1975 were presented in Table A.

4. Durations of time allotted to control group between pretest and posttest were based on the data collected from the pilot testing in 1976.

5. Traditional Vietnamese children were to be seen and not heard. In school as at home they learnt not by questioning but by repetition (Fitzgerald, 1972; Tủ Chung, 1964).

Table A

Occupations of the Male Head of the Households of the
Experimental and Control Groups before
the Evacuation in 1975

Occupations	Experimental	Control
<u>High SES</u>		
Armed Forces		
Senior Officers	2	2
Officers	2	2
Banker		1
Educators		
Professors	1	
High School Teachers	1	2
Factory Managers	2	1
Factory Owners		1
Government Employees		
Directors	2	1
Chief of Services	1	
Chief of Bureau	1	1
Planters	2	1
Politicians	1	2
Professionals		
Dentists	1	1
Doctors	2	2
Lawyers	2	
Pharmacists		1
Sub Total	20	20
<u>Low SES</u>		
Armed Forces		
Noncommissioned Officers	4	3
Service men	4	5
Craftpersons	2	1
Farmers	2	2
Fishermen	3	4
Laborers	2	
Merchants	2	2
Semi-skilled workers	1	2
Unskilled workers		1
Sub Total	20	20
Total	80	

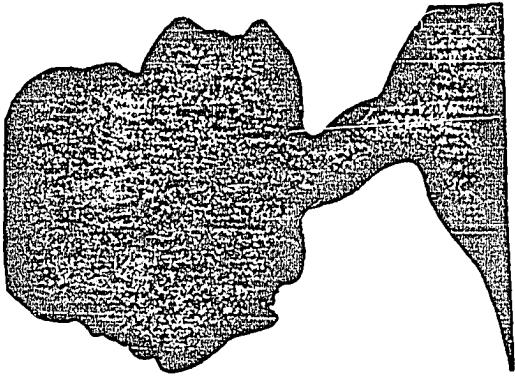
References

- American Doctoral Dissertations, 1955-1965. Ann Arbor, Michigan: University Microfilms, Inc., 1966
- Be', Ng. v. Personal Communication, August 14, 1979.
- Campbell, D. T., and Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally and Co., 1966
- Dissertation Abstracts. Ann Arbor, Michigan: University Microfilm, Inc., 1938-1969.
- Dissertation Abstracts International. Ann Arbor, Michigan: University Microfilms, Inc., 1967-1977.
- Doctoral Dissertations Accepted by American Universities. Vol. I-XXII. 1933-1955. New York: Kraus Reprint Corporation, 1964.
- Elkind, D. Ambiguous pictures for study of perceptual development and learning. Child Development, 1964, 35, 1391-1396
- Elkind, D., Anagnostopoulou, R., & Malone, S. Determinants of part-whole perception in children. Child Development, 1970, 41, 391-397.
- Elkind, D., Koegler, R. R., & Go, E. Effects of perceptual training at three age levels. Science, 1962, 137, 755-756.
- Elkind, D., Koegler, R. R., & Go, E. Studies in perceptual development: II. Part-whole perception. Child Development, 1964, 35, 81-90.

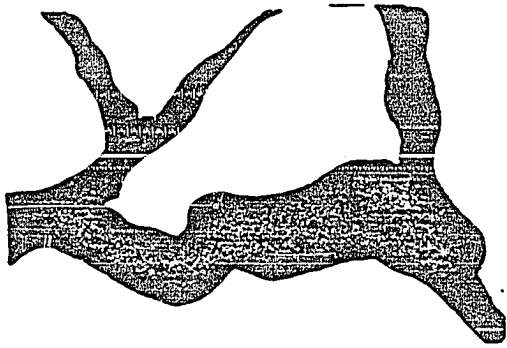
- Elkind, D., Larson, M., & Van Doorninck, W. Perceptual decentration learning and performance in slow and average readers. Journal of Educational Psychology, 1965, 56, 50-56.
- Elkind, D., & Scott, L. Studies in perception development: I. The decentering of perception. Child Development, 1962, 33, 619-630.
- Fitzgerald, F. Fire in the lake. Boston: Little, Brown & Company, 1972.
- Flavell, J. H. The developmental psychology of Jean Piaget. Princeton, New Jersey: D. Van Nostrand Co., Inc., 1966.
- Gettleman, M. E. (Ed.) Vietnam, history, documents, and opinions on a major world crisis. Greenwich, Connecticut: Faucett Publications, 1965.
- Ghent, L. Perception of overlapping and embedded figures by children of different ages. The American Journal of Psychology, 1965, 69, 575-587.
- Greene, F. Vietnam! Vietnam! Palo Alto, California: Fulton Publishing Co., 1966.
- Hammer, E. J. The struggle for Indochina. Stanford, California: Stanford University Press, 1954.
- Hammer, E. J. Vietnam yesterday and today. New York: Holt, Rinehart and Winston, Inc., 1966.
- Harrower, M. R. Changes in figure-ground perception in patients with cortical lesions. The British Journal of Psychology, 1939, 30, 47-51.
- Hoàng, N. T. Traditional education in Vietnam. Vietnam Studies, 1971 30, 127-144.
- Hùng, N. Q. Văn Phạm Vietnam (Vietnamese Grammar). Saigon: Khai trí, 1963.
- Hull, C. H., & Nie, N. H. SPSS up date, New York: Mc. Graw-Hill, 1979.
- Inhelder, B. Criteria of stages of mental development. In J.M. Tanner, & B. Inhelder (Eds.), Discussion on child development: A consideration of the biological, psychological, and cultural approaches to the understanding of human development and behavior. Vol. 4. New York: International Universities Press, 1960.

- Inhelder, B. Some aspects of Piaget genetic approach to cognition. In W. Kessen, & C Kuhlman (Eds.), Cognitive development. Chicago: The University of Chicago Press, 1970.
- Inhelder, B., & Piaget, J. The growth of logical thinking. From childhood to adolescent: An essay on the construction of formal operational structures (A. Parsons & S. Milgram, trans.). New York: Basic Books, Inc., 1958 (Original French edition, 1955.)
- Kohler, W., & Wallach, H. Figural after effects: An investigation of visual processes. Proceedings of the American Philosophical Society, 1944, 88, 269-357.
- Leeper, R. A study of a neglected portion of the field of learning—The development of sensory organization. Journal of Genetic Psychology, 1935, 46, 41-73.
- Phillips, Jr., J. L. The origins of intellect. Piaget's theory. (2nd ed.). San Francisco: W. H. Freeman & Company, 1975.
- Piaget, J. The origins of intelligence in children (M. Cook, trans.). New York: International Universities Press, 1952 (Original French edition, 1936.)
- Piaget, J. The construction of reality in the child (M. Cook, trans.). New York: Basic Books, Inc., 1954 (Origin French edition, 1937.)
- Piaget, J. Studies in genetic epistemology. Vol. VI, Logic and perception. (Etudes d'epistemologie genetique. Vol. VI. Logique et perception) Paris: Press Universitaires de France, 1958, 52-116.
- Piaget, J. The genetic approach to the psychology of thought. Journal of Educational Psychology, 1961, 52, 275-281.
- Piaget, J. Play, dreams, and imitation in childhood (C. Gattegno & F. M. Hodgson, trans.). New York: W. W. Norton and Co., Inc., 1962 (Original French edition, 1945.)
- Piaget, J. The moral judgment of the child (M. Gabin, trans.). New York: Free Press, 1965.
- Piaget, J. Six psychological studies (A. Tenzer, trans.). New York: Random House, Inc., 1967 (Original French edition, 1964.)
- Piaget, J. The mechanism of perception (G. N. Seagrin, trans.). New York: Basic Books, Inc., 1969 (Original French edition, 1961.)
- Piaget, J. The child's conception of movement and speed (G. E. T. Holloway & M. J MacKenzie, trans.). New York: Basic Books, Inc., 1970 (Original French edition, 1946.)

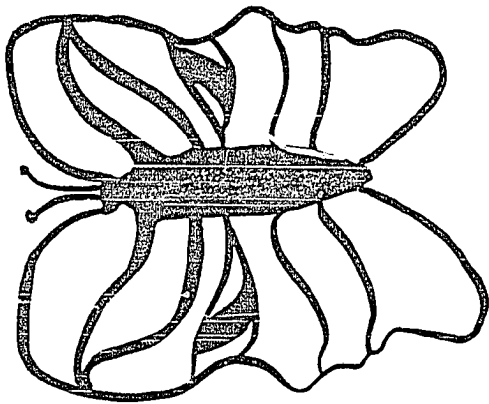
- Piaget, J. Judgment and reasoning in the child (M. Warden, trans.). New York: Littlefield, Adams, & Co., 1972 (Original French edition, 1924.)
- Piaget, J. & Inhelder, B. The psychology of the child (H. Weaver, trans.). New York: Basic Books, Inc., 1969 (Original French edition, 1966.)
- Schafer, R. & Murphy, G. The role of autism in a visual figure-ground relationship. Journal of Experimental Psychology, 1943, 32, 335-343.
- Scheffe, A. The analysis of variance. New York: John Willey & Sons, 1959.
- Teuber, H. L. Neuropsychology. In R. E. Harris (Ed.), Recent advances in psychologic testing. Springfield, Illinois: Charles C. Thomas, Publisher, 1950.
- Teuber, H. L., Battersby, W. S., & Bender, M. B. Performance of complex visual tasks after cerebral lesions. Journal of Nervous and Mental Disease, 1951, 114, 413-429.
- Thompson, V. French Indochina. London: Allen & Unwin, 1937.
- Tô, N. T. Leu Chong (Tent and bench). Hanoi: Doi Nay, 1942.
- Tử Chung. Việt Nam Ngày Mai (The future of Vietnam). Chính Luận, May 12, 1964, p. 4.
- Werner, H. & Strauss, A. A. Pathology of figure-ground relation in the child. Journal of Abnormal and Social Psychology, 1941, 36, 236-248.
- Whiteside, J. A., Elkind, D., & Golbeck, S. L. Effects of exposure duration on part-whole perception in children. Child Development, 1976, 47, 498-501.



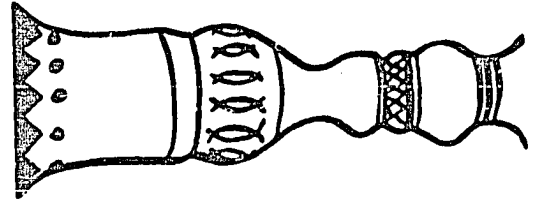
3



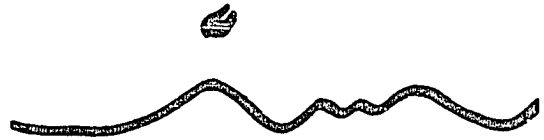
2



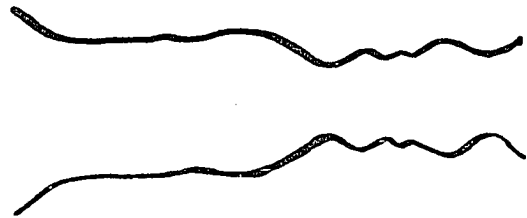
1



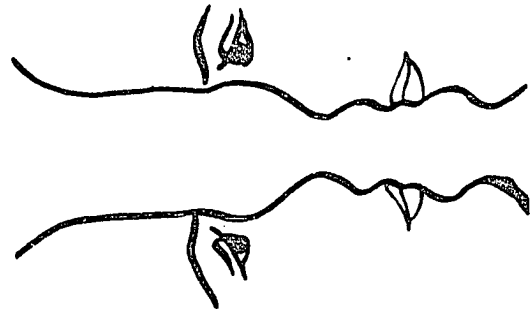
7



6

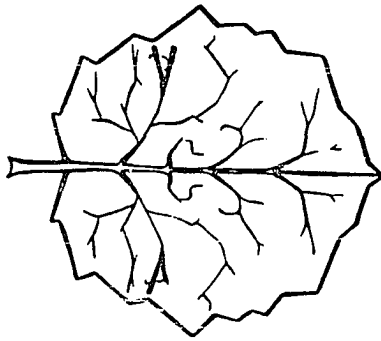


5

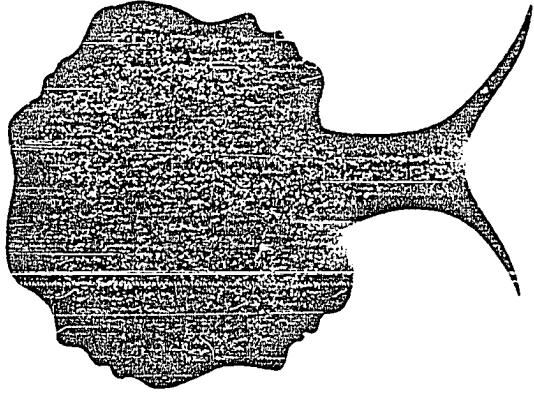


4

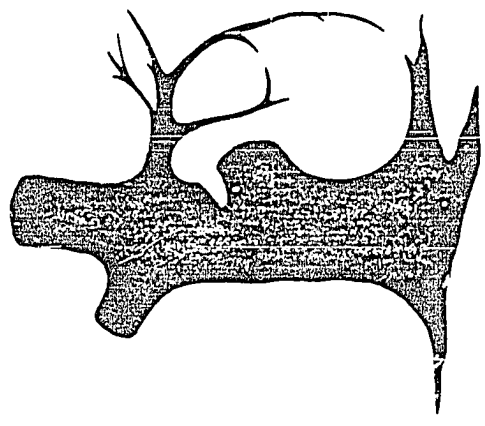
SET A



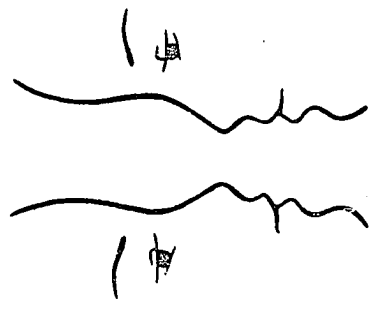
1



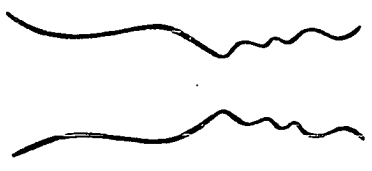
2



3



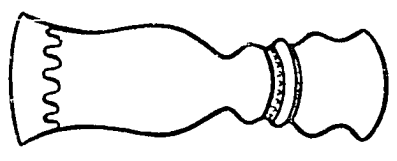
4



5



6



7

SET B

Appendix C

Training Materials and Training Procedures

The materials used in the training program consisted of two groups: a) hide and seek play, and b) overlapping pictures.

Hide and Seek Play

The review of the literature reveals that there is no scientific work dealing with these kinds of pictures. However, while working with war victim children and orphans in Vietnam, and with mentally retarded and emotionally disturbed children in Switzerland, the author of this study found that: a) older children usually spent less time in finding the hidden figures than younger children, b) trained younger children usually spent less time to detect the hidden figures than untrained older children. Therefore, the introduction of the hide and seek play might help to accelerate the decentering of perception.

Materials. The materials consisted of three big pictures with hidden figures. They were drawn from three following stories:

Picture 1. Nguyễn and Her Pets

Nguyen likes her pets very much. Her uncle Trần has given her two puppies, a baby chick, and a rabbit. The puppies are good pets. They like to play with Nguyễn, but the baby chick and the rabbit are bad pets. They run away. Can you help Nguyễn to find those bad pets? (Figure 1)

Picture 2. The Cat and the Little Bird

The cat is very hungry. He is determined to catch the little bird for his breakfast. Do you see where the little bird is hiding? (Figure 2)

Picture 3. Diệp Likes to Eat Fish with a Fork

Diệp is a small girl who lives in a big farm. She likes to eat fish with a fork. Do you see where Diệp is standing, and where she put her fish and fork? (Figure 3)

Procedures. Each picture was administered individually. The picture was shown to the child at the same time the story was told. If the child could not find the hidden figures, the examiner could help him/her to find them by changing the position of the picture which therefore would show the best view of them.

Overlapping Pictures

This series of pictures are concerned with the child perception of figures that are not clearly set apart from each other. These pictures were inspired from Ghent (1956), Teuber (1950), Teuber, Battersby, and Bender (1951), and Werner and Strauss (1941) studies. According to them, a younger child responds less adequately than an older one to task involving the differentiating of figures that are not completely separated from each other. Unfortunately, there is no scientific work relating to

training by using these kinds of pictures. However, if Piaget's (1967) position which suggests that social environment, exercise, and experience are also responsible to the process of perception of development, the use of these pictures for training might also help to accelerate the decentering of perception.

Materials. The materials consisted of three overlapping pictures. Each of these pictures was composed of single pictures of objects with which the child has been familiar. Following is the content of these pictures.

Overlapping Pictures of Glassware

A cup, a glass, and a saucer. (Figure 4)

Overlapping Pictures of Animals

A horse, a pig, and a rabbit. (Figure 5)

Overlapping Pictures of Mixed Objects

A fish, a helicopter, and a pair of scissors. (Figure 6)

Procedures. Each picture was administered individually, and the instruction was as follows: "Tell me what you see in the picture. You can turn the picture any way you want and you can look at it as long as you want. Be sure tell me everything you see." The sequence of presentation of each overlapping pictures was accomplished as follows:

Picture 1

This picture was presented in three steps. In step one, each single object was shown separately and the child was asked to name it (Figures 7, 8, and 9). In step two, overlapping of two objects (Figures 10, 11 and 12) was presented and the child was told to name each

of them. In the last step, the whole overlapping pictures (Figure 4) was shown and the child was asked to name all the things that he/she saw on the card.

Picture 2

This picture was presented only with two last steps (Figures 13, 14, 15, and 5). Step one was skipped.

Picture 3

The whole overlapping pictures with three objects combined (Figure 6) was presented. Steps one and two were skipped.

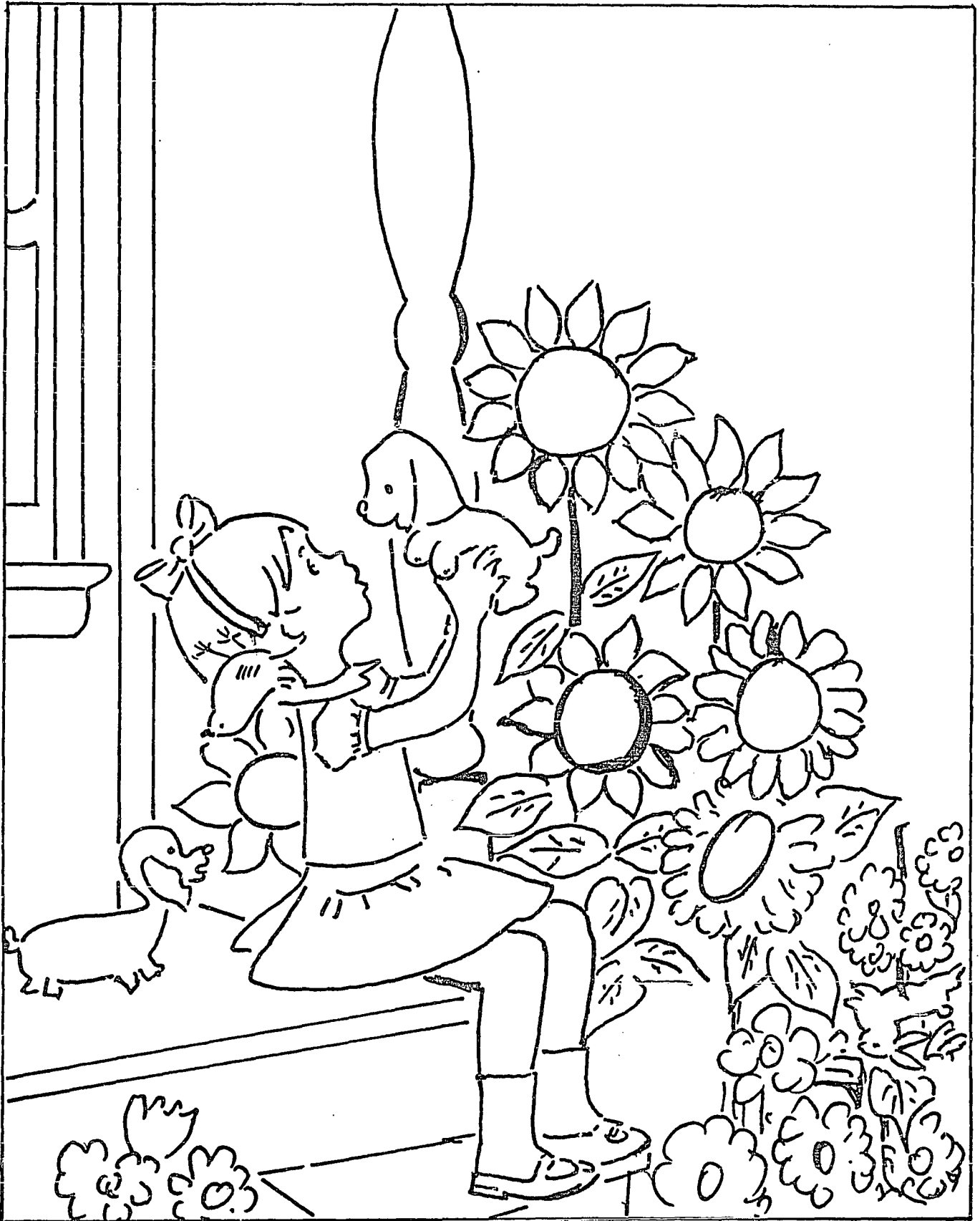


Figure 1



Figure 2

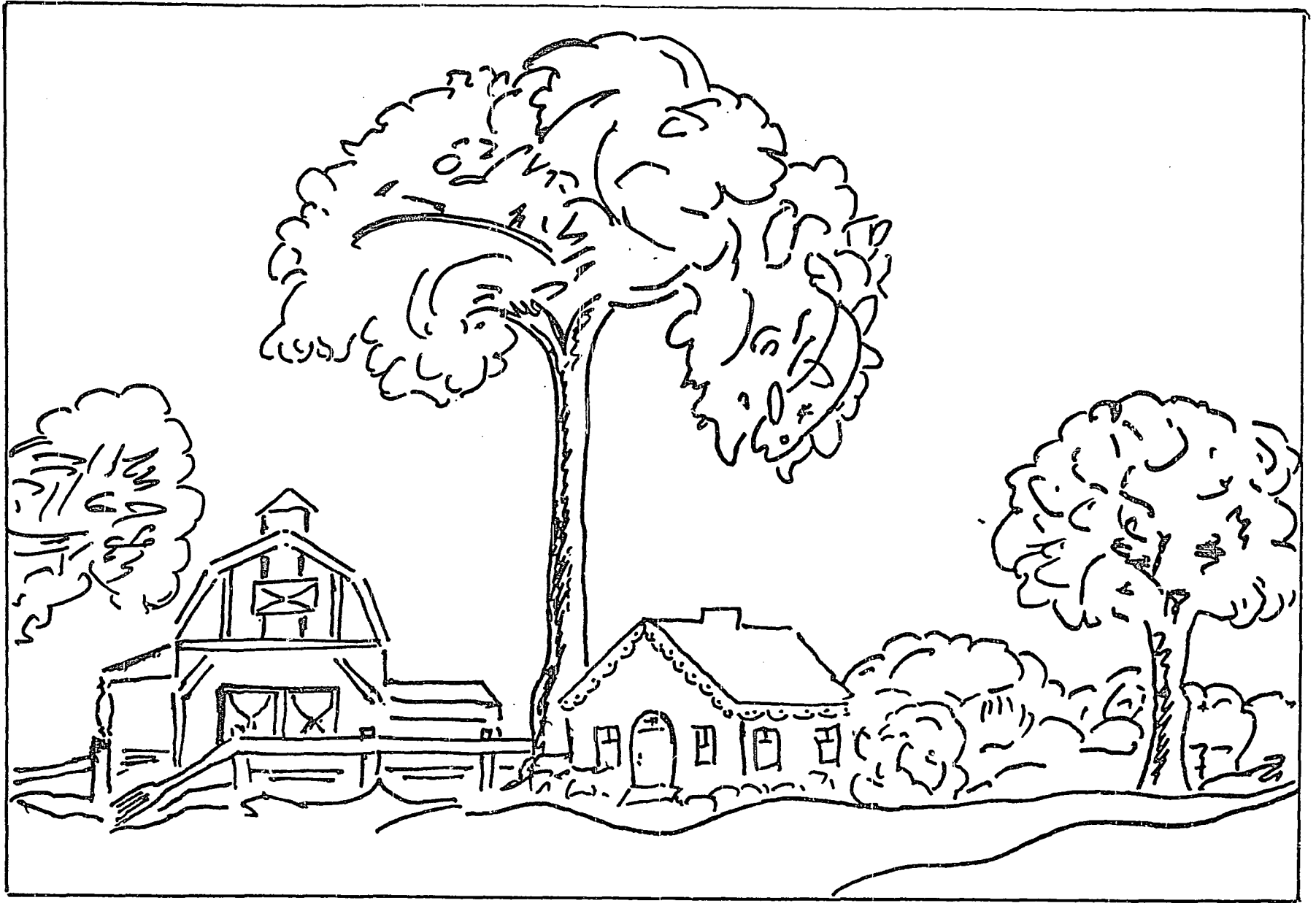


Figure 3

C.F. 100

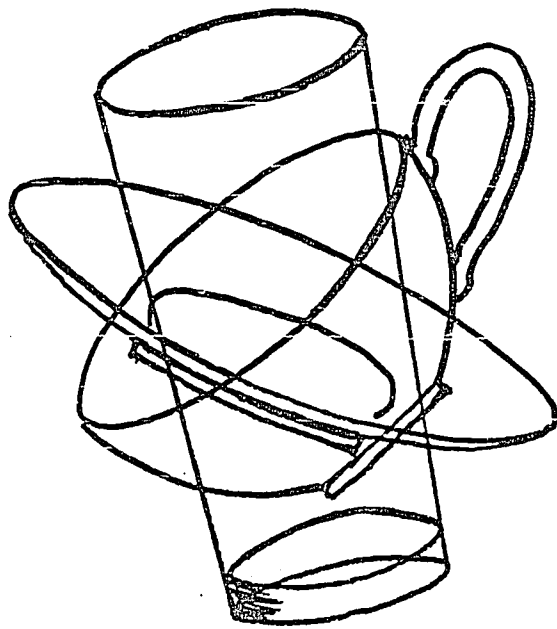


Figure 4

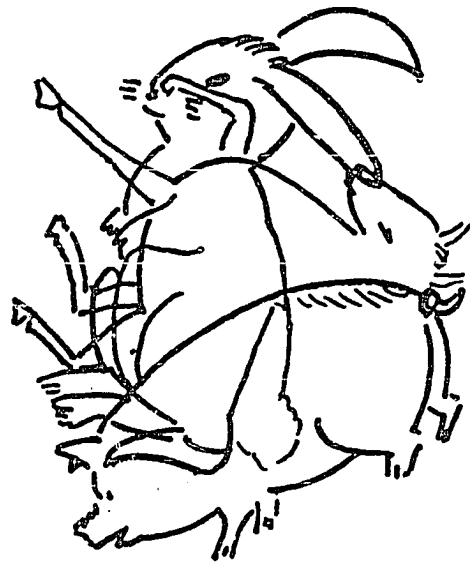


Figure 5

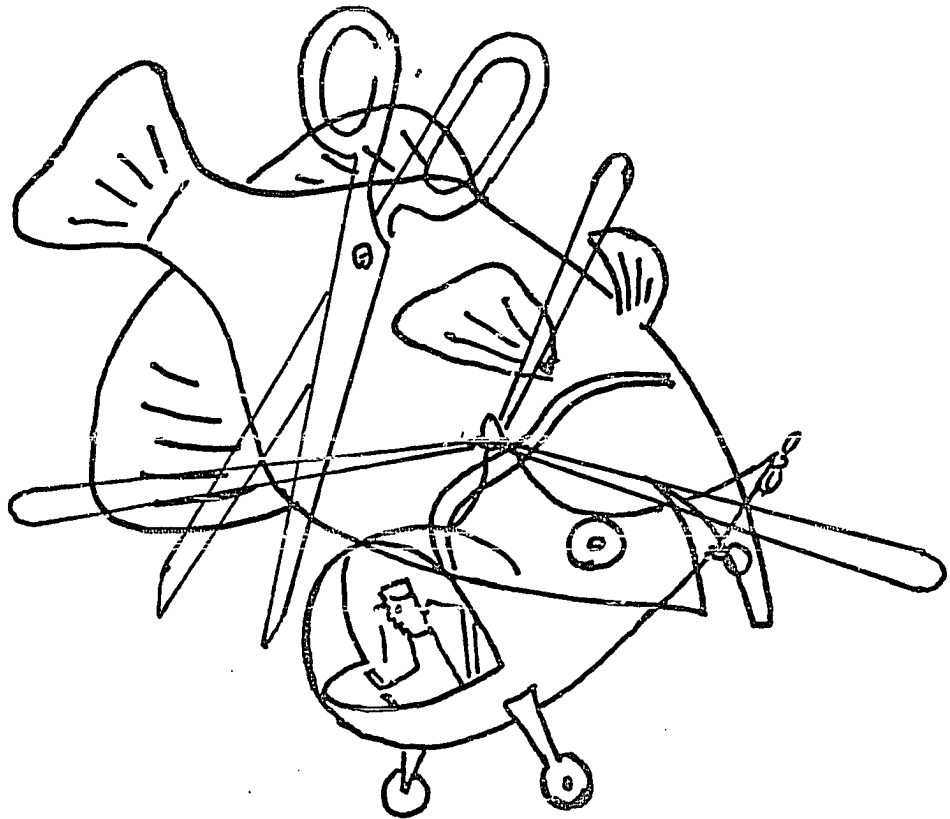


Figure 6

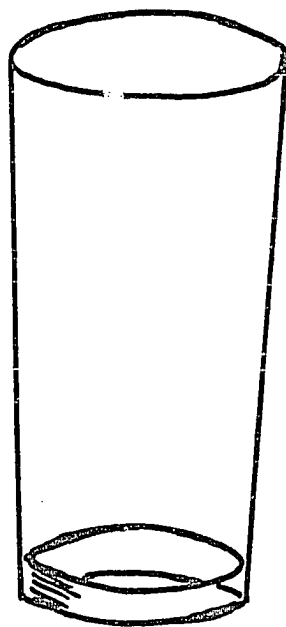


Figure 7

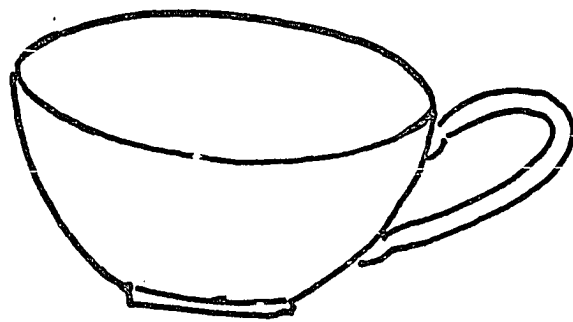


Figure 8

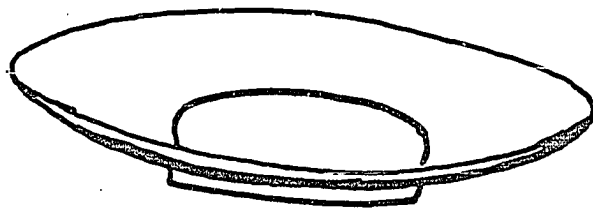


Figure 9

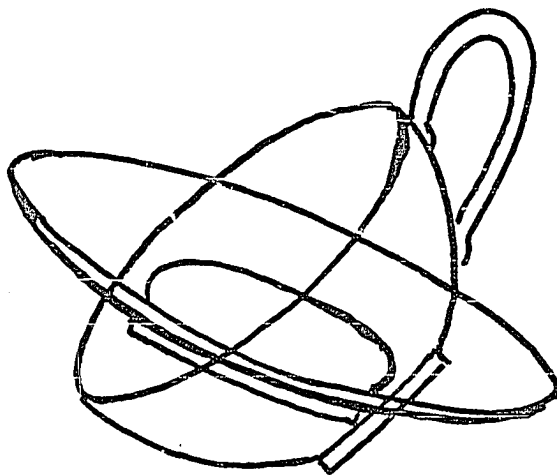


Figure 10

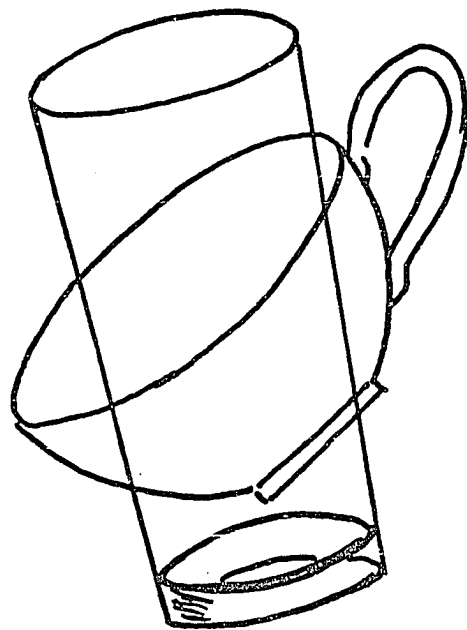


Figure 11

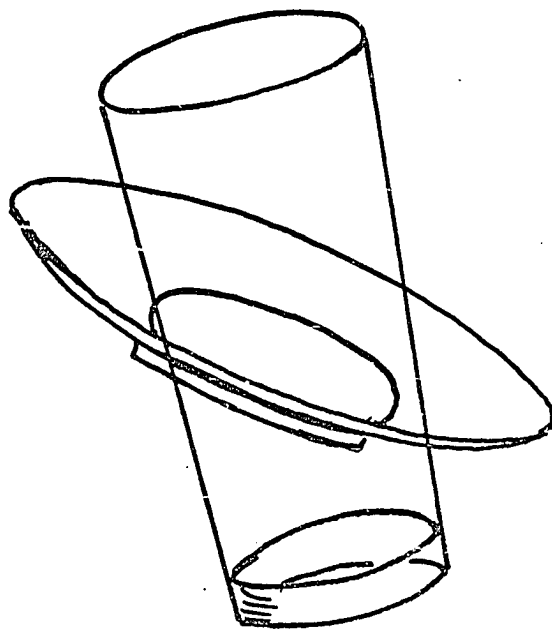


Figure 12

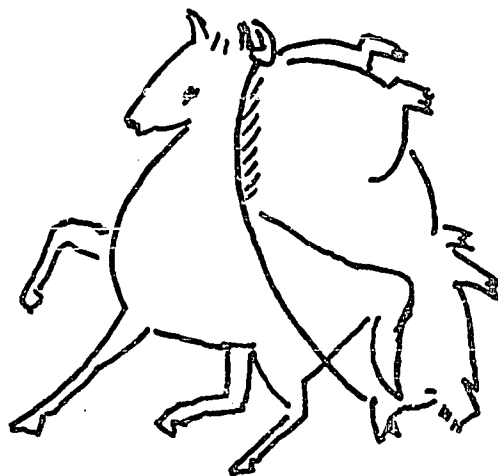


Figure 13

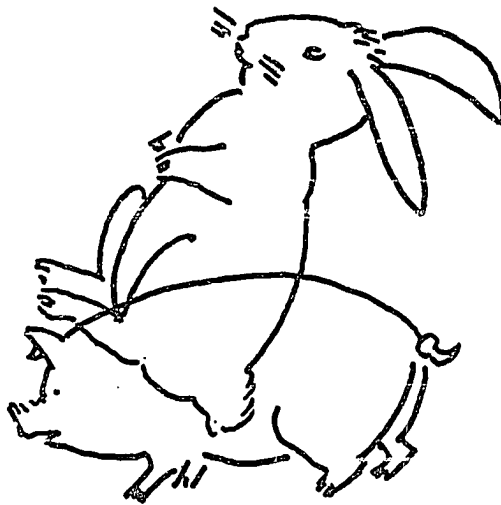


Figure 14

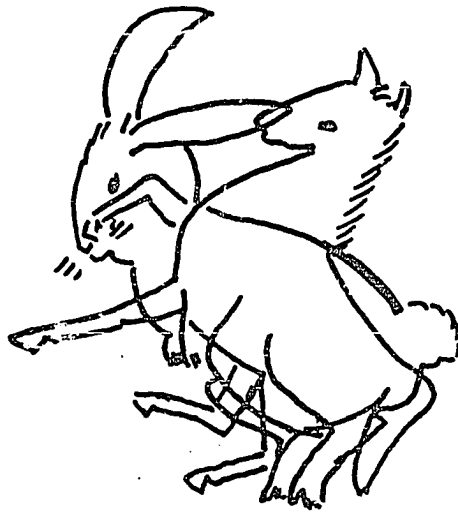


Figure 15

//ANLVAVN JOB (XX.XX,XXXX),TUAN TRAN

JOB 681

// EXEC SPSS

XXSPSS PROC PROGRAM=SPSS,TYPE=H,VERSION=8,LEVEL=0, BNHSUS 4/79

XX FT01SPA='CYL,5,2)',FT02SPA='CYL,(2,1)',

XX SATTTYPE=TRK,SATTSPAC='(10,10)',

XX FT11SPA='CYL,(8,8)',FT12SPA='CYL,(5,5)'

SPSS - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

>>>>> THIS IS VERSION 8 OF SPSS <<<<<<

NEW FEATURES INCLUDE:

'REPORT' FOR BETTER TABLES OF INDIVIDUAL AND AGGREGATED VALUES,

'SURVIVAL' FOR LIFE TABLE ANALYSIS,

IMPORTANT CHANGES IN DISCRIMINANT AND SORT PROCEDURES, PLUS

OTHER CHANGES.

ALL CHANGES SINCE VERSION 6 (THE MAROON MANUAL) ARE DESCRIBED

IN HULL AND NIE, SPSS UPDATE, MCGRAW-HILL, 1979 WHICH

IS AVAILABLE AT THE N.Y.C. BOOKSTORE.

ALSO AVAILABLE: COMPUTER LISTINGS OF VERSION 7 AND 8 UPDATES;

TO OBTAIN, USE THE FOLLOWING CARD:

// EXEC MANUALS,NAME=XXXX

WHERE XXXX CAN BE EITHER SPSS7UPD OR SPSS8UPD. EACH IS ABOUT

8000 LINES AND NEEDS THE 4 DIGITS '3202' IN THE FORMS PARAMETER

OF THE JOB CARD.

FOR DIE-HARDS, VERSION 7 IS AVAILABLE BY USING :

// EXEC SPSS,VERSION=7

XXGO EXEC PGM=&PROGRAM&TYPE&VERSION&LEVEL,

IEF653I SUBSTITUTION JCL - PGM=SPSSHR0,

XX REGION=276K

XXSTEPLIB DD DSN=SYS4.BNH.SPSSL16,DISP=SHR

REQUIRED DATA SETS:FT01 FOR LABEL INFO

FT02 FOR REUSING DATA

FT05,FT06 FOR READ/PRINT

XXFT01F00 DD UNIT=3330,DCB=BLKSIZE=800,SPACE=(&FT01SPA)

IEF653I SUBSTITUTION JCL - UNIT=3330,DCB=BLKSIZE=800,SPACE=(CYL,(5,2))

XXFT02F00 DD UNIT=3330,DCB=BLKSIZE=4020,SPACE=(&FT02SPA)

IEF653I SUBSTITUTION JCL - UNIT=3330,DCB=BLKSIZE=4020,SPACE=(CYL,(2,1))

XXFT05F00 DD DCNAME=SYS IN

XXFT06F00 DD SYSCUT=A

OPTIONAL DATA SETS:FT09 ALTERNATE OUTPUT(WRITE CASES,CORR MATRIX,

FACTOR SCORES,ETC.-NOW SET TO PRINT

80 COLUMNS BUT CAN BE CHANGED)

FT03 INPUT SPSS SYSTEM FILE(GET FILE)

FT04 OUTPUT SPSS SYSTEM FILE(SAVE FILE)

FT08 ALTERNATE INPUT,RAW DATA(TAPE OR DISK)

XXFT09F00 DD SYSCUT=A,DCB=(RECFM=F,BLKSIZE=80)

XXFT10F00 DD DSN=SYS4.BNH.SPSS.UOCDL16,DISP=SHR

XXFT11F00 DD UNIT=3330,SPACE=(&FT11SPA) FT11 DD CAPD

IEF653I SUBSTITUTION JCL - UNIT=3330,SPACE=(CYL,(8,8))

Appendix D

```

XXFT12FOO1 DD UNIT=3330,SPACE=(6FT12SPA) FT12 DD CARD
IEF653I SUBSTITUTION JCL - UNIT=3330,SPACE=(CYL,(5,5))
XXSORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
XXSYSOUT DD SYSOUT=A OUTPUT FROM SORT
XXSORTWK01 DD UNIT=3330,SPACE=(6SRTTYPE,6SRTSPAC) SORT WORK AREAS
IEF653I SUBSTITUTION JCL - UNIT=3330,SPACE=(TRK,(10,10))
XXSORTWK02 DD UNIT=3330,SPACE=(6SRTTYPE,6SRTSPAC) SORT WORK AREAS
IEF653I SUBSTITUTION JCL - UNIT=3330,SPACE=(TRK,(10,10))
XXSORTWK03 DD UNIT=3330,SPACE=(6SRTTYPE,6SRTSPAC) SORT WORK AREAS
IEF653I SUBSTITUTION JCL - UNIT=3330,SPACE=(TRK,(10,10))
//SYSIN D) *
//

```

```

IEF236I ALLOC. FOR ANOVAVN GO
IEF237I 15A ALLOCATED TO STEPLIB
IEF237I 15D ALLOCATED TO FT01F001
IEF237I 15I ALLOCATED TO FT02F001
IEF237I 501 ALLOCATED TO FT05F001
IEF237I 405 ALLOCATED TO FT06F001
IEF237I 409 ALLOCATED TO FT09F001
IEF237I 15D ALLOCATED TO FT10F001
IEF237I 15D ALLOCATED TO FT11F001
IEF237I 15I ALLOCATED TO FT12F001
IEF237I 15B ALLOCATED TO SORTLIB
IEF237I 41A ALLOCATED TO SYSOUT
IEF237I 15D ALLOCATED TO SORTWK01
IEF237I 15I ALLOCATED TO SORTWK02
IEF237I 15D ALLOCATED TO SORTWK03

```

IEF142I - STEP WAS EXECUTED - COND CODE 0000

IEF285I	SYS4.BNH.SPSSLIB	KEPT	DDNAME=STEPLIB	277 EXCPS
IEF285I	VOL SER NOS= ACC001.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001407	DELETED	DDNAME=FT01F001	31 EXCPS
IEF285I	VOL SER NOS= USER01.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001408	DELETED	DDNAME=FT02F001	2 EXCPS
IEF285I	VOL SER NOS= USER02.			
IEF285I	SYS4.BNH.SPSS.UDCFILE	KEPT	DDNAME=FT10F001	3 EXCPS
IEF285I	VOL SER NOS= USER01.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001411	DELETED	DDNAME=FT11F001	0 EXCPS
IEF285I	VOL SER NOS= USER01.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001412	DELETED	DDNAME=FT12F001	0 EXCPS
IEF285I	VOL SER NOS= USER02.			
IEF285I	SYS1.SORTLIB	KEPT	DDNAME=SORTLIB	0 EXCPS
IEF285I	VOL SER NOS= SYSRES.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001414	DELETED	DDNAME=SORTWK01	0 EXCPS
IEF285I	VOL SER NOS= USER01.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001415	DELETED	DDNAME=SORTWK02	0 EXCPS
IEF285I	VOL SER NOS= USER02.			
IEF285I	SYS7935I.T130520.RV000.ANOVAVN.R0001416	DELETED	DDNAME=SORTWK03	0 EXCPS
IEF285I	VOL SER NOS= USER01.			

```

** JOB ANOVAVN STEP G3 START 13:05:22 ON 12/17/79 END 13:06:11 ON 12/17/79 1.92 SEC CPU TIME RC= 0 **
** JOB ANOVAVN STEP G3 CORE USED: 208K OF 276K (VIRTUAL) 0.80 MIN ELAPSED TIME **
** EXCPS: 313 DASD 0 TAPE 479 UNIT RECORD 0 OTHER 792 TOTAL **

```


SPSS FOR OS/360, VERSION H, RELEASE 8.0, OCTOBER 15, 1979

DEFAULT SPACE ALLOCATION.. ALLOWS FOR.. 102 TRANSFORMATIONS
 WORKSPACE 71680 BYTES 409 RECORD VALUES + LAG VARIABLES
 TRANSPACE 10240 BYTES 1641 IF/COMPUTE OPERATIONS

1 RUN NAME EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION
 2 VARIABLE LIST ID,GRP,SEX,SES,AGE,PRE,POST
 3 INPUT MEDIUM CARD
 4 INPUT FORMAT. FIXED(F2.0,4F1.0,2F3.1)

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
ID	F 2. 0	1	1- 2
GRP	F 1. 0	1	3- 3
SEX	F 1. 0	1	4- 4
SES	F 1. 0	1	5- 5
AGE	F 1. 0	1	6- 6
PRE	F 3. 1	1	7- 9
POST	F 3. 1	1	10- 12

THE INPUT FORMAT PROVIDES FOR 7 VARIABLES. 7 WILL BE READ
 IT PROVIDES FOR 1 RECORDS ('CARDS') PER CASE. A MAXIMUM OF 12 'COLUMNS' ARE USED ON A RECORD.

5 N OF CASES	80	
6 VAR LABELS	GRP	EXPERIMENTAL AND CONTROL/
7	SEX	OBSERVED BY SEX/
8	SES	HIGH AND LOW SES/
9	AGE	AGE FROM 4 TO 5 AND 6 TO 7/
10	PRE	PRE TEST/
11	POST	POST TEST/
12 VALUE LABELS	GRP	(1) EXPERIMENTAL (2) CONTROL/
13	SEX	(1) MALE (2) FEMALE/
14	SES	(1) HIGH SES (2) LOW SES/
15	AGE	(1) FOUR TO FIVE (2) SIX TO SEVEN/
16 ANOVA	POST BY GRP TO AGE(1,2) WITH PRE/	
17 STATISTICS	ALL	

ANOVA PROBLEM REQUIRES 2464 BYTES OF SPACE.

18 READ INPUT DATA

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NONAME (CREATION DATE = 12/17/79)

***** CELL MEANS *****
 POST POST TEST
 BY GRP EXPERIMENTAL AND CONTROL
 SEX OBSERVED BY SEX
 SES HIGH AND LOW SES
 AGE AGE FROM 4 TO 5 AND 6 TO 7

TOTAL POPULATION

	10.64		
	(80)		
GRP			
	1	2	
	13.39	7.90	
	(40)	(40)	
SEX			
	1	2	
	10.92	10.36	
	(40)	(40)	
SES			
	1	2	
	10.76	10.52	
	(40)	(40)	
AGE			
	1	2	
	9.97	11.31	
	(40)	(40)	
	SEX		
		1	2
GRP			
	1	13.35	12.92
	(20)	(20)	

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NONAME (CREATION DATE = 12/17/79)

	2	8.00	7.80	
	(20)	(20)

SES

	1		2	
GRP	1	13.50	13.27	
	(20)	(20)

	2	8.02	7.77	
	(20)	(20)

AGE

	1		2	
GRP	1	12.65	14.13	
	(20)	(20)

	2	7.30	8.50	
	(20)	(20)

SES

	1		2	
SEX	1	11.17	10.67	
	(20)	(20)

	2	10.35	10.38	
	(20)	(20)

AGE

	1		2	
SEX	1	10.20	11.65	
	(20)	(20)

	2	9.75	10.97	
	(20)	(20)

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION.

FILE NONAME (CREATION DATE = 12/17/79)

		AGE	
		1	2
SES			
	1	9.85	11.67
	(	20)	(
			20)

	2	10.10	10.95
	(	20)	(
			20)

SES = 1

SEX

		1		2	
GRP					
	1	14.30	12.70		
	(	10)	(	10)	

	2	8.05	8.00
	(	10)	(
			10)

SES = 2

SEX

		1		2	
GRP					
	1	13.40	13.15		
	(	10)	(	10)	

	2	7.95	7.80
	(	10)	(
			10)

AGE = 1

SEX

		1		2	
GRP					
	1	13.00	12.30		
	(	10)	(	10)	

	2	7.40	7.20
	(	10)	(
			10)

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NONAME (CREATION DATE = 12/17/79)

AGE = 2

SEX

1

2

GRP

1	14.70	13.55	
(10)	(10)

2	8.60	8.40	
(10)	(10)

AGE = 1

SES

1

2

GRP

1	12.30	13.00	
(10)	(10)

2	7.40	7.20	
(10)	(10)

AGE = 2

SES

1

2

GRP

1	14.70	13.55	
(10)	(10)

2	8.65	8.35	
(10)	(10)

AGE = 1

SES

1

2

SEX

1	10.20	10.20	
(10)	(10)

2	9.50	10.00	
(10)	(10)

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NONAME (CREATION DATE = 12/17/79)

AGE = 2

SES

1 2

SEX	1	12.15	11.15
	(	10)	(10)

	2	11.20	10.75
	(	10)	(10)

SES = 1

AGE = 1

SEX

1 2

GRP	1	12.80	11.80
	(	5)	(5)

	2	7.60	7.20
	(	5)	(5)

SES = 2

AGE = 1

SEX

1 2

GRP	1	13.20	12.80
	(	5)	(5)

	2	7.20	7.20
	(	5)	(5)

SES = 1

AGE = 2

SEX

1 2

GRP	1	15.80	13.60
	(	5)	(5)

	2	8.50	8.50
	(	5)	(5)

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NONAME (CREATION DATE = 12/17/79)

SES = 2
AGE = 2

	SEX	1	2	
GRP				
1		13.60	13.50	
	(5)	(5)
2		8.70	8.00	
	(5)	(5)

FILE NQNAME (CREATION DATE = 12/17/79)

* * * * * A N A L Y S I S O F V A R I A N C E * * * * *

POST POST TEST
 BY GRP EXPERIMENTAL AND CONTROL
 SEX OBSERVED BY SEX
 SES HIGH AND LOW SES
 AGE AGE FROM 4 TO 5 AND 6 TO 7
 WITH PRE PRE TEST

* * * * *

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
COVARIATES	87.840	1	87.840	94.035	0.0
PRE	87.840	1	87.840	94.035	0.0
MAIN EFFECTS	586.898	4	146.725	157.072	0.000
GRP	581.950	1	581.950	622.992	0.0
SEX	3.483	1	3.488	3.734	0.058
SES	1.545	1	1.545	1.654	0.203
AGE	2.845	1	2.845	3.046	0.086
2-WAY INTERACTIONS	5.468	6	0.911	0.976	0.449
GRP SEX	2.087	1	2.087	2.234	0.140
GRP SES	0.146	1	0.146	0.156	0.694
GRP AGE	1.291	1	1.291	1.382	0.244
SEX SES	0.995	1	0.995	1.065	0.306
SEX AGE	0.057	1	0.057	0.061	0.805
SES AGE	0.851	1	0.851	0.911	0.343
3-WAY INTERACTIONS	9.197	4	2.299	2.461	0.054
GRP SEX SES	5.266	1	5.266	5.637	0.021
GRP SEX AGE	1.098	1	1.098	1.176	0.282
GRP SES AGE	2.819	1	2.819	3.017	0.087
SEX SES AGE	0.003	1	0.003	0.003	0.954
4-WAY INTERACTIONS	2.340	1	2.340	2.505	0.119
GRP SEX SES AGE	2.340	1	2.340	2.505	0.119
EXPLAINED	691.743	16	43.234	46.283	0.000
RESIDUAL	58.850	63	0.934		
TOTAL	750.593	79	9.501		

EFFECTS OF VISUAL TRAINING IN DECENTERING OF PERCEPTION

FILE NDNAM (CREATION DATE = 12/17/79)

COVARIATE RAW REGRESSION COEFFICIENT

PRE 1.133

80 CASES WERE PROCESSED.
0 CASES (0.0 PCT) WERE MISSING.

