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LOCUS OF CONTROL: A UNIFYING CONCEPT AFFECTING  
VISUAL PERCEPTUAL MOTOR ACHIEVEMENT AND  
COMPENSATION.

The University of Oklahoma, Ph.D., 1973  
Education, psychology

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THE UNIVERSITY OF OKLAHOMA  
GRADUATE COLLEGE

LOCUS OF CONTROL: A UNIFYING CONCEPT  
AFFECTING VISUAL PERCEPTUAL MOTOR  
ACHIEVEMENT AND COMPENSATION

A DISSERTATION  
SUBMITTED TO THE GRADUATE FACULTY  
in partial fulfillment of the requirements for the  
degree of  
DOCTOR OF PHILOSOPHY

BY  
LAUREL ANNE VAN HORN

Norman, Oklahoma

1973

LOCUS OF CONTROL: A UNIFYING CONCEPT  
AFFECTING VISUAL PERCEPTUAL MOTOR  
ACHIEVEMENT AND COMPENSATION

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## ACKNOWLEDGEMENTS

I would like to convey my deepest thanks to Robert Ragland who served as my major professor for the past two years. He has been a source of scholarly inspiration and a friend as well.

In addition, my appreciation is also extended to Albert Smouse who not only guided my Master's degree program in such a manner as to give substance to the foundation of my graduate learning experiences, but gave valuable assistance toward the completion of this study.

Also, I would like to thank George Letchworth for the teaching experiences which enabled me to pursue this study with relative confidence.

And to Robert Curry, I am grateful for his interest in me throughout these graduate years and for his ready willingness to assist in the completion of this study.

I would also like to thank the Moore Public School System, Betty Crites, elementary school counselor, and the principals and third grade teachers at Plaza and Southgate Elementary Schools for their unfailing cooperation and genuine interest in the execution of this research.

To my family, I am indebted in countless ways. I can only say thank you:

To Jim, who first recognized my occupational restlessness,

To Sara, who never once lost sight of my goal,

To Tommy, who talked about a young boy's concerns,

To Annie, who loved without question.

And last, I would like to thank Bernard Green who patiently and courageously helped me to attain a sense of personal achievement in the writing of this dissertation.

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# LOCUS OF CONTROL: A UNIFYING CONCEPT AFFECTING VISUAL PERCEPTUAL MOTOR ACHIEVEMENT AND COMPENSATION

## CHAPTER I

### INTRODUCTION

The major hypothesis of this study is that the concept Locus of Control is an important determinant in the development of perception. It subsumes motivational as well as attentional factors which ultimately contribute to the child's ability to compensate for perceptual deficits, whether neurologically or environmentally caused. As Locus of Control is highly influenced by socio-economic status (SES), an attempt will be made in this study to control SES by drawing all S's from one SES level. Although this study concerns itself with Locus of Control, perceptual development, and compensation in a neurologically normal population of lower middle-class children, the theoretical hypotheses may have relevance for those children whose difficulties are diagnosed as learning disability or minimal cerebral dysfunction.

#### Socio-economic Status Studies

The general inefficient perceptual development of the lower

class child is well reported in the literature (Davis, 1969; Grotberg, 1970; Hallahan, 1970; Kappelman, Kaplan and Ganter; 1969, Kunz and Moyer, 1969; Resnick, 1969, and Shores, 1969). There is also evidence that lower-class children have deficits in linguistic development, (Deutsch, 1967; John, 1963; Ryckman, 1967), in mental ability (Lesser, Fifer and Clark, 1965), in conceptual and categorizing abilities (Clark and Richards, 1966; Deutsch, 1967; Kofsky, 1967; Ryckman, 1967), and on tests of intelligence (Coleman, 1966; Karp and Siegal, 1965). Explanations offered for the lower class child's lack of normal development of cognitive, perceptual and/or language processes primarily involve inadequate early preparation for structured learning due to corresponding environmental deficiencies and a general lack of experiences which are usually available to the middle class child.

The research currently available on the relationship between the perceptual and motivational capacities of lower class children indicates that children from lower socio-economic areas have lower levels of aspiration and subsequently perform below chronological age level on perceptual tasks (Epstein and Komorita, 1971; Shores, 1969). In addition, (Birch (1969) has investigated the socio-economic influence with regard to learning and behavioral difficulties in his work with premature infants. Birch postulates that premature infants from

impoverished families do not overcome or compensate for the assault of early delivery as much as do premature infants from middle-class families. Birch found major differences in later incidence of learning disabilities and accounted for them by assuming that impoverished children have more assaults on them than they can compensate for and that the family cannot provide the necessary ameliorative intervention. Birch's assumptions have important ramifications for perceptual development and subsequent school performance.

Further, the Coleman Report (Coleman, 1966) indicates that the relatively "external" expectancies of disadvantaged children are crucial determinants of academic under-performance in this population at the sixth grade level and above. Disadvantaged children appear to believe that their efforts will not affect the outcome of their academic performance. Their belief in external control directly influences their level of motivation and, subsequently, their achievement.

Present research continues to support the hypothesis that the lower class child's perceptual development is directly affected by his impoverished surroundings. The consensus of investigations indicates that in the lower class child the convergence of a disordered and distracting environment, the lack of training in contingency awareness with regard to stimuli in the very early years of life and maternal behavior which facilitates a belief in external control serve to foster a shortened attention span, distractibility, figure-ground problems,

hyperactivity, motor disinhibition and low motivation to achieve -- all characteristic of the perceptually handicapped child regardless of congenital anomalies.

Grotberg (1970) states that "the neurological elements of the organism are affected whether from assaults to the organism directly or from inefficient stimulation from the environment to which the organism responds (p. 325)." In other words, the development of the child, especially neurologically, may be impaired or retarded either from internal or external stresses. The results are the same and are manifested in perceptual deficits.

With regard to the present investigation, the most significant aspect of child development is the reciprocal influence of the child and the human environment (mother, teacher). Certainly a mother will respond differently to a hyperactive, "cranky," or sick infant, and her response in turn influences the future growth of the child. While this reciprocal influence does much to explain the development of disordered physical, emotional and intellectual behavior, and while it does not absolve the child's "caretakers" from ultimate responsibility, it does contribute to the alleviation of guilt so often suffered and to the detriment of the optimal growth of the child.

#### Perceptual Studies

In an effort to substantiate the hypothesis of environmental influence on perceptual development, experimental animal research

has manipulated perceptual development using the method of controlled rearing. Gibson (1969) summarizing the outcome of this research, suggests that impoverishment of stimulation in early life may result in a lack of perceptual curiosity and an inability to sift out distinctive features from irrelevant stimulation, fostering a maladaptive development of selective attention and perceptual motivation.

Integrating this research into a theory of perceptual learning and development which contrasts sharply with traditional S-R formulations, Gibson assumes that the stimulation available to the organism provides a rich and wide variety of information. Consequently, perceptual learning does not merely supplement bare sensations or associate responses with them, but rather differentiates and extracts information present in the stimulation itself. Gibson views the problem of perception, in a sense, as the overabundance of information contained in the stimulation reaching the organism, and the mechanism of learning is believed to be the selection through filtering and abstraction. Gibson views perception as an active, adaptive, self-regulating process. Perceiving (like all behavior) is something the organism does, not something that just happens.

Processes of perceptual learning are thought to remain essentially the same throughout development, although certain age and sex trends are hypothesized. Gibson's original analysis of perceptual learning replaces the associationist, passive view of the person and

assumes interactive, self-regulating and internally motivated processes of learning. Supporting Gibson's theory are a number of recent studies concerned with the role of attention in perceptual development (Druker and Hagan, 1969; Gill, Newell and Herdtner, 1968; Lefcourt and Wine, 1969; Maccoby, 1969; Mondani and Tutko, 1969; and Trabasco and Bower, 1968).

In summary, Jeffrey (1969) argues that traditional learning theory with its emphasis on stimulus control has certain problems in accounting for early perceptual and cognitive development. He suggests that much early learning results from the child's unreinforced attention to certain aspects of the environment and that accounting for control of attention is a central problem for developmental psychology.

#### Locus of Control Studies

Consonant with Gibson's theory of perceptual learning and development is the construct Locus of Control. Originally designated by Rotter (1954) as a core part of his elaborated theory of social learning, Locus of Control implies that the potential for any behavior to occur is a function of a person's expectancy that that behavior will lead to positive reinforcement. Closely related to such concepts as competence (White, 1959), helplessness (Ansbacher and Ansbacher, 1956), hopelessness (Mowrer and Viek, 1948 and Richter, 1959), mastery and alienation, Locus of Control describes the degree to



which an individual thinks he is able to control the important events occurring during his life. In a particular situation, the person, while desiring an available goal, may believe that nothing he can do will be helpful in securing that goal for himself. The person may be described as lacking self-confidence, or in Adler's terminology, as suffering from inferiority feelings. In Rotter's theory, the control construct is considered a generalized expectancy, operating across a large number of situations, which relates to whether or not the individual possesses or lacks power over what happens to him. As a general principle, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control. External control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control.

Congruent with the major hypothesis of this study, the concept Locus of Control serves to unify several seemingly diverse areas of psychological activity and, consequently, theoretical orientations. It is hypothesized that certain antecedents as well as manifestations of perceptual learning and development follow a logical and predictable order when viewed within Rotter's social learning framework. Although Locus of Control is potentially reductionistic, present research continues to support its useful and parsimonious nature in a wide variety of situations (Abramowitz, 1969, Baron, 1969, Battle and Rotter, 1963,

Harrow, 1970; Hsieh, Shybut, and Lotsof, 1969; Lefcourt, 1966; Parsons, Schneider, and Hansen, 1970; Rotter, 1966; Smith, 1970; Williams and Nickels, 1969; and Williams and Vantress, 1969).

Lewis (1969) and Lewis and Goldberg (1968) have suggested that Locus of Control is a learned motive and has important consequences for subsequent cognitive development. In the early mother-infant interaction, the mother's reinforcement of her child's behavior develops within the infant a generalized expectancy that his behavior can affect his environment. The authors postulate that the lack of this expectation should reduce the infant's exploration of his environment. This lack of interest should prevent the infant from exploring his environment and enriching his set of experiences, expectations and schemata. Further, they suggest that sensory processing not only involves orientation toward stimulation or exploring the environment, but an active process of assimilating the information. Finally without this expectancy, the infant is unlikely to rehearse developing skills and structures as they unfold in their developmental sequences. Thus, new skills are lost and additive functions do not occur. This research is in harmony with Gibson's formulation regarding the active mechanisms inherent in the development of perception.

The investigations of Lewis and Goldberg are further supported by Gewirtz (1969); Heilburn and Waters (1968); Moss (1967); Rubenstein (1967); and Watson (1966, 1967).

Complementing this research on maternal behavior, Ainsworth's (1969) theoretical review of the mother-infant relationship has particular relevance to cognitive development as related to the child's development of a generalized expectancy of control of behavior. Lefcourt (1969) has investigated Locus of Control and attention deployment in experimental situations. Two experiments demonstrated attentional differences between "internal" and "external" subjects with internals appearing more vigilant and observant. The group differences increased as a function of degree of uncertainty introduced into the experimental situation and decreased when instructional cues made it clear that attention was the focus of the experimenter's interest. These results point to a more active exchange with the environment on the part of internals.

From the foregoing review of the literature, the following can now be stated:

1. Perceptual development and learning, highly dependent on the infant's exploration of his environment, is related to a generalized expectancy that his behavior can or cannot affect that environment; i.e., Locus of Control.

2. Locus of Control has its origins in early infancy, developing throughout the pre-school years as a result of a child's interaction with significant others and with his environment. It culminates in a life style which reflects generally either internally or externally

controlled behavior.

3. The development of Locus of Control is significantly influenced by socio-economic status.

4. Locus of Control may result in attentional differences.

5. Locus of Control influences motivation.

6. Compensation appears to be a crucial factor in overcoming actual or potential perceptual learning deficits. Further, while highly influenced by mental age, compensation appears more dependent on a time factor; i.e., the amount of time a child is allowed to spend in pursuit of an activity.

7. Perceptual learning and development is influenced from birth by interaction with the mother and the environment in general. This interaction, including subsequent child-rearing practices, may or may not foster perceptual curiosity and selective attention processes which allow for self-regulatory abstraction of specific and meaningful stimuli from the welter of stimulation available to the child.

#### Compensation and the Bender Gestalt Test

In view of Birch's previously cited research which suggests that compensation is a highly significant factor with regard to child development, specifically influencing perceptual learning and subsequent school performance, it is surprising that experimenters have not attempted to examine this variable and its influences in a systematic way.

Bibace's (1969) findings, which indicate a considerable range of achievement among learning disability children, tend to support the notion that compensation is an important influence in learning.

From her observations of brain-injured children using the Bender Gestalt Test, Koppitz (1964) concludes that the ability to learn to compensate for perceptual deficits is available if conditions are favorable. Koppitz states that "compensating for problems in visual-motor perception means that a child learns to overcome or to adapt to his difficulty in such a way that it no longer seriously interferes with his functioning . . . if he has sufficient intelligence and motivation for learning he will try to overcome his difficulty (p. 84)."

Koppitz cites the following types of behavior observed in brain-injured children who were trying to compensate for difficulties in visual-motor perception:

- (a) Excessive amount of time required to complete Bender Test.
- (b) Tracing of design with finger before drawing it.
- (c) "Anchoring" design with finger; i.e., placing finger on each portion of design on the stimulus card as it is drawn.
- (d) Glancing once briefly at picture of design and then remove card from sight and working entirely from memory, as though the presence of the stimulus card were confusing.
- (e) Rotation of stimulus card and of drawing paper and then copying design in rotated position but turning paper back to correct position after the drawing has been completed.
- (f) Checking and re-checking of dots and circles several times and still being uncertain about the correct number involved.

- (g) Impulsive, hasty drawings which are spontaneously erased and then corrected with much effort.
- (h) Expressed dissatisfaction with poorly executed drawings and repeated efforts to correct these which may or may not be successful.

All of these behaviors are found among brain-injured children, but not all brain-injured children show any or all of these actions. Behavior types (b), (c), (d), and (e) have been observed exclusively among children with neurological impairment and reflect attempts at compensating for perceptual difficulty. Behavior types (a), (f), (g), and (h) are similar to those also found in perfectionistic or compulsive non-brain-injured children and reflect an emotional attitude which is not found exclusively in brain-injured children.

Implicit in Koppitz's observation of the child's compensatory behaviors as an integral part of evaluating performance on the Bender is the assumption that a motivational factor is operating which may imply the degree to which the child believes that his actions will affect the outcome of the test; i.e., Locus of Control.

In summary, Bialer (1961) indicates that the maturing child, falling at least within the normal range of intelligence and thereby possessing the capacity to become aware of the potential influence of his actions in success-failure situations, may strive to overcome failure if given the opportunity.

### Summary of Research Formulations

Rooted in the mother-infant relationship, Locus of Control reflects a generalized expectancy of environmental effectance, and interacts with socio-economic status to influence subsequent perceptual learning and development and, ultimately, achievement motivation. The development of an optimal level of internally controlled behavior may be explained in terms of the active concept of feedback. Feedback, while similar to contingency of reinforcement, is an active concept by comparison, covering the case in which the child is actively testing out a behavior to see what the consequences may be. When the infant, in testing out an action, achieves the consequence he is seeking, he has a "feeling of efficacy" and "competence" (White, 1959). An accumulation of feelings of efficacy forms the basis of his "sense of competence" or an internal Locus of Control which reflects a child's growing belief that he can favorably affect his environment. The quality of perceptual learning and development is influenced by environmental stimulation of the child's curiosity, and subsequently he develops more adaptive selective attention.

Although the seeds for internal or external control have been sown in the early home environment, school appears to be a potential turning point for the child, at least in the area of academic achievement. The teacher has the child for approximately seven hours, five days a week, making a considerably more concentrated effort than

did the parents to focus awareness on specific stimuli. Such focusing fosters contingency behavior and the operation of a feedback mechanism. This difference between school and home environments may lend further support to the hypothesis that Locus of Control may be situation-specific, rather than a general personality trait.

Although no experimental evidence is available, there is a consensus among authors that compensation appears to be the crucial determinant in the child's struggle with perceptual deficits arising either from birth or from his subsequent interaction with the environment, or both. Therefore, this research will examine the relationship between Locus of Control and compensation in a visual-perceptual-motor achievement situation.



## CHAPTER II

### PILOT STUDY AND STATEMENT OF THE PROBLEM

In Chapter I, the possibility was explored that perceptual learning and subsequent achievement are highly influenced by a child's perceived Locus of Control. Assuming that the use of compensatory behaviors reflects a child's motivation to achieve and is one indication of his belief that he can affect his environment, i.e., internal control, this study investigated the compensatory behavior and visual-perceptual-motor performance occurring during the administration of the Bender Gestalt Test of internally and externally controlled lower-middle class third grade boys within the Normal Range of intellectual development (90-110).

#### Pilot Study

Preceding this research, a pilot study was conducted in line with some of the previously mentioned formulations. This study was done to familiarize the experimenter with any problems that might arise in attempting to obtain data on a larger scale and to test tentatively the relationship between the use of compensatory behavior on the Bender and Locus of Control.

Third grade children from regular and learning disabilities classrooms were selected randomly from within the 90-110 I.Q. range. In addition, sixth grade subjects with I.Q.'s ranging from 145-160 were included in a separate group in order to investigate the influence of mental age on the original hypothesis. However, as research indicates that Locus of Control becomes increasingly more internal with age, this group cannot be considered comparable with the third grade group due to the confounding of variables.

With nine subjects per group, each subject was administered individually the Bender Gestalt Test followed immediately by the Intellectual Achievement Responsibility Questionnaire (IAR), a test measuring Locus of Control in a classroom setting. Compensatory behaviors were recorded by the examiner; however, only those behaviors noted by Koppitz were included in the analysis of the data. A Spearman's rho for rank order correlation was computed for each group to test hypotheses 1 and 2, and Student's t tests were performed to test hypotheses 3 and 4.

1. There is a significant correlation between Locus of Control and compensatory behavior in an achievement situation.
2. There is a significant correlation between Locus of Control and performance on the Bender, i.e., the K score.
3. The Learning Disability group will employ fewer compensatory behaviors than the Normal group.
4. The Learning Disability group will be more externally controlled as measured by the IAR than the Normal group.

The results of the pilot study (See Appendix II for Raw Data) indicated a significant relationship between compensatory behavior and Locus of Control in both the Normal and Learning Disability groups ( $\rho = .541$ ,  $p < .05$ ;  $\rho = .971$ ,  $p < .01$ ). In addition, the Learning Disability group evidenced significantly fewer compensatory behaviors than the Normal group ( $t = 3.1$ ,  $df = 8$ ,  $p < .05$ ) as well as being significantly more externally controlled as measured by the IAR ( $t = 3.3$ ,  $df = 8$ ,  $p < .05$ ). Further, the results of the pilot study indicate no significant relationship between Locus of Control and the K score of the Bender in either the Normal or the Learning Disability group. Thus it appears that the dimension of Locus of Control is not related to a child's capacity to reproduce the Bender designs. In summary, the investigator accepted hypotheses 1, 3, and 4 and rejected hypothesis 2.

Because the learning disability population was comprised of children evidencing heterogeneous perceptual problems of varying etiologies, it was assumed that using a test of visual-motor perception to measure compensation would be confounding in this population. However, the results of this study indicated that with I.Q. held constant, children with perceptual deficits severe enough to warrant special classroom remediation do not compensate in an achievement situation comparably to children in the regular classroom. In addition, learning disability children are characterized by a significantly greater

degree of external control of achievement behavior than are children in the regular classroom.

As a result of the pilot study, it was decided to continue this research using a population of children in the regular classroom falling within the average range of intelligence (I.Q.'s 90-110). This decision was based in large part on the unavailability of a specified learning disabilities classroom population. Further, a review of the pertinent literature indicates that a child's socio-economic status appears to be an important determinant of Locus of Control. This variable was not included in the pilot study.

However, it was not possible for the investigator to collect the data in a school system which served clear-cut socio-economic groups; i.e., middle class, lower class. Because of these inherent population restrictions and because no controlled studies on compensation are presently reported in the literature, the investigator decided that it would be important to first examine correlates of compensatory behavior in a normal population, i.e., children with no recognized perceptual difficulties, before proceeding with the investigation of the learning disability child.

Hypothesis 1: Because of their belief that they are not active agents in the world and that they cannot positively affect their environment to any significant degree, externally controlled children would evidence fewer compensatory behaviors on the Bender Gestalt Test

than internally controlled children.

Hypothesis 2: Due to a history of passive interchange with the environment which seems to foster maladaptive attention and deficient visual-motor perceptual skills, externally controlled children will evidence poorer Bender reproductions than internally controlled children.

Hypothesis 3: Although it seems possible that a child's perceived Locus of Control under certain conditions may vary, i.e., function as a state variable, it is more likely to be a generalized personality characteristic, i.e., a trait variable. Consequently, the three scores of the Intellectual Achievement Responsibility Questionnaire would correlate with the scores of the Children's Locus of Control Scale. There is a relationship between a child's perceived Locus of Control and his willingness to assume responsibility for his academic successes.

Hypothesis 4: There is a relationship between a child's perceived Locus of Control and his willingness to assume responsibility for his academic failures.

Hypothesis 5: There is a relationship between a child's perceived Locus of Control and his willingness to assume responsibility for his over-all intellectual achievement.

## CHAPTER III

### METHOD

This chapter describes the instruments used in the present investigation as well as the relevant methodological procedures necessary for the execution of this research.

#### Subjects

The subjects (Ss) used in the present investigation were 46 male white children attending the third grade in the Moore Public School system, Moore, Oklahoma. Originally all third grade boys from Plaza Elementary and Southgate Elementary falling within the Normal range of intellectual development (I.Q.'s ranging from 90-110) were administered a 23 item Locus of Control scale, (Bialer, 1961). From the results of this test, which ranges in scores from 0-23, two groups were formed: an Internal Locus of Control group (ILC) consisting of those boys scoring high (15-21) on the screening scale and an External Locus of Control group (ELC) consisting of those boys scoring low (4-11) on the scale. Those boys who scored 12-14 (approximately 50% of those tested) were eliminated from the study.

The two schools employed in the study are attended by children

from lower middle class homes. Although there appeared to be little difference in the socio-economic status of the families, school officials consider those in the Plaza Elementary area to represent a higher earning capacity than those in the Southgate area.

Characteristics of the group as a whole are indicated in Table I. The intelligence quotient (I.Q.) scores were taken from available school records and reflect the Lorge-Thorndike test results.

TABLE I

Characteristics of the Subject Sample

External Locus of Control Group		
	Mean	Range
CA	8yrs-9mos	10yrs-1mo to 8yrs-3mos
MA	8yrs-10mos	10yrs-2mos to 8yrs-2mos
IQ (Lorge-Thorndike)	97.35	91-113
Internal Locus of Control Group		
	Mean	Range
CA	8yrs-10mos	10yrs-1mo to 8yrs-4mos
MA	8yrs-9mos	9yrs-8mos to 7yrs-7mos
IQ (Lorge-Thorndike)	99.27	92-107

## Description of the Instruments

### Bender

The Bender consists of nine geometric figures which are presented one at a time to the subject who is asked to copy the figure on a blank piece of paper. In adapting these designs into a test of visual-motor perception, Bender (1938, p. 5) stated that the perception and the reproduction of the Gestalt figures were determined by biological principles of sensory motor action and vary depending on (a) the growth pattern and maturation level of an individual and (b) his pathological state either functionally or organically induced. Although Bender did not provide an objective scoring system for the test, that system most widely in use at present is the Developmental Scoring System (DSS) developed by Koppitz (1964). From this system evidence regarding the individual's perceptual maturity, neurological involvement, emotional adjustment and compensatory ability may be derived; however, the actual score rendered is referred to as the K score and represents the number of errors in drawing made by the individual. The lower the K score, the better is the individual able to reproduce the designs with acceptable accuracy. The K score may then be used to determine the individual's visual-motor perceptual age which in turn may be compared to his chronological age. The children employed in the original standardization sample of this test ranged in age from five years



to ten years and 11 months. At the ceiling age, the mean K score is 1.5 with a standard deviation of 2.10. The mean score of the standardization sample for the third grade (the grade used in the present study) is 2.2 with a standard deviation of 2.03. This latter score is slightly lower than the means for eight-year-old in the standardization sample which were 3.60 and 3.03.

According to research by Koppitz, eight years is the first level age for all errors indicative of neurological involvement, so that some errors in reproduction of the Bender designs suggest organicity at all ages, whereas other mistakes should not be considered significant until age eight.

Koppitz (1964) reported reliability on the DSS regarding scorer and test score reliability. Pearson product-moment correlations were computed between the test scores of five raters. All correlations were statistically highly significant and ranged from .88 to .96.

In addition, the test-retest method was employed with the time interval of four months considered short enough to minimize maturational factors and yet long enough to evade the practice effect. Kendall's rank correlation co-efficient was used to compute the reliability coefficient between the scores of the first and second administration of the Bender. All correlations were found to be statistically significant at the .001 level ( $Tau = .597$  to  $.646$ ), indicating that the DSS is reliable and can be used with considerable confidence.

IAR

The Intellectual Achievement Responsibility (IAR) Questionnaire is composed of 34 forced-choice items designed to assess children's beliefs regarding their control of the academic achievement situation. The test is designed to measure whether a child believes his efforts affect the outcome of his classroom successes or failure, i.e. internal control, or whether his efforts make little difference, his successes and failures determined by teachers, parents, luck, chance, i.e. external control. The items represent common intellectual and academic achievement situations which children experience daily in the classroom. Half of these items refer to negative experiences and half reflect positive experiences. The scale is scored in the internal direction and yields three scores; the frequency with which the child endorses the belief that his own behavior is responsible for positive outcomes (+), the frequency with which he assumes responsibility for negative outcomes (-), and the sum of these two scores (total index). The two subscales resulted from the hypothesis that self-responsibility for successes and failures may be learned separately and at different rates, so that at certain ages a child may take more responsibility for failures than for successes and vice-versa. The independence of the + and - subscales has been demonstrated effectively by several researchers (Buck and Austrin, 1970; Crandall, et. al., 1965; Meyer, 1967; Solomon and Yeager, 1968; and Weiner and Kukla, 1970).

The IAR differs from related scales of internal-external control in limiting the source of external control to those persons who most often come in face-to-face contact with the child, i.e. parents, teachers, peers, rather than luck, fate, or chance.

Crandall, et.al., (1965) developed this questionnaire to represent only the area of achievement reinforcement responsibility for two major reasons:

1. There is no information yet available to determine whether children have any generality in their belief in the power of various kinds of external forces.
2. Developmentally, it is important to examine the growth of children's beliefs in the instrumentality of their own actions. Thus, with increasing age, children in general should begin to gradually move from dependence on caretakers (external control) toward increasing independence from caretakers (internal control).

The reliability of the IAR has been measured by the test-retest method. Crandall, et.al., (1965), reported that the consistency of children's IAR responses over time is moderately high. Test-retest correlations were .69 for total index, .66 for + and .74 for -. These correlations were all significant at the .001 level.

Because the IAR contains two kinds of items, positive and negative events reflecting self-responsibility, split-half reliabilities

were computed separately for the two subscales. For a random sample of 130 of the younger children used in the study, the correlation was .54 for + and .57 for - after correction with the Spearman-Brown Prophecy Formula. For a similar random sample of the older children, the correlations were .60 for both the + and the - subscales, indicating that in spite of the brevity of the subscales (which would tend to preclude high split-half reliabilities) the items within each subscale are somewhat heterogeneous.

Scores on the IAR have been found to be related to parental behaviors such as maternal permissiveness and early independence training (Katkovsky, Crandall & Good, 1967); background variables such as size of family and ordinal position (Crandall, et.al., 1965); intermediate visual perceptual skills which might be related to academic achievement (Crandall & Lacey, 1972); and most important for the construct validity of the scale, to intellectual striving and achievement (Crandall, Katkovsky & Preston, 1962; McGhee & Crandall, 1968; Messer, 1972).

#### Locus of Control Scale

The Locus of Control scale developed by Bialer (1961) and Cromwell (1963) was designed for use with children and retardates. The scale consists of 23 yes-no questions which yield a score indicating the degree to which children perceive that events are determined by their own behavior rather than fate, luck, or external forces. The

scale is scored in terms of the total number of responses in the direction of internal control.

Self-responsibility as measured by the Locus of Control scale has been found to correlate moderately, but positively with chronological age and to an even greater degree with mental age (Bialer, 1961). Battle & Rotter (1963) found internality on the Locus of Control scale positively associated with social class and with fewer unusual shifts of expectancy statements on a Level of Aspiration task. In this same study internal responsibility beliefs reflected in responses to the Locus of Control scale were positively associated with socioeconomic status and were stronger in white than in black children. Test-retest reliability of the Locus of Control scale over a two-month interval using 30 retarded subjects has been found to be .73 (McConnell, 1962a).

### Design

The experimental design was basically a one-way Analysis of Variance. The independent variable, Locus of Control, was determined by using the high (Internal) and low (External) scoring groups on a test measuring Locus of Control in children (Bialer, 1961). Sex, age, I. Q. and SES variables were included in the design by using only third grade boys from two lower-middle class schools who had recently achieved I. Q. scores falling within the Normal range of

intellectual development (90-110). Each S was tested individually on the Bender and the IAR. Dependent variables for the study were the number of errors on the Bender (K score) and the number of compensatory behaviors on the Bender (C score). The scores of the IAR were not considered dependent variables, but examined separately for additional information regarding the relationship between Locus of Control as a general personality variable and as a situational variable. Regarding the K score, the range of possible scores is 0-30 (DSS).

The range of K scores observed in this investigation was 0-8. No scoring system has yet been devised for the interpretation of the C score. Further, the number of compensatory behaviors which may be evidenced in any one administration of the Bender will be highly specific to the individual child. Consequently, the possible range of the C score in this study was 0 to infinity. The actual range observed was 1-35.

In order to determine the separate effects of Locus of Control on compensation and visual-perceptual-motor performance, two separate one-way Analyses of Variances were computed on each of the two dependent variables. In addition, Pearson product moment correlations were computed between the scores of the Children's Locus of Control scale and each of the three scores of the IAR.

### Task and Procedure

Originally, all third grade boys falling within the 90–110 I.Q. range from both schools were administered the Children's Locus of Control scale. The two groups to be used in the study were formed by taking the top 25% of these original scores (ILC group) and the bottom 25% of the scores (ELC group). These two groups were then tested, first on the Bender, followed by the IAR, by two female examiners experienced in working with children and in the use of the instruments.

The investigator administered the tests to the Ss at Southgate Elementary. The other examiner, who was naive as to the purpose of the investigation, administered the tests to the Ss at Plaza Elementary. Student's t tests were performed on all the scores of the two schools in order to determine any bias effects inherent in the investigator's participation as an examiner. There were no significant differences between the means of the two schools on either of the two dependent variables ( $t = 1.25$ ;  $t = 1.8$ ,  $df = 45$ ). The two tests were administered to each child individually in a private testing room with total testing time of approximately 20 minutes per child. The testing of all Ss was accomplished during a three-week period of non-consecutive testing.

The Bender was administered to all Ss individually using the standard administration procedure set forth by Koppitz (1964). The

examiner placed a #2 pencil with an eraser and an 8" x 11" piece of white unlined paper before the S. Other paper was placed to one side to be used if the S chose to do so.

Instructions were given to the S in the following manner:

I have nine cards here with designs on them for you to copy. Here is the first one. Now go ahead and make one just like it (Koppitz, 1964, p. 15).

In order to account as much as possible for the subjectivity inherent in the Koppitz (1964) system of scoring this test, the Bender protocols were scored by the original examiner, and two other qualified psychologists (See Appendix III for qualifications). The average of these three scores was used in the study (See Appendix IV for all Bender scores). The scorer reliability for the Bender was .811.

The first Bender card was placed at the top of the blank page in front of the S. After the S finished the first card, the remaining cards were presented one at a time in orderly sequence until all designs had been reproduced. There was no time limit for the test; however, a stop watch was placed in full view of the S and used to record the exact time S took to complete the test. Any inquiries regarding the designs were answered as follows:

"Make it look as much like the picture on the card as you can" (Koppitz, 1964, p. 15).

During the administration of the Bender, the examiner faithfully recorded the behaviors of the S; however, only those cited by Koppitz (1964, p. 15) as compensatory in nature were included in the study.



The final Compensation (C) score used in the analysis represented the actual number of compensatory behaviors during each administration of the Bender. Some of these behaviors were repeatedly used by the S, so that regardless of the number of times a behavior occurred, it was counted separately. For example, if S erased five times in attempting to draw one design, he received five points toward his total compensation score.

The IAR was administered individually to each S on completion of the Bender. The instructions for this test were read aloud to the S by the examiner who attempted as much as possible to use a monotone voice in order to exclude any bias which might be inherent in various vocal inflections. S had his own copy of the test and was able to follow the instructions as the examiner read, providing both visual and auditory channels and maximizing the efficiency of Ss understanding.

After hearing the question read, S was instructed to mark his response on the appropriate line. Instructions for the IAR were given to the S as follows:

This is not a test. These are some questions to find out how you feel about certain things. Some kids feel one way and some kids feel the other way. Listen carefully as I read the question and mark an x on either the A line or the B line depending on which way you feel. If you want me to repeat a question just ask me. Do you understand? O.K. Listen carefully while I read the question.

## CHAPTER IV

### RESULTS

Forty-six third grade boys from the Moore Public School System, ranging in I.Q.'s from 92-113 were divided into two groups according to Internal Locus of Control (N=23) or External Locus of Control (N=23). Each group was given the Bender Gestalt Test and the Intellectual Achievement Responsibility Questionnaire.

The test data resulting from the Bender were first visually inspected for homogeneity of variance with both variables (Koppitz score and compensation score) appearing readily to meet this assumption; however, a Cochran test (Winer, 1962) was implemented in order to confirm that the data met the criterion of homogeneity of variance.

#### Evaluation of Compensatory Behavior on the Bender Gestalt Test: Hypothesis 1

Koppitz (1964) cites eight types of behavior observed in children who were attempting to compensate for difficulties in visual-motor perception. As no coded or systematic manner of scoring these behaviors has yet been developed, the examiners recorded all behaviors observed. For purposes of examining the data, the investigator

made a frequency count of the behaviors each time they appeared during administration of the Bender. The dependent variable for hypothesis 1 was the actual number of observed compensatory behaviors, regardless of the number of times a specific behavior occurred. Consequently, the larger the number, the more a child appeared to be compensating for visual-motor perceptual problems.

Hypothesis 1 stated that because of their belief that they are not active agents in the world and that they cannot positively affect their environment to any significant degree, externally controlled children would evidence fewer compensatory behaviors on the Bender Gestalt Test than internally controlled children. An analysis of the variance indicates that there is no significant difference between the two groups ( $F = .722$ ,  $df = 45$ , see Tables 2 and 3). The experimenter concluded that no significant difference exists between the means of the groups and thus hypothesis 1 was rejected.

TABLE 2

MEANS AND STANDARD DEVIATIONS OF THE  
COMPENSATION SCORES FOR THE INTERNAL  
AND EXTERNAL LOCUS OF CONTROL GROUPS

Group		Mean	Standard Deviation
ILC	N=23	10.3043	6.4635
ELC	N=23	8.6956	5.9376

TABLE 3

ANALYSIS OF VARIANCE OF COMPENSATION SCORES  
ACHIEVED ON THE BENDER GESTALT TEST BY  
INTERNAL AND EXTERNAL LOCUS OF CONTROL GROUPS

Source	df	ss	MS	F	P
Between	1	29.7	29.2	.722	NS
Within	44	1771.8	40.3		
Total	45	1801.5			

Evaluation of Koppitz Developmental Scores on the Bender  
Gestalt Test: Hypothesis 2

The Koppitz (K) developmental scores were used to assess whether or not a difference exists between the visual-motor perceptual performance of the External and Internal Locus of Control groups. The dependent variable is the number of errors on the Bender. Consequently, a higher level of functioning results in a lower error score, with a possible range of 0-30.

Hypothesis 2 stated that due to a history of passive interchange with the environment which seems to foster maladaptive attention and deficient visual-motor perceptual skills, externally controlled children will evidence poorer Bender reproductions than internally controlled children. A one-way ANOVA of the Bender K scores indicates that no significant difference exists between Internal and External Locus of Control groups in the area of visual-motor perceptual performance

and hypothesis 2 was rejected.

TABLE 4

MEANS AND STANDARD DEVIATIONS OF THE  
BENDER SCORES (K) FOR THE INTERNAL AND  
EXTERNAL LOCUS OF CONTROL GROUPS

Group		Mean	Standard Deviation
ILC	N=23	3.3478	1.4328
ELC	N=23	3.2174	2.1255

TABLE 5

ANALYSIS OF VARIANCE OF KOPPITZ DEVELOPMENTAL  
SCORES ACHIEVED ON THE BENDER GESTALT TEST BY  
INTERNAL AND EXTERNAL LOCUS OF CONTROL GROUPS

Source	df	ss	MS	F	P
Between	1	.7	.7	.603	NS
Within	44	51.1	1.16		
Total	45	51.8			

Evaluation of the Relationship Between the Scores of the Children's  
Locus of Control Scale and Those of the Intellectual Achievement  
Responsibility Questionnaire (IAR): Hypotheses 3, 4, & 5

Hypotheses 3, 4, and 5 stated that a child's perceived Locus of Control is likely to be a generalized personality characteristic (trait variable) manifesting in a variety of situations. Consequently, the

scores of the IAR would correlate positively with the scores of the Children's LC Scale. Hypotheses 3, 4, and 5 were tested by combining the scores of both the internal and external Locus of Control groups as determined by the Children's LC Scale and computing Pearson product-moment correlations between those scores and those achieved on the IAR. The IAR yields three separate scores:

(1) A + score which indicates the degree to which a child assumes responsibility for his academic success.

(2) A - score which indicates the degree to which a child assumes responsibility for his academic failures.

(3) A Total index score which indicates over-all the degree to which a child assumes responsibility for his intellectual achievement.

Three separate correlations were computed to determine the specific relationships between these two measures (see Appendix I for Tables 6, 7, and 8).

The Pearson product-moment correlation between the scores of the Children's LC Scale and the + scores of the IAR was not significant ( $r = -.057$ ), indicating that no significant relationship exists between a child's perceived Locus of Control and his willingness to assume responsibility for his academic successes. Thus, hypothesis 3 was rejected.

Regarding the relationship between the scores of the Children's LC Scale and the  $\alpha$  scores of the IAR, a significant correlation was obtained ( $r = .28$   $p < .05$ ), indicating that children who perceive themselves to be internally controlled in an achievement situation are more apt to assume responsibility for their academic failures. On the basis of these results, hypothesis 4 was accepted.

The scores of the Children's LC Scale when correlated with the Total index scores of the IAR approached, but were not significant at the  $p < .05$  level ( $r = .24$ ,  $p < .10$ ,  $> .05$ ), indicating a near, but non-significant relationship between a child's perceived Locus of Control and his over-all willingness to assume responsibility for his academic achievement. Thus hypothesis 5 was rejected at the  $p < .05$  level.

Evaluation of the Differences Between the Bender Gestalt Test  
Performances (K & C Scores) of the Plaza and Southgate  
Elementary School Children

Because the investigator had participated in the study as one of the examiners, Student's  $t$  tests were performed on the scores from the two schools involved in order to determine whether or not any experimenter effects were operating. In addition, it had not been possible completely to control the socio-economic status of the subjects in the design of the study. As there appeared to be a slight difference between the incomes of those families with children enrolled at Southgate Elementary and those at Plaza Elementary,  $t$  tests would also determine if this factor were significantly affecting the results.

The  $t$  value obtained regarding the compensation scores indicated that there was no significant difference between the Plaza group and the Southgate group in the use of compensatory behavior on the Bender ( $t = 1.25$ ,  $df = 45$ ;  $t_{.05} = 2.068$ ). Means and standard deviations for the compensation scores are expressed in Table 9.

The  $t$  value obtained regarding the Koppitz developmental scores indicated that no significant difference exists between the Bender performance of the children from Southgate and those from Plaza ( $t = 1.8$ ;  $df = 45$ ;  $t_{.05} = 2.068$ ). Means and standard deviations for the K scores are presented in Table 10.

TABLE 9

MEANS AND STANDARD DEVIATIONS OF THE BENDER  
COMPENSATION SCORES FOR THE PLAZA AND  
SOUTHGATE ELEMENTARY GROUPS

Group		Mean	Standard Deviation
Plaza	N=22	11.3636	16.6229
Southgate	N=24	7.7917	4.0929

TABLE 10

MEANS AND STANDARD DEVIATIONS OF THE KOPPITZ  
DEVELOPMENTAL SCORES ON THE BENDER FOR THE  
PLAZA AND SOUTHGATE ELEMENTARY GROUPS

Group		Mean	Standard Deviation
Plaza	N=22	3.7727	1.6556
Southgate	N=24	2.8333	1.8409



### Summary of Results

Five hypotheses were tested in this study. The first two were tested using a one-way ANOVA. The last three hypotheses were tested by computing Pearson product-moment correlations. In addition to the stated hypotheses, Student's  $t$  was used to examine the possible differences between the two schools and examiners.

The results of testing these five hypotheses are given in the following statements:

1. There is no significant difference between the compensatory behavior scores of externally controlled third grade boys within the normal I.Q. range and internally controlled third grade boys within the normal I.Q. range.
2. There is no significant difference between the Koppitz Developmental scores of externally controlled third grade boys within the normal I.Q. range and internally controlled third grade boys within the normal I.Q. range.
3. There is no significant relationship between the scores of the Children's LC Scale and the + scores of the IAR.
4. There is a weak but significant relationship between the scores of the Children's LC Scale and the - scores of the IAR ( $r = .28, p < .05$ ).
5. There is a relationship which approaches the .05 level of significance between the scores of the Children's LC Scale and the

Total index scores of the IAR ( $p < .10$ ).

It was necessary for the investigator to reject hypotheses 1, 2, and 3 concluding that compensatory behavior and visual-motor perceptual performance do not vary significantly between external and internal Locus of Control groups, and that no significant relationship exists between the general personality characteristic of perceived Locus of Control and a student's willingness to assume responsibility for his academic successes.

The investigator was able to accept hypotheses 4 and 5, concluding that the general personality characteristic of perceived Locus of Control is positively related to a student's willingness to assume responsibility for his academic failures, and that overall, there is a positive relationship between Internal-External Locus of Control and responsibility for intellectual achievement.

## CHAPTER V

### DISCUSSION

The present study had three aims:

(1) to study the compensatory behavior of children with Locus of Control perceived as either internal or external.

(2) to study the visual-motor-perceptual performance of children with Locus of Control perceived as either internal or external.

(3) to examine the relationship between the Children's LC Scale and the IAR.

The investigator had hypothesized that a student's willingness to use compensatory behavior on the Bender Gestalt Test would be one indication that he viewed himself capable of affecting his performance in a positive manner. Thus, a child who perceives himself to be internally controlled would be more likely to make additional efforts to enhance the quality of his work.

The results of this study do not support this assumption. Several explanations can be offered which may account for the lack of significance in the data.

Admittedly, the Children's LC Scale is a rough screening instrument in the determination of the original groups which were measured. Some of the questions on this scale are prone to tempt the child to look good or to be seen as he would like to be seen. In addition, it is often difficult for a young child to assess himself in a realistic manner, and the particular age group used in this study, developmentally, is susceptible to responding in a manner acceptable to authority figures, without first regard for his own desires and feelings.

Eight-year-old children are beginning to attempt mastery of the world on a much larger scale than at previous ages; hence, when asked such questions as "Do you believe a kid can be anything he wants to be when he grows up?", a young boy is likely to answer yes, in his effort to identify with current super heroes. Such identification is developmentally quite appropriate, but not necessarily indicative of perceived Locus of Control, either internal or external.

It has become evident to the investigator that with the exceptions of its relationship to clear-cut variables, i.e. mental age, chronological age, socio-economic status, and ethnic groups, the paper and pencil measurement of Locus of Control in children will need to be reconsidered. A great deal is now known about the various personality characteristics associated with Locus of Control. Future research which will eventually supply a more appropriate test of

Locus of Control must be concerned with the theoretical underpinnings of infant and early childhood development. Questions must be constructed which will subtly tap a child's capacity for object constancy, mental representation, differentiation of self from the environment, the active-passive dimension of behavior, and the entire process of the separation-individuation phase of development.

Much research has already been done in these areas (Ainsworth, 1969, Burnham, Gladstone and Gibson, 1969, Escalona, 1963, Freud, 1965, McDevitt and Settlage, 1971, Mahler, 1963, 1968, Winnicott, 1971). It remains for the student of child behavior to utilize this research toward the construction of a more valid and reliable measure of Locus of Control in children. More valid groups on which to measure compensatory behavior from the Bender Gestalt Test appears to be the most likely means of validating the experimenter's original hypothesis.

However, a child's motivation for achieving appears to be quite complicated and variable. Some children succeed because they believe they have to, whereas some children succeed because they want to. In either case performance is likely to be somewhat inconsistent and fluctuate from time to time. Thus, the use or lack of compensatory behavior on the Bender may reflect an externally controlled child's effort to please an authority figure, or an internally controlled child's fleeting unwillingness to perfect his work simply

because at that moment he is uninterested or not afraid of authority consequences. Although the latter instance would manifest as negative behavior and the former as desirable, the underlying motivational structure, while not readily perceivable, might be just the opposite over time. This inference is supported in the results of this study when the two types of variance are examined. Although there was no significant difference between the total variances of the two groups, the magnitude of the Within group variance was quite high.

There is a significant variation in the use of compensatory behavior within each of the sampling populations; however, other variables than those included in the design of the study are operating. As the experimenter worked with a quite restricted range of children, it is not readily apparent which factor is operating to produce so much variance within each of the two groups. One possible factor is the effect of the individual teacher, which in turn would directly relate to the factor this experimenter now considers to be the most crucial (apart from innate ability) in assessing the differences arising in a child's use of compensatory behavior: the mother-child relationship.

For example, Deschner (1972) describes maternal behaviors which appear to have the most positive effect on a child's competence behaviors: emotional availability and non-intrusiveness. These results suggest that for the optimal development of feelings of competence at certain stages of development, the child must have a

mother who is able to transmit warmth and approval while remaining on the periphery of his physical and emotional life space. In this setting with the mother serving as a positively supporting, yet non-interfering backdrop, the drama of the child's unfolding self may become apparent to both. It is in this type of atmosphere that a child may best realize that his active behavior has consequences for which he alone is responsible, i.e., the development of true internal Locus of Control. The factors which militate against such an optimal environment are quite numerous, but if the convergence of unfortunate factors is not too great, many children in their resilience over time manage to attain some degree of feelings of efficacy in a number of areas.

It seems likely that the significant results achieved in the pilot study between the compensatory behavior of the normal and learning disability groups reflects the consequences of overwhelming environmental stress and innate weaknesses which restrict the energy available to a child for compensation, regardless of his Locus of Control. The task appears insurmountable, and thus the child in despair simply gives up.

The foregoing discussion of the results of the data regarding hypothesis 1 is also relevant to the results of hypothesis 2. While the between groups variation of the Bender performance was not significant, the variation within groups was quite high, with the most

variation occurring in the External Locus of Control group. Again, the restricted range of the sample population operates against a display of a significant difference between the two groups. With the exception of 11 boys, all subjects were within at least one standard deviation of the mean of the standardization sample for their chronological age.

In most area school systems, by the time a child has reached the third grade, any developmental lags severe enough to impede learning within normal limits have come to the attention of teachers and remediation or special classroom placement implemented. Thus, the possibility of large discrepancies in visual-motor perceptual performance within children in the regular classroom regardless of their personality characteristics is quite slight.

However, in keeping with the original purpose of this study, i.e. to examine a normal population before proceeding to those deviant in perceptual development, the examiner chose to disregard this factor temporarily.

Current research in infant and early childhood development continues to support Gibson's theoretical conclusions regarding the development of perceptual learning. Broadening the definition of a child's early environment to include specifically the interaction between mother and child, studies are supporting the facilitating and/or debilitating effects of maternal behavior regarding the child's



development of focused attention, contingency behavior and feedback influences, all necessary for adequate visual-motor perceptual skill. It is interesting to note, regarding autism, the extent to which a child may view his mother's presence as debilitating. In autistic cases, a child appears to withdraw completely from the world of object relatedness, interacting only with the neutral, impersonal world. Perception and cognition do develop under such austere conditions, but in a manner which is distorted and uncondusive to progressive and satisfying growth. For full development, the child must have free access to both the interpersonal and the impersonal worlds. Normal perception and cognition appear to develop only within the context of a relationship with another human being, ideally one who is viewed by the child as consistently supportive and non-intrusive.

With regard to hypotheses 3, 4, and 5, the experimenter was interested in the relationship between the performance of a child on the Children's LC Scale and the IAR. The first test purports to measure Locus of Control as a general personality characteristic, influencing a person's behavior in most situations, whereas the second test relates specifically to the manifestation of Locus of Control in academic achievement situations.

The results of these scores provide some support for the generalization that children who perceive themselves in general to be internally controlled more readily assume responsibility for their

intellectual achievement. The IAR yields three scores, one for academic success, one for academic failure and a total index of academic responsibility. It is interesting to note that Locus of Control is significantly related to the assumption of responsibility for one's academic failures, but not for academic successes. This discrepancy accounts for the fact that the relationship between the Children's LC Scale and the total index of the IAR was significant at  $p < .10$  but not  $p < .05$ .

These results indicate that the more internally controlled a child perceives himself to be, the more likely is he to assume responsibility for his academic failures. There appears to be no correlation between internal Locus of Control and the assumption of responsibility for academic success. These results appear to reflect the aforementioned development of the child's conscience. Developmentally, an eight-year-old child is concerned with the introjection of parental and societal values regarding honesty, (A. Freud, 1965). At this age, a child is much more likely to admit his mistakes in order to receive authority approval for his contrition. On the other hand, parents as well as other authority figures charged with the responsibility of inculcating desired behavioral constraints tend to de-emphasize the notion that one is also responsible for the success he achieves. As success-oriented as our society is, the norm of the "humble victory" still predominates and is highly valued. For a

latency age boy, bragging is considered taboo and to be certain to alienate him from peers; consequently, the tendency exists to discount one's academic success and to attribute such to luck, "the teacher liked me," or other fortuitous circumstances.

With these results in mind, the experimenter would like to stress again the importance of validity in the measurement of Locus of Control as a general personality characteristic. The Children's LC Scale does not seem adequate to the making of fine, consistent discriminations regarding this dimension of personality. Whether or not a more useful paper and pencil instrument could be devised is questionable, but certainly would be worth the effort involved.

In addition, future research might explore these hypotheses with regard to a child's socio-economic status, particularly as it interacts with ethnic group. Other populations of interest for future research in the area of Locus of Control are learning disabled and emotionally disturbed children.

A primary problem which will continue to hinder researchers in reaching definitive conclusions regarding Locus of Control is the phenomenological nature of the concept. Investigators who would attempt to measure overt, concrete behavior are continuously confronted with the transitory and often illusory nature of a person's internal perception of the world. One simply cannot speculate about another's phenomenological existence from the behavior he exhibits

with complete assurance that a cause and effect relationship is operating. One can only state what appears to be so.

The results of this study indicate that there is no significant difference in the compensatory behavior and visual-motor perceptual performance of eight and nine-year-old boys, falling within the normal I.Q. range, when viewed along the continuum of Locus of Control. It is anticipated that in future investigations, as the range of the population is widened, the differences will become more apparent.

Eventually the bridge may be narrowed between experimental and theoretical developmental psychology. At the present time, there is a wealth of experimental knowledge regarding Locus of Control and considerable theoretical material ordering a child's growth from conception to adulthood. As these two camps are able to join and complement each other with the knowledge that each has to offer, valuable insights may become available in an area of major and seemingly insoluble concern for educators, that of motivation.

## CHAPTER VI

### SUMMARY

Of universal and primary concern to educators is the achievement motive: how it is developed in children, and to what degree it is influenced by non-intellectual variables. A review of the literature revealed that Locus of Control may be related to several variables affecting a child's classroom performance, i. e., achievement motivation, feelings of detachment, selective attention, frustration tolerance and socio-economic status. After examining the results of this research, the experimenter hypothesized that compensation would be one manifestation of a child's level of motivation. In addition, the basic principle underlying compensatory behavior appeared directly related to the Locus of Control dimension, i. e., the conviction that one's efforts do make a difference. At the present time, no systematic research on Compensation has been reported in the literature.

Koppitz (1964) has stated that the provision of necessary time for classroom tasks is the single most important factor in aiding perceptually handicapped children in the struggle to function adequately

despite poor visual-motor perception, that the ability to compensate for impaired perception demands time.

It is possible that internally controlled behavior is discouraged by teachers who program their classrooms on a tight "fifteen minutes here, twenty minutes there" schedule, regardless of the individual needs of the child . . . after all, he can always stay in from recess and finish his work. This type of reinforcement is commonly used by teachers, and, while appearing more human and reasonable than corporal punishment, it may serve to foster a negative attitude in the child toward compensation specifically and learning in general. The teacher, viewed through the eyes of a child who may have been earnestly working within the range of present ability, becomes a powerful other, a formidable foe, exercising control over the all too brief and sorely needed moments of respite from the classroom. The cyclical nature of external control is perpetuated, insidiously eroding a child's achievement motivation until, prompted by a sense of alienation, he "withdraws" from the threat of classroom interaction, and occupies his desk in a physical sense only. Probably a more positive solution than withdrawal occurs with the adolescent's giving up altogether and dropping out of school.

This study was designed to examine the compensatory behavior and visual-motor perceptual performance of forty-six third grade boys in the Moore Public School System, falling within the normal

range of intellectual development, and grouped according to their perceived Locus of Control. Using a one-way ANOVA, no significant differences were observed between the two groups with regard to compensation and visual-motor perceptual performance; however, on this test, differences were significantly large within the two groups, indicating the influence of unknown factors. The specific mother-child relationship was hypothesized as the major unknown variable. A weak but significant relationship between a child's perceived Locus of Control and his willingness to assume responsibility for his academic failures was noted.

In conclusion, this investigation indicated that gross differences regarding the relationship between Locus of Control and compensation do not exist in a classroom comprised of children with intellectual abilities within the normal range. Future research may support the assumptions of this study in special education groups, particularly in the case of the learning disability child.

Should these hypotheses gain support, educators may be able to influence a child's level of motivation more directly by fostering awareness of contingency behavior and facilitating feedback mechanisms toward the end goal of optimal academic achievement. The pervasive feelings of alienation currently experienced by many adolescents and manifested in the rising school drop-out rate appear

to be primarily rooted in and perpetuated by existing educational practices which give scant hope to a large segment of students that they may indeed affect their own achievement behavior.



## REFERENCES

- Abramowitz, S. I. Locus of control and self-reported depression among college students. Psychological Reports, 1969, 25, 149-50.
- Ainsworth, M. D. S. Object relations, dependency and attachment: a theoretical review of the infant-mother relationship. Child Development, 1969, 40 (2), 969-1025.
- Ansbacher, H. and Ansbacher, R. The Individual Psychology of Alfred Adler. New York: Basic Books, 1956.
- Baron, R. A. The effects of intertrial activity and locus of control orientation on verbal operant conditioning. Psychonomic Science, 1969, 69-71.
- Battle, E. S. and Rotter, J. B. Children's feelings of personal control as related to social class and ethnic group. Journal of Personality, 1963, 31 (4), 482-490.
- Bender, L. Research monographs no. 3 A visual motor Gestalt test and its clinical use. American Orthopsychiatric Association, New York, 1938.
- Bialer, I. Conceptualization of success and failure in mentally retarded and normal children. Journal of Personality, 1961, 29, 303-320.
- Bibace, R. and Hancock, K. Relationships between perceptual and conceptual cognitive processes. Journal of Learning Disabilities, 1969, 2, 19-22.
- Birch, H. Research Issues in Child Health: Some philosophic and methodological issues. In Critical Issues in Research Related to Disadvantaged Children, Grotberg, E. W. (Ed.) Princeton: Educational Testing Service, 1969.

- Burnham, D. L., Gladstone, A. I., and Gibson, R. W. Schizophrenia and the Need-Fear Dilemma. New York; International Universities Press, Inc., 1969.
- Caldwell, B. M. The effects of psychosocial deprivation on human development in infancy. Merrill-Palmer Quarterly, 1970, 16, 260-277.
- Clark, A. and Richards, C. Auditory discrimination among economically disadvantaged and nondisadvantaged pre-school children. Exceptional Children, 1966, 33, 259-262.
- Coleman, J. S. Equality of Educational Opportunity. Washington, D. C.: U. S. Government Printing Office, 1966.
- Crandall, V. C., Katkovsky, W. and Crandall, V. I. Children's beliefs in their own control of reinforcements in intellectual-academic situations. Child Development, 1965, 36 (1), 91-109.
- Crandall, V. I., Katkovsky, W. and Preston, A. Motivational and ability determinants of young children's intellectual achievement behaviors. Child Development, 1962, 33, 643-661.
- Crandall, V. C. and Lacey, B. W. Children's perceptions internal-external control in intellectual-academic situations and their embedded figures test performance. Child Development, 1972, 43, 1123-1134.
- Crandall, J. J., and Sinkeldam, C. Children's dependent and achievement behaviors in social situations and their perceptual field dependence. Journal of Personality, 1964, 32, 1-22.
- Cromwell, R. L. A social learning approach to mental retardation. In Ellis, N. R. (Ed) Handbook of mental deficiency. New York: McGraw-Hill, 1963.
- Cromwell, R. L., Rosenthal, D., Shakow, D., and Zahn, T. P. Reaction time, locus of control, choice behavior, and descriptions of parental behavior in schizophrenic and normal subjects. Journal of Personality, 1961, 29, 362-379.
- Davis, F. Environmental influences on substrates of achievement leading to learning disability. Journal of Learning Disabilities, 1969, 2, 155-159.

- Deschner, J. P. The Influence of Mother-Child Interaction on Early Manifestations of Competence. Unpublished Doctoral Dissertation, University of Houston, 1972.
- Deutsch, C. Learning in the disadvantaged. In M. Deutsch and Associates (Ed.) The Disadvantaged Child, New York: Basic Books, 1967.
- Druker, J. F., and Hagen, J. W. Developmental trends in the processing of task relevant and task irrelevant information. Child Development, 1969, 40, 371-382.
- Epstein, R. and Komorita, S. S. Self-esteem, success-failure and locus of control in Negro children. Developmental Psychology, 1971, 4, 2-9.
- Escalona, S. K., Patterns of infantile experience and the developmental process. Psychoanalytic Study of the Child, 1963, 18, 197-244.
- Fantz, R. L., and Nevis, S. Pattern preferences and perceptual-cognitive development in early infancy. Merrill-Palmer Quarterly, 1967, 13, 77-108.
- Freedman, R., and Suter, K. The development of feelings of detachment in elementary school children. Psychology of Schools, 1969, 6, 82-88.
- Freud, A. Normality and Pathology in Childhood. London The Hogarth Press and the Institute of Psycho-Analysis, 1969.
- Gewirtz, J. L. Mechanisms of Social Learning: Some roles of stimulation and behavior in early human development. In Handbook of Socialization Theory and Research, Goslin, D. A. (Ed.) Chicago: Rand McNally, 1969, 57-212.
- Gibson, E. J. Principles of Perceptual Learning and Development. New York: Appleton-Century-Crofts, 1969.
- Gill, T., Herdtnr, T. J., and Laugh, L. Perceptual and socio-economic variables, instruction in body-orientation, and predicted academic success in young children. Perceptual and Motor Skills, 1968, 26, 1175-1184.

- Grotberg, E. H. Neurological aspects of learning disabilities: A case for the disadvantaged. Journal of Learning Disabilities, 1970, 3, 321-327.
- Hallahan, D. P. Cognitive styles--preschool implications for the disadvantaged. Journal of Learning Disabilities, 1970, 3, 5-9.
- Harrow, M., and Ferrante, A. Locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 1970.
- Heilburn, A. B. Jr. and Waters, D. B. Underachievement as related to perceived maternal child rearing and academic conditions of reinforcement. Child Development, 1968, 39, 913-921.
- Hsieh, L. T., Shybut, J., and Lotsof, E. J. Internal vs. External control and ethnic group membership: a cross cultural comparison. Journal of Consulting and Clinical Psychology, 1969, 33, 122-124.
- Jeffrey, W. E. Early Stimulation and Cognitive Development: Effects of Stimulus Familiarization on Child Behavior. In Minnesota Symposia on Child Psychology, Hill, J. P. (Ed.) Minneapolis: University Minnesota Press, 1969, 46-47.
- John, V. P. The intellectual development of slum children: Some preliminary findings. American Journal of Orthopsychiatry, 1963, 33, 813-822.
- Karp, J. M., and Sigel, I. Psychoeducational appraisal of disadvantaged children. Review of Educational Research, 1965, 35, 401-402.
- Kappelman, M. M., Kaplan, E., and Ganter, R. L. A study of learning disorders among disadvantaged children. Journal of Learning Disabilities, 1969, 2, 262-268.
- Katkovsky, W., Crandall, V. C., and Good, S. Parental antecedents of children's beliefs in internal-external control of reinforcement in intellectual achievement situations. Child Development, 1967, 38, 765-776.
- Kofsky, E. The effect of verbal training on concept identification in disadvantaged children. Psychonomic Science, 1967, 7, 365-366.

- Koppitz, E. The Bender Gestalt Test for Young Children. New York: Grune and Stratton, 1964.
- Kunz, J. and Moyer, J. E. A comparison of economically disadvantaged and economically advantaged kindergarten children. Journal of Educational Research, 1969, 62, 392-395.
- Lefcourt, H. M. Internal vs. external control of reinforcement: A review. Psychological Bulletin, 1966, 63, 206-220.
- Lefcourt, H. M., and Wine, J. Internal vs. external control of reinforcement and the development of attention in experimental situations. Canadian Journal of Behavioral Science, 1969, 1, 167-81.
- Lesser, G. S., Fifer, G., and Clark, D. H. Mental abilities of children from different social-class and cultural groups. Monographs: Society for Research in Child Development, 1965, 30, Number 4.
- Lewis, M., and Goldberg, S. Perceptual-cognitive development in infancy: A generalized expectancy model as a function of the mother-infant interaction, Merrill-Palmer Quarterly, 1968.
- Lewis, M. The acquisition and violation of expectancy: an experimental paradigm. Journal of Experimental Child Psychology, 1969, 7, 70-80.
- McConnell, T. R., Jr. Locus of Control, Examiner Presence and Source and Type of Reinforcement as Factors in Visual Discrimination Learning with Mental Retardates. Unpublished Doctoral Dissertation, George Peabody College, 1965.
- McDevitt, J. B., and Settlage, C. F. (Eds.) Separation-Individuation. New York: International Universities Press, Inc., 1971.
- McGhee, P. F., and Crandall, V. C. Beliefs in internal-external control of reinforcements and academic performance. Child Development, 1968, 39, 91-102.
- Mahler, M. S. Thoughts about development and individuation. Psychoanalytic Study of the Child, 1963, 18, 307-342.

- Mahler, M. S. On Human Symbiosis and the Vicissitudes of Individuation. New York: International Universities Press, Inc., 1968.
- Messer, S. B. The relation of internal-external control to academic performance. Child Development, 1972, 43, 1456-1462.
- Mondani, M., and Tutko, L. A. Relationship of academic underachievement to incidental learning. Journal of Consulting and Clinical Psychology, 1969, 33, 558-560.
- Moss, H. A. Sex, age, and state as determinants of mother-infant interaction. Merrill-Palmer Quarterly, 1967, 13, 19-36.
- Moss, H. A., and Robson, K. S. Maternal influences in early social visual behavior. Child Development, 1968, 39, 401-408.
- Mowrer, O. H., and Vieck, P. An experimental analogue of fear from a sense of helplessness. Journal of Abnormal and Social Psychology, 1948, 43, 193-200.
- Parsons, O. A., Schneider, J. M., and Hansen, A. S. Internal-external locus of control and national stereotypes in Denmark and the United States. Journal of Consulting and Clinical Psychology, 1970.
- Repucci, N. D. Individual differences in the consideration of information among two-year-old children. Developmental Psychology, 1970, 2, 240-246.
- Resnick, R. J. A developmental and socioeconomic evaluation of perceptual integration. Developmental Psychology, 1969, 1, 691-696.
- Richter, C. F. Sudden death phenomenon in animals and humans. In H. Feifel (Ed.), The Meaning of Death. New York: McGraw-Hill, 1959.
- Rosenfeld, S. K., and Sprince, M. P. An attempt to formulate the meaning of the concept "borderline." The Psychoanalytic Study of the Child, 1963, 18, 603-635.

- Rotter, J. B. Social Learning and Clinical Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1954.
- Rotter, J. B. Generalized expectancies for internal vs. external control of reinforcement. Psychological Monographs, 1966, 80, 1 (Whole 3609).
- Rubenstein, J. Maternal attentiveness and subsequent exploratory behavior. Child Development, 1967, 38, 1089-1100.
- Ryckman, D. A comparison of information processing abilities of middle and lower class Negro kindergarten boys. Exceptional Children, 1967, 33, 545-552.
- Shores, R. E. Performance of learning disabled children from differing social classes under tangible or intangible reinforcement conditions. Exceptional Children, 1969, 35, 643-644.
- Smith, R. E. Changes in locus of control as a function of life-crisis resolution. Journal of Abnormal Psychology, 1970, 75, 329-332.
- Solomon, D., Houlehan, K. A. and Parelus, R. I. Intellectual achievement responsibility in Negro and white children. Psychological Reports, 1969, 24, 479-483.
- Solomon, D., and Yaeger, J. Recognition of spoken comments by a teacher in a learning situation as related to children's personality and learning. Final report Office of Education, Bureau of Research, February 1968, No. 7-E-029, Grant No. 3-7-070029-2917.
- Trabasco, T., and Bower, G. H. Attention in Learning: Theory and Research. John Wiley, 1968.
- Tulkin, S. R. Race, class, family and school achievement. Journal of Personality and Social Psychology, 1968, 9, 31-37.
- Watson, J. S. The development and generalization of contingency awareness in early infancy: Some hypotheses. Merrill-Palmer Quarterly, 1966, 13, 55-76.

- Weiner, B., and Kukla, A. An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 1970, 15, 1-20.
- White, R. W. Motivation reconsidered: The concept of competence. Psychological Review, 1959, 66, 297-323.
- Williams, C. B., and Nickels, J. B. Internal-external control dimension as related to accident and suicide proneness. Journal of Consulting and Clinical Psychology, 1969, 485-94.
- Williams, C. B., and Vantress, F. E. Relation between internal-external control and aggression. Journal of Psychology, 1969, 71, 59-61.
- Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1962.
- Winnicott, D. W. Playing and Reality. New York: Basic Books, 1971.
- Zytkoskee, A., and Strickland, B. Delay of gratification and internal versus external control among adolescents of low socioeconomic status. Developmental Psychology, 1971, 4, 93-98.



## APPENDICES

## APPENDIX I

### MEANS AND STANDARD DEVIATIONS OF THE IAR SCORES (Tables 6, 7 and 8)

TABLE 6

MEANS AND STANDARD DEVIATIONS OF THE INTELLECTUAL  
ACHIEVEMENT RESPONSIBILITY QUESTIONNAIRE (+) SCORE  
FOR THE INTERNAL AND EXTERNAL LOCUS OF CONTROL  
GROUPS

Group		Mean	Standard Deviation
ILC	N=23	11.8696	1.1298
ELC	N=23	11.8261	2.2776

TABLE 7

MEANS AND STANDARD DEVIATIONS OF THE INTELLECTUAL  
ACHIEVEMENT RESPONSIBILITY QUESTIONNAIRE (-) SCORE  
FOR THE INTERNAL AND EXTERNAL LOCUS OF CONTROL  
GROUPS

Group		Mean	Standard Deviation
ILC	N=23	11.4348	2.6014
ELC	N=23	9.6522	3.4843

TABLE 8

MEANS AND STANDARD DEVIATIONS OF THE INTELLECTUAL  
ACHIEVEMENT RESPONSIBILITY QUESTIONNAIRE TOTAL IN-  
DEX SCORE FOR THE INTERNAL AND EXTERNAL LOCUS OF  
CONTROL GROUPS

Group		Mean	Standard Deviation
ILC	N=23	23.30	2.09
ELC	N=23	21.48	4.34

## APPENDIX II

### RAW DATA FOR PILOT STUDY

#### LEARNING DISABILITY GROUP

Subject	IAR Total Index Score	Compensation Score	Koppitz Score
1	21	1	6
2	19	1	3
3	18	3	3
4	23	5	2
5	9	5	3
6	13	6	6
7	17	4	3
8	23	6	9
9	18	14	0
<hr/>			
	$\bar{x}=17.89$	$\bar{x}=5.0$	$\bar{x}=3.89$
	S.D.=4.6076	S.D.=3.6508	S.D.=2.5139

#### NORMAL GROUP

Subject	IAR Total Index Score	Compensation Score	Koppitz Score
1	15	6	3
2	24	6	2
3	23	11	1
4	27	13	4
5	27	13	0
6	24	17	2
7	24	19	1
8	25	20	6
9	31	37	6
<hr/>			
	$\bar{x}=24.44$	$\bar{x}=15.78$	$\bar{x}=2.56$
	S.D. = 4.0	S.D. = 8.8792	S.D. = 2.0421

### APPENDIX III

#### NORMATIVE DATA FOR THE DEVELOPMENTAL BENDER SCORING SYSTEM FOR CHILDREN

##### Distribution of Bender Mean Scores and Standard Deviation

Age Group	N	Mean Scores	Standard Deviation	Plus/Minus S.D.
5-0 to 5-5	81	13.6	3.61	10.0 to 17.2
5-6 to 5-11	128	9.8	3.72	6.1 to 13.5
6-0 to 6-5	155	8.4	4.12	4.3 to 12.5
6-6 to 6-11	180	6.4	3.76	2.6 to 10.2
7-0 to 7-5	156	4.8	3.61	1.2 to 8.4
7-6 to 7-11	110	4.7	3.34	1.4 to 8.0
8-0 to 8-5	62	3.7	3.60	.1 to 7.3
8-6 to 8-11	60	2.5	3.03	.0 to 5.5
9-0 to 9-5	65	1.7	1.76	.0 to 3.5
9-6 to 9-11	49	1.6	1.69	.0 to 3.3
10-0 to 10-5	27	1.6	1.67	.0 to 3.3
10-6 to 10-11	31	1.5	2.10	.0 to 3.6
Total	1104			

##### Distribution of Bender Mean Scores by School Grades

Grade Placement Beginning of Year	N	Mean Age	Mean Score	Standard Deviation	Plus/Minus Standard Deviation
Kindergarten	38	5-4	13.5	3.61	9.9 to 17.1
1st Grade	153	6-5	8.1	4.41	4.0 to 12.2
2nd Grade	141	7-5	4.7	3.18	1.5 to 7.9
3rd Grade	40	8-7	2.2	2.03	.2 to 4.2
4th Grade	39	9-8	1.5	1.88	.0 to 3.4

# APPENDIX IV

## BENDER SCORES FROM EACH EXAMINER (E) FOR THE EXTERNAL GROUP

Subject	E <sub>1</sub>	E <sub>3</sub>	E <sub>4</sub>
1	0	4	3
2	0	1	0
3	4	4	3
4	2	4	3
5	3	6	4
6	3	2	4
7	1	2	3
8	4	8	5
9	6	8	6
10	3	5	4
11	2	2	3
12	4	6	5
13	2	2	3
14	0	1	2
15	2	2	1
16	1	1	3
17	8	8	7
18	5	4	4
19	1	2	1
20	3	3	4
21	1	2	1
22	1	2	1
23	6	8	6

BENDER SCORES FROM EACH EXAMINER (E)  
FOR THE INTERNAL GROUP

Subject	E <sub>1</sub>	E <sub>3</sub>	E <sub>4</sub>
1	1	1	4
2	4	3	2
3	3	3	2
4	5	6	6
5	3	4	5
6	2	2	3
7	5	5	5
8	4	4	4
9	3	3	4
10	1	2	2
11	5	6	5
12	1	3	2
13	2	2	1
14	2	3	3
15	2	2	3
16	3	4	3
17	1	1	3
18	2	3	2
19	4	8	6
20	5	7	7
21	4	6	5
22	2	2	1
23	2	3	3

## APPENDIX V

### RESUME OF THE QUALIFICATIONS OF EXAMINERS

Examiner 1 (Southgate – The investigator) – This examiner is a doctoral student in Counseling Psychology with extensive practicum experience in the administration, scoring, and interpretation of the Bender Gestalt Test to school age children.

Examiner 2 (Plaza) – This examiner is a doctoral student in Counseling Psychology with coursework in psychological testing and test and measurement theory. She was trained by the examiner in the techniques of administering the Bender and the IAR to children.

Examiner 3 – This scorer is a Counseling Psychologist (Ph.D.) who works at a child guidance center. She has had extensive course work in psychological testing and two years of clinical experience in the scoring and interpretation of the Bender Gestalt Test.

Examiner 4 – This scorer is a Master's degree level psychologist who has worked for one year in the Midwest City Public School System as a school psychometrist. Her work daily involves the scoring and interpretation of the Bender Gestalt Test.



## APPENDIX VI

### Children's Locus of Control Scale

#### Instructions

This is not a test. I am just trying to find out how kids your age think about certain things. I am going to ask you some questions to see how you feel about these things. There are no right or wrong answers to these questions. Some kids say "Yes" and some say "No." When I ask the question, if you think your answer should be yes, or mostly yes, say "Yes." If you think the answer should be no, or mostly no, say "No." Remember, different children give different answers, and there is no right or wrong answer. Say "Yes" or "No," depending on how you think the question should be answered. If you want me to repeat a question, ask me. Do you understand? All right, listen carefully, and answer "Yes" or "No."

- 1p. When somebody gets made at you, do you usually feel there is nothing you can do about it?
- 2f. Do you really believe a kid can be whatever he wants to be?
- 3f. When people are mean to you, could it be because you did something to make them be mean?
- 4f. Do you usually make up your mind about something without asking someone first?
- 5f. Can you do anything about what is going to happen tomorrow?
- 6f. When people are good to you, is it usually because you did something to make them be good?
- 7f. Can you ever make other people do things you want them to do?
- 8f. Do you ever think that kids your age can change things that are happening in the world?

- 9f. If another child was going to hit you, could you do anything about it?
- 10f. Can a child your age ever have his own way?
- 11p. Is it hard for you to know why some people do certain things?
- 12f. When someone is nice to you, is it because you did the right things?
- 13f. Can you ever try to be friends with another kid even if he doesn't want to?
- 14f. Does it ever help any to think about what you will be when you grow up?
- 15f. When someone gets mad at you, can you usually do something to make him your friend again?
- 16f. Can kids your age ever have anything to say about where they are going to live?
- 17f. When you get in an argument, is it sometimes your fault?
- 18p. When nice things happen to you, is it only good luck?
- 19p. Do you often feel you get punished when you don't deserve it?
- 20f. Will people usually do things for you if you ask them?
- 21f. Do you believe a kid can be whatever he wants to be when he grows up?
- 22p. When bad things happen to you, is it usually someone else's fault?
- 23f. Can you ever know for sure why some people do certain things?

Note. The letter "f" following item number indicates that an answer of "Yes" is scored as internal control. The letter "p" signifies that an answer of "No" is scored as internal control.

## APPENDIX VII

### The IAR Scale

1. If a teacher passes you to the next grade, would it probably be  
a. because she liked you, or  
I+ ☐ b. because of the work you did?
2. When you do well on a test at school, is it more likely to be  
I+ ☐ a. because you studied for it, or  
☐ b. because the test was especially easy?
3. When you have trouble understanding something in school,  
is it usually  
a. because the teacher didn't explain it clearly, or  
I- ☐ b. because you didn't listen carefully?
4. When you read a story and can't remember much of it, is  
it usually  
a. because the story wasn't well written or  
I- ☐ b. because you weren't interested in the story?
5. Suppose your parents say you are doing well in school.  
Is this likely to happen  
I+ ☐ a. because your school work is good, or  
☐ b. because they are in a good mood?
6. Suppose you did better than usual in a subject at school.  
Would it probably happen  
I+ ☐ a. because you tried harder, or  
☐ b. because someone helped you?
7. When you lose at a game of cards or checkers, does it  
usually happen  
a. because the other player is good at the game, or  
I- ☐ b. because you don't play well?
8. Suppose a person doesn't think you are very bright or clever.  
a. can you make him change his mind if you try to, or  
☐ b. are there some people who will think you're not very  
bright no matter what you do?

9. If you solve a puzzle quickly, is it  
a. because it wasn't a very hard puzzle, or  
I+ ☐ b. because you worked on it carefully?
10. If a boy or girl tells you that you are dumb, is it more likely that they say that  
a. because they are mad at you, or  
I- ☐ b. because what you did really wasn't very bright?
11. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen  
I- ☐ a. because you didn't work hard enough, or  
☐ b. because you needed some help, and other people didn't give it to you?
12. When you learn something quickly in school, is it usually  
I+ ☐ a. because you paid close attention, or  
☐ b. because the teacher explained it clearly?
13. If a teacher says to you, "Your work is fine," is it  
a. something teachers usually say to encourage pupils, or  
I+ ☐ b. because you did a good job?
14. When you find it hard to work arithmetic or math problems at school, is it  
I- ☐ a. because you didn't study well enough before you tried them, or  
☐ b. because the teacher gave problems that were too hard?
15. When you forget something you heard in class, is it  
a. because the teacher didn't explain it very well, or  
I- ☐ b. because you didn't try very hard to remember?
16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen  
a. because she wasn't as particular as usual, or  
I+ ☐ b. because you gave the best answer you could think of?
17. When you read a story and remember most of it, is it usually  
I+ ☐ a. because you were interested in the story or  
☐ b. because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be  
I- ☐ a. because of something you did, or  
☐ b. because they happen to be feeling cranky?

19. When you don't do well on a test at school, is it  
a. because the test was especially hard, or  
I- ☐ b. because you didn't study for it?
20. When you win at a game of cards or checkers, does it happen  
I+ ☐ a. because you play real well, or  
☐ b. because the other person doesn't play well?
21. If people think you're bright or clever, is it  
a. because they happen to like you, or  
I+ ☐ b. because you usually act that way?
22. If a teacher didn't pass you to the next grade, would it  
probably be  
a. because she "had it in for you," or  
I- ☐ b. because your school work wasn't good enough?
23. Suppose you don't do as well as usual in a subject at school.  
Would this probably happen  
I- ☐ a. because you weren't as careful as usual, or  
☐ b. because somebody bothered you and kept you from working?
24. If a boy or girl tells you that you are bright, is it usually  
I+ ☐ a. because you thought up a good idea, or  
☐ b. because they like you?
25. Suppose you became a famous teacher, scientist or doctor.  
Do you think this would happen  
a. because other people helped you when you needed it, or  
I+ ☐ b. because you worked very hard?
26. Suppose your parents say you aren't doing well in your school  
work. Is this likely to happen more  
I- ☐ a. because your work isn't very good, or  
☐ b. because they are feeling cranky?
27. Suppose you are showing a friend how to play a game and he  
has trouble with it. Would that happen  
a. because he wasn't able to understand how to play, or  
I- ☐ b. because you couldn't explain it well?
28. When you find it easy to work arithmetic or math problems  
at school, is it usually  
☐ a. because the teacher gave you especially easy problems, or  
I+ ☐ b. because you studied your book well before you tried them?

29. When you remember something you heard in class, is it usually  
I+ ☐ a. because you tried hard to remember, or  
☐ b. because the teacher explained it well?
30. If you can't work a puzzle, is it more likely to happen  
I- ☐ a. because you are not especially good at working puzzles, or  
☐ b. because the instructions weren't written clearly enough?
31. If your parents tell you that you are bright or clever, is it more likely  
I+ ☐ a. because they are feeling good, or  
☐ b. because of something you did?
32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen more often  
I+ ☐ a. because explained it well, or  
☐ b. because he was able to understand it?
33. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to happen  
I- ☐ a. because she was more particular than usual, or  
☐ b. because you answered too quickly?
34. If a teacher says to you, "Try to do better," would it be  
☐ a. because this is something she might say to get pupils to try harder, or  
☐ b. because your work wasn't as good as usual?

## APPENDIX VIII

### KOPPITZ SCORING SYSTEM FOR THE BENDER GESTALT TEST

Name \_\_\_\_\_ No. \_\_\_\_\_ Age \_\_\_\_\_

Date \_\_\_\_\_ Examiner \_\_\_\_\_ Time \_\_\_\_\_

Koppitz Score \_\_\_\_\_ Visual-Motor Age \_\_\_\_\_ Neurogenic Score \_\_\_\_\_

Emotional Score \_\_\_\_\_ Compensation Score \_\_\_\_\_

#### Figure A

\_\_\_\_\_ Distortion (\*)  
\_\_\_\_\_ Disproportion (\*7)  
\_\_\_\_\_ Rotation (\*9)  
\_\_\_\_\_ Integration (\*7)

#### Figure 1

\_\_\_\_\_ Circles for dots (\*)  
\_\_\_\_\_ Rotation (\*\*)  
\_\_\_\_\_ Perseveration (\*\*8)

#### Figure 2

\_\_\_\_\_ Rotation (\*9)  
\_\_\_\_\_ Shape lost (\*\*6)  
\_\_\_\_\_ Perseveration (\*\*8)

#### Figure 3

\_\_\_\_\_ Circles for dots (\*7)  
\_\_\_\_\_ Rotation (\*8)  
\_\_\_\_\_ Continuous line (\*\*)

#### Figure 4

\_\_\_\_\_ Rotation (\*\*)  
\_\_\_\_\_ Integration (\*)

#### Figure 5

\_\_\_\_\_ Circles for dots (\*9)  
\_\_\_\_\_ Rotation (\*)  
\_\_\_\_\_ Shape lost  
\_\_\_\_\_ Lines for dots (\*\*)

#### Figure 6

\_\_\_\_\_ Angles for curves (\*)  
\_\_\_\_\_ Continuous line (\*\*)  
\_\_\_\_\_ Perseveration (\*\*8)  
\_\_\_\_\_ Integration (\*)

#### Figure 7

\_\_\_\_\_ Disproportion (8)  
\_\_\_\_\_ Distortion  
\_\_\_\_\_ Rotation (\*7)  
\_\_\_\_\_ Integration (\*7)

## Figure 8

Distortion (87)

☐ Rotation (\*\*)

## Emotional Indicators

- ☐ Confused order
- ☐ Wavy line (1 and 2)
- ☐ Increasing size (, 2, and 3)
- ☐ Dashes (2)
- ☐ Large size
- ☐ Small size
- ☐ Fine line
- ☐ Overworked lines
- ☐ Second attempts
- ☐ Two or more sheets

## Significant test behavior (Neurogenic Compensations)

- ☐ Excessive amount of time
- ☐ Tracing
- ☐ Anchoring
- ☐ Drawing from memory
- ☐ Rotation of card and paper
- ☐ Checking and rechecking dots and circles
- ☐ Impulsive drawings with erasures
- ☐ Expressed dissatisfaction with poor work

## Comments:

adapted from Holroyd, Richard G. The Koppitz Bender Gestalt Test for Young Children: A Scoring Guide. Journal of Clinical Psychology, Vol. 22, 1966.