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The Relationship Between Field Dependence and Self-Concept in Elementary School Children

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This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of The University of New Mexico in partial fulfillment of the requirements for the degree of

Master of Arts

THE RELATIONSHIP BETWEEN FIELD DEPENDENCE AND SELF-CONCEPT IN ELEMENTARY SCHOOL CHILDREN

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THE RELATIONSHIP BETWEEN FIELD DEPENDENCE AND SELF-CONCEPT IN ELEMENTARY SCHOOL CHILDREN

BY
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B.A., McGill University, 1970

THESIS

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ABSTRACT OF THESIS

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THE RELATIONSHIP BETWEEN FIELD DEPENDENCE AND SELF-CONCEPT IN ELEMENTARY SCHOOL CHILDREN

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The purpose of this study was to investigate the relationship between field dependence (Witkin, et al., 1954, 1962) and academic self-concept. The relationship between body concept and field dependence was further examined. The sample was randomly selected from the sixth grade population at a suburban New Mexico elementary school located in a predominantly white middle class neighborhood with some Black and Mexican-American children.

Subjects were administered the Short Form Test of Academic Aptitude, the Group Embedded Figures Test, the Behavioral Q Sort, and the Draw-a-Person Test which was scored with the Witkin Sophistication Scale. The Group Embedded Figures Test was the measure of field dependence; the Witkin Sophistication Scale was used to measure body concept; and the Behavioral Q Sort was the measure of academic self-concept.

Data were organized to test the relationship between the Group Embedded Figures Test, the Behavioral Q Sort, the Short Form Test of Academic Aptitude, and the Draw-a-Person Test. Product-moment correlations were used to analyze the various relationships. In addition to analyses of the total data, comparisons were also mode between the male and female groups.

The findings for the Group Embedded Figures Test and Behavioral Q Sort did not support the specific hypothesis that a good academic self-concept is positively related to field independence. This relationship was significant for males, but not for females. Intelligence scores and field dependence were significantly related for the total group and for males, but not for females. The same pattern of correlations existed between intelligence and self-concept and between body concept and field independence.

In summary, the results of this study indicate a significant relationship between academic self-concept for elementary school males, but not for females. The present study also supports Witkin's (1962) findings regarding a significant relationship between 'sophistication-of-body-concept' and greater differentiation in children. The results also indicate a very significant relationship between general intelligence scores and field dependence.

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CHAPTER I

SURVEY OF THE LITERATURE

The purpose of this study is to examine the relationship between self-concept and field dependence in elementary school children. Researchers note that contemporary American schools tend to be either "traditional" or "modern" in their educational approach. The "modern" orientation tries to build on the child's curiosity and active initiative in the learning process, while the "traditional" emphasizes factual information and specific skills (Rappoport, 1972). Although there is a general consensus that we live in a world of perpetual change, there is considerable controversy as to whether most contemporary schools prepare their graduates to deal with our fluctuating environment. Toffler (1970) stated,

> For education the lesson is clear: its prime objective must be to increase the individual's 'cope-ability'--the speed and economy with which he can adapt to continual change. Tomorrow's schools must therefore teach not merely data, but ways to manipulate it (p. 403).

Future educators must promote an adaptive cognitive style. It appears that the acquisition of knowledge is somewhat secondary to the development of an optimal style to deal with that knowledge.

The key terms in the above quotation--adaptability and cope-ability--were also used by Witkin (Witkin, Lewis, Hertzman, Machover, Meissner, and

Wapner, 1954) to distinguish a perceptual and cognitive style he labelled field independence. According to Witkin, the best way to begin to represent the essential nature of the field dependence dimension is to describe the test situations he devised for its identification (Scheerer, 1964).

The Body Adjustment Test (BAT) evaluates a person's manner of determining the position of his body in relation to the upright in space. The person sits in a small chair which can be tilted clockwise or counterclockwise, and there is a small room around him which may be tilted independently of the chair. The task is to adjust his chair to a position where he perceives himself as upright. Field dependent people, in order to perceive their own bodies as straight, require alignment with the surrounding field even if this necessitates actual tilting. Field independent persons can disregard the field and find a true upright position. The Rod and Frame Test (RFT) similarly evaluates the way in which subjects determine the position of a vertical rod in relation to the upright in space. The Embedded Figures Test (EFT) is not concerned with the upright, but bears an essential structural similarity to these tasks. The EFT requires the subject to locate a simple figure embedded in a complex design. The Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971) was designed to measure the same variable in groups, and was used in this study as the measure of field dependence. Witkin used the term 'field dependent' to refer to performances which reflected dominance of the perception of an item by the organization of the prevailing field, or relative

inability to separate item from field, or inability to overcome embedding contexts. He used the term 'field independent' to describe performances that reflected a ready ability to perceive objects apart from the context in which they occur, or to overcome an embedding context, or to deal with a field analytically. Witkin observed that people performed consistantly in the three test situations (Witkin et al., 1954).

Witkin conducted several studies that demonstrated that the tendency to experience in a more analytic fashion was characteristic of a person's intellectual activity as well as his perceptual activity (Witkin, Dyk, Faterson, Goodenough, and Karp, 1962). He cited evidence that field independent people do significantly better at problems where the essential element required for solution must be isolated from the context and related differently to the problem material. Factor-analytic and correlational studies have shown a very high relation between performance on his perceptual tests and tests of adaptive flexibility (Scheerer, 1964).

There is some controversy over the need to control for intelligence scores in field dependence studies. Busch's (1971) study dealing with field dependence in 4- to 6-year-old Head Start children found it unnecessary to control I.Q. scores. Dubois (1971) studied college undergraduates and concluded that field independence might well be a part of intelligence. Crandall and Lacey (1972) investigated field dependence in elementary school children. Their results indicated a definite relationship between intelligence scores and field dependence for males, but not for females. Studies have also shown that

when there appears to be a correlation between field dependence and intelligence, the full-scale IQ score is "carried" specifically by portions of intelligence tests which involve the same analytical capacities (Witkin, et al., 1962).

Perney (1970) investigated the relationship between academic achievement and field dependence and hypothesized that the higher levels of comprehension and application of knowledge would bear a greater relation to cognitive style than would basic factual knowledge. He administered six Stanford Achievement Tests. Word Meaning and Language were considered to be based on factual knowledge; Paragraph Meaning and Arithmetic Computation were treated as comprehension based; and Arithmetic Application and Science were viewed as representative of the ability to apply knowledge. Subjects were categorized along a field dependence dimension, and his results indicated a definite relationship between achievement and cognitive style. The relationship became more apparent as the number and complexity of competing stimulus fields increased, and as their interaction multiplied. In terms of education, field independence correlated significantly with an ability to attend to various academic stimulus fields, perceive structures and relationships within, and structure them into new configurations.

Bloomberg (1967) attempted to examine the connections between field dependence and creativity. He suggested that a combination of hierarchical integration and field independence be considered potential components of creativity. According to Werner (1948), the two are related--"the more advanced the level of differentiation, the greater the hierarchic integration

(p. 129)." In a state of hierarchic integration, operations characteristic of lower levels of functioning are subordinated to operations characteristic of higher levels. Primitive operations are capable of being inhibited yet used in the service of operations indigenous to developmentally increased maturity. According to Witkin (1962), the more mature individual has more developmentally different operations at his disposal than the less mature individual. In his review of literature, Bloomberg (1967) documented a list of traits that research groups have found common to both field independence and creativity. Although he maintains they are not interchangeable terms, it is his hypothesis that field independence is a necessary condition of creativity. Spotts and Mackler (1967) conducted a study to further examine the relationship between field dependence and creative test performance. They used a short form of the EFT (Jackson, 1956) as the measure of field dependence and two verbal and non-verbal measures of creative thought developed by Torrance (1962) and Guilford and Merrifield (1960). The results showed the field independent group to be most creative on the aggregate of fourteen scores. These results confirm the cognitive adaptiveness that Witkin attributes to field independence.

Witkin (1965) recognized that personality variables were inherent to the notion of field dependence.

> The results of the present study demonstrate, however, that the perceptual process represented by this task cannot be fully understood in terms of the structure of the field alone. The additional finding that some people adhere more than others to the obscuring pattern of the complex figure proves it is necessary to consider characteristics of the people perceiving

> the figures as well as characteristics of the figures themselves. The observation that people tend to be self-consistent in the ease or difficulty with which they escape the influence of the complex pattern points to the importance of the personal factor responsible for individual differences (p. 13).

He studied the personality determinants of perception in a normal adult population at Brooklyn College, selected on the basis of their scores on the field dependence dimension. Each subject was submitted to an intensive personality analysis based primarily on a clinical interview, a figure-drawing test, Rorschach results, and Thematic Apperception Test results. He extended the investigation to include a hospitalized psychiatric population, and children between the ages of eight and thirteen. He considered the hospital results to provide further evidence of the validity of the perception-personality relationship first exhibited by the normal group. In all groups, he found that the extent of activity in dealing with one's environment is the characteristic that most effectively discriminates field dependence and field independence. Field dependence correlated with a passive readiness to submit to authority forces. Field independence was related to an active ability to function with little environmental support, a capacity for initiation and organization, and environmental mastery. This is consistent with his viewpoint that perceptual development progresses from a more global to a more differentiated character. He found that field dependent persons manifested gross defenses and controls, and exhibited vague body and self-concepts.

Markus (1970) compared infirmed aged subjects living in institutions with active, healthier, elderly 'club-goers' on measures of field dependence. He

found the former group to display a significantly greater loss of differentiation. It seems plausible to suggest that this group would have a more negative self-concept than the socially active group. Another geriatric study (Schwartz & Karp, 1967) found support for the hypothesis that field dependence would increase as a function of old age, where there was evidence of narcisstic trauma, weakened ego, and loss of self-respect. Increased dependency on their personal environment was paralleled by their dependency on impersonal frames of reference in defining positions on the RFT. Schwartz and Karp (1967) interpreted this as indicating an abnegation of self-reliance in favor of accepting definition from the outside.

The notion of 'self-concept' is implicit in a consideration of personality variables that relate to field dependence. Fitts (1972) stated that "the self-concept is seen as a means of understanding the individual from his own internal frame of reference and as a resource for better planning . . . toward self-actualization (p. 5)."

Lewis (1969) used field dependence as a 'tracer element' for following characteristic patient behavior and transference phenomena during treatment. She found that "in particular, the patients' perceptual style focused attention on the manner and extent of individuation of the self from the 'other' (p. 420)." She describes field dependent patients as self-effacing and prone to self-directed hostility, while field independent patients tended to direct their hostility outward.

In another study of field dependence and external directedness, Konstadt and Forman (1965) present further evidence for the operation of a 'differentiation'

dimension across behavioral modalities. Their experimental conditions were based on approving or disapproving statements related to the group of subjects, their understanding of the task, their neatness, speed, and cooperativeness. The subjects were organized into four groups--field dependent, field independent, approval or disapproval first, and were then studied on their response to the Letter Cancellation Test, a routine clerical task. The data significantly supported their hypothesis that field dependent individuals required a favorable emotional climate to function effectively.

The effect of social interaction upon subjects varying in levels of field dependence was examined by Myers (1970). Thirty-six male tenth-graders were asked to judge the number of flickers of light per second intervals. They worked in pairs: one was positively reinforced for his judgements, while the other was quoted his partner's fictitious estimates. Results of the experiment demonstrated that subsequent decisions of field dependent subjects were significantly influenced by prior positive or negative reinforcement, while field independent subjects ignored criticism. Such differences were also observed in a group of retardates. Boschi and Loprieno (1968) organized the retardates into familial and life pattern groups for therapeutic purposes. They were separated according to the field dependence dimension and were studied to determine the relation between cognitive styles and social dependency. Subjects from both groups were confronted with erroneous majority opinions according to a classical experiment by Asch. The investigators concluded that social field independence and perceptual field independence were complementary and functionally inter-

dependent aspects of the cognitive style, and resulted from the same modality of organization.

White and Kernaleguen (1971) contributed further support to the association between social insecurity and field dependence. Their subjects were forty Utah State college females between the ages of 18 and 22, who were chosen according to conformity or deviance of skirt length to accepted social standards. Their performance on the RFT, Maslow's Psychological Security-Insecurity Inventory and Social Preference Scale supported their expectations that field dependent subjects would be other-directed and insecure.

The above studies conducted with widely varied populations serve to confirm Witkin's affirmations about the different views of the "self" reflected in field dependence and field independence. Witkin (1965) suggests that in the realm of personality,

> the 'sense of security' parallels the construct of field dependence in that each represents a different facet of the differentiation dimension. According to these formulations, greater attention to the human environment observed by field dependent individuals is occasioned by their continuing need for definition. Specifically, such people are concerned primarily with the impression they make --particularly among those in authority--and are therefore always attuned to signs of approval and disapproval on which to pattern behavior (p. 490).

Purkey (1970) was aware of the educational relevance of this aspect of personality when he stated that "the overwhelming body of contemporary research points insistently to the relationship between self-esteem and academic achievement (p. 24)." The above studies strongly indicate that field dependent people

give greater credence to external references, while field independent individuals have been found to exhibit behaviors that are analytical and based on internal self-references. The field independent people base greater confidence in their own personal analyses.

Witkin (1965) found this to be true also of field independent children. In their explorations of the self, Witkin used two approaches. One was concerned with the child's body concept, while the second focused on what he labelled 'sense of separate identity.' Measures on a sophistication-of-body-concept scale were developed to evaluate children's figure drawings (Witkin, 1954). Results showed that children with an analytic field independent approach tended to have a more articulated body concept; that is, to a greater extent their body is experienced as having definite 'boundaries' with discrete 'parts' that were joined into a definite structure. Witkin viewed a 'sense of separate identity' to be an awareness of their own distinct needs and characteristics. Studies indicated that in field independent persons, the body and self are experienced as segregated from the field; they are stable internal references for self-definition and for interpreting the world (Witkin, 1962).

Witkin has been criticized for his choice of tests to examine personality variables, for the projective tests were developed as clinical instruments and therefore were seen to cast the investigation of personality variables in a psychopathological mold (Postman, 1955). The validity of this criticism is disputable; however, it is true that self-concept is a complex entity, whose dimensions can be adequately described only through a number of scores.

The previous research suggests a definite relationship between field dependence and self-concept as a general personality variable. However, the manner in which the more specific 'self-concept-as-a-learner' relates to the cognitive style of field dependence has not been examined.

The present study was designed to focus primarily on the relationship between field dependence and academic self-concept. A Behavioral Q Sort (Kroth, 1971) was used as the measure of self-concept, due to its behavioral referents and its applicability to an elementary school population. The relationship between body concept and field dependence was also investigated for further validation.

The specific hypothesis is that there is a positive relationship between a good academic self-concept and field independence in children.

CHAPTER II

METHOD

Subjects

Thirty pupils were randomly selected from the sixth grade population of a suburban elementary school in Albuquerque, New Mexico. This age group was chosen for investigation, since eleven-year-olds' EFT scores had been chosen to have the highest internal consistency among an elementary school group (Karp & Konstadt, 1963). The school is located in a predominantly white middle class neighborhood, with some Black and Mexican-American children.

Instruments

The instruments used in this study included the Group Embedded Figures Test (GEFT), a Behavioral Q Sort (Kroth, 1971), the Short Form Test of Academic Aptitude (SFTAA), and the Draw-A-Person Test (DAP).

Group Embedded Figures Test. The measure of field dependence used in this study was the Group Embedded Figures Test (Oltman, Raskin, & Witkin, 1971). Complete instructions for the administration of the GEFT are included in Appendix A. This instrument was designed to provide an adaptation of the original Embedded Figures Test (EFT) to make group testing possible. The EFT has been used extensively with children from eight to twelve and with adults

as a measure of field dependence (Witkin, 1950; Witkin et al., 1962; Witkin, Goodenough & Karp, 1967). The GEFT was modelled very closely on the individually administered EFT with respect to mode of presentation and format.

Research studies have used the GEFT with 10-year-olds and college populations. The preliminary norms available to date are based on male and female college students from an eastern liberal arts college. These norms are strictly applicable only to individuals coming from populations similar to this group. In a pilot study (Oltman, et al.) the GEFT was found to differentiate among 10-year-olds when the 5 minute time limit was extended to 10 minutes each for the Second and Third Sections.

The reliability of the GEFT was estimated by the correlation of the two parallel forms. The reliability estimate of .82 for both males (N = 80) and females (N = 97) compare favorably with the EFT.

To assess the validity of the GEFT, the Second Section was administered to subjects in group form, while the Third Section was individually administered using the items in their original colored form. Correlations ranged from -.63 to -.82. Correlations are negative because the tests are scored in reverse fashion.

The research evidence suggests that the GEFT is a useful substitute for the EFT. It must still be considered a research instrument, however, until more extensive direct and construct validation data are collected from a wider variety of groups (Witkin, Oltman, & Raskin, 1971).

Draw-a-Person Test. The Draw-a-Person was used by Witkin, et al., (1954) to explore the hypothesis that figure drawings, as an expression of body concept, were related to "mode of field approach." In later work these investigators (Witkin, et al., 1962) developed a scale to assess the hypothesized relation between the field dependence-independence dimension and the degree of articulation of body concept. The resulting sophistication-of-body-concept scale was designed to indicate the degree of primitiveness or sophistication of the drawings. In the present study the scale will be referred to as the Witkin Sophistication Scale (WSS).

In developing the WSS (Witkin, et al., 1954), three categories of characteristics were defined and criteria for primitive and sophisticated features were specified. Categories were the form level of the drawings, the degree of sex differentiation of the figures, and the level of detailing. Based on the criteria in each of these categories, a five-point rating scale was developed. A score of one indicated the highest level of sophistication and a score of five denoted the most primitive level of drawing. The rating scale is included in Appendix B.

Behavioral Q Sort. The measure of self-concept that was used in this study was the Behavioral Q Sort (Kroth, 1971). This instrument was chosen because it provides an academic self-concept. The rationale for behaviorally referenced items was that a child's self-concept could be more closely tied to the way he perceives his performance in the classroom and the way he would like to perceive his performance.

The child is given a set of twenty-five items and a formboard. A detailed list of the items can be found in Appendix C. He is asked to place all the items on the formboard in the manner he feels best describes his daily classroom behavior. After he has finished his 'real' sort, the data are recorded, and the child is asked to sort the same items as he would like to be in school. The discrepancy between the real/ideal sorts yields a measure of self-concept. The sum of the squared differences between these sorts are used in the data analysis to represent the self-concept.

Short Form Test of Academic Aptitude. The measure of intelligence that was used in this study was the Short Form Test of Academic Aptitude (SFTAA, Level 3, Sullivan, Clarks, & Tiegs, 1970). It is a revision of the 1963 California Short Form Test of Mental Maturity. Changes in social conditions, compositions of school populations, and modifications of curricular materials brought about the need for a new up-to-date measure of mental ability. The SFTAA has incorporated test materials reflecting these changes, and standards of performance are provided on a 1970 school population.

Four items from the California Test of Mental Maturity were selected for inclusion in the SFTAA: vocabulary, analogies, sequences and memory. Items for each subtest were obtained by selection and revision of the best multiple-choice items from the previous editions and by the development of additional items by the McGraw-Hill Test Department. The effectiveness of each item was determined by an item analysis of data obtained through tryout

testing. Advisors were consulted to minimize factors related to ethnic or cultural bias. Test/Retest reliability coefficients ranged from r = .89 to r = .93.

Procedures

The SFTAA was administered by classroom teachers at the beginning of the school year as part of the regular testing program. Thirty pupils were randomly selected from the sixth grade population. Subjects were given the Group Embedded Figures Test in groups of ten, according to instructions in the manual. Test instructions are shown in Appendix A. The 5 minute time limits for the Second and Third Sections were extended to 8 minutes to suit the age group of the subjects. Upon completion of this test, the subjects were asked to draw a whole person. The sex of the figure was then determined by asking the subjects.

The Behavioral Q Sort was administered on a separate day to minimize fatigue.

The GEFT, DAP, and Behavioral Q Sort were administered by the investigator. All testing took place during the regular school day.

Data Analysis

The data were organized to test the relationship between the GEFT, the Behavioral Q Sort, the WSS, and intelligence scores. Product-Moment correlations were carried out between the variables. Partial correlations were used to examine the relationship between two factors while a third was held

constant. These analyses were carried out on the total data and separately for males and females.

CHAPTER III

RESULTS

The data were initially organized to examine the sixth grade group's scores on the GEFT and the Behavioral Q Sort. Specifically, the hypothesis tested was that there would be a positive relationship between field independence and a high academic self-concept.

Table 1 contains a summary of descriptive findings for the groups on variables of field dependence, self-concept, intelligence, and body concept. The raw scores for each subject are shown in Appendix D.

Pearson's product-moment correlations were used to determine the relationships between variables. The results are reported in Table 2. The measure of self-concept derived from the Behavioral Q-Sort was the sum of squared differences between the student's 'real' and 'ideal' behaviors. The higher the student's score, the greater the discrepancy between the 'real' and 'ideal' sorts, and the lower his self-concept. On the GEFT, the highest possible score was 18. Thus the general correlations are negative.

The analysis indicated that the hypothesized relationship between academic self-concept and field dependence was not significant for the total group. Further analysis showed that intelligence scores were significantly related to field dependence ($\underline{r} = .53$, $\underline{p} < .01$) and to self-concept ($\underline{r} = -.51$, $\underline{p} < .01$).

TABLE 1

Means, Standard Deviations, and Ranges of Field Dependence, Self-Concept, Intelligence, and Figure Drawings

Groups	Field Dependence			Self-Concept			Total Intelligence			Figure Drawings		
	Mean	Range	Stand. Dev.	Mean	Range	Stand. Dev.	Mean	Range	Stand. Dev.	Mean	Range	Stand. Dev.
Total Group (N = 30)	9.93	0-18	5.30	123.73	34-258	70.06	104.80	83-131	13.03	2.77	1-5	1.50
Males Only (N = 17)	10.18	0-18	6.00	131.12	34-256	68.21	102.88	83-127	13.45	3.06	1-5	1.68
Females Only (N = 13)	9.63	2-16	4.44	110.23	46-258	72.87	107.31	87-131	12.55	2.38	1-4	1.09

TABLE 2

Pearson's Product-Momemt Correlations

Groups	Field Dependence by Self-Concept	Intelligence by Field Dependence	Intelligence by Self-Concept	Field Dependence by Figure Drawing	Self-Concept by Figure Drawing
Total Group (N = 30)	-.22	.53**	-.51**	-.47**	.36
Males Only (N = 17)	-.51*	.58*	-.50*	-.77***	.52*
Females Only (N = 13)	.23	-.19	-.48	.11	.03

* $p < .05$
** $p < .01$
*** $p < .001$

The data were then subdivided to examine the relationship of variables within male and female groups. These product-moment correlations also appear on Table 2. For the male group, field dependence and intelligence scores were significantly related ($r = .58$, $p < .05$), as well as intelligence scores and academic self-concept ($r = -.50$, $p < .05$). The results also show that for males, field dependence and academic self-concept were significantly related ($r = -.51$, $p < .05$). However, for females, there were no significant correlations among any of the three variables. Analysis indicated a slightly negative relationship between intelligence scores and field dependence for females.

A separate section of the data analysis dealt with the relationship between field dependence and academic self-concept and body concept, as measured by DAP scores. An independent rater blindly scored all the drawings using the WSS. Interrater reliability was .84. These product-moment correlations are also shown in Table 2. The results indicate a highly significant relationship between the CEFT and the WSS in the total group ($r = -.47$, $p < .01$). This relationship was most significant for the male group ($r = -.77$, $p < .001$), while there was no significant relationship between these variables for the female group. The correlations are again in a negative direction, because the higher the score on the WSS, the more primitive the drawing.

Table 2 also shows that the relationship between the body concept and the academic self-concept scores approached significance for the total group ($r = .36$, $p < .10$), and was significant for males ($r = .52$, $p < .05$).

The relationship between the WSS and academic self-concept for females was insignificant.

In order to statistically control the effects of separate variables, partial correlations were used to further analyze the data. These results are presented in Table 3. When the effects of IQ were partialled out, the highest relationship between field dependence and academic self-concept appeared for the males, although it was not significant. There was a slight negative relationship between these variables for both the females and the total group.

When academic self-concept scores were partialled out, a highly significant relationship appeared between field dependence and intelligence scores ($\underline{r} = .50$, $\underline{p} < .01$) for the total group, while it approached significance for the males ($\underline{r} = .44$, $\underline{p} < .10$).

When field dependence scores were partialled out, there was a highly significant relationship between academic self-concept and intelligence scores for the total group ($\underline{r} = -.47$, $\underline{p} < .01$).

Summary of Findings

The product-moment correlations indicated that academic self-concept and field dependence were not significantly related for the total group and did not support the specific hypothesis. However, further analysis indicated a significant positive relationship between field independence and a high self-concept in sixth grade males. These correlations were somewhat lower for all groups when intelligence scores were partialled out, but again approached

TABLE 3

Partial Correlations

Groups	FD x SC : IQ	FD x IQ : SC	SC x IQ : FD
Total Group (N = 30)	.06	.50**	-.47**
Males Only (N = 17)	-.32	.43*	-.29
Females Only (N = 13)	.16	-.10	-.46

* $p < .05$
** $p < .01$

significance for the males. The analysis of relationships between field dependence and intelligence scores indicated a significant relationship for the general group and for males. This was also true of self-concept and intelligence scores. The examination of body concept scores and field dependence scores indicated a significant positive relationship for both the total group and for the males, but a slightly negative relationship for females.

CHAPTER IV

DISCUSSION

The purpose of this study was to examine the relationship between field dependence and academic self-concept in children. Subjects were administered the Group Embedded Figures Test (GEFT), Behavioral Q Sort, the Short Form Test of Academic Aptitude (SFTAA), and the Draw-a-Person Test (DAP). Scores on the GEFT and Behavioral Q Sort were tested for the hypothesized relationship. The SFTAA scores were used as a measure of intelligence, and the DAP scores were used as a measure of 'sophistication-of-body-concept.'

The results of this study did not support the specific hypothesis that there would be a significant positive relationship between a high academic self-concept and field independence in children. However, when the data were separately analyzed for the male and female group, the relationships between several variables differed for the two groups.

In the male group, there was a significant correlation between academic self-concept and field dependence. Although this relationship did not reach significance when the effect of IQ was partialled out, it was still in the expected direction. For females, all correlations on these same variables were generally low and negative.

According to Witkin (1954), sex differences in field dependence scores, as measured by the Embedded Figures Test, were not significantly different until the 17-year-level. He also did not find differences in the stability of scores among the sexes in 8, 10, and 13-year olds. The mean field dependence scores of this study replicate Witkin's findings of minimal male-female variation in field dependence at this age level. The different correlations may be attibutable to the varying relationship of these measures to other variables in each sex.

Busch (1971) and Dubois (1971) present conflicting data regarding the need to control IQ scores when comparing samples on field dependence. The results of the present study concur with Dubois, since differences were apparent when IQ scores were partialled out. All correlations indicated definite relationships between the academic self-concept and general intelligence scores for both the total group and for males. This relationship was negative for females.

Witkin (1962) studied the relationship between WISC scores and field dependence and concluded that the significant relationship frequently reported between measures of field dependence and total standard intelligence scores is largely 'carried' by those portions of intelligence tests which require analytical functioning. Witkin has also acknowledged that, in general, girls have better verbal communication skills. The field dependence-intelligence relationships could be due to the possibility that the general intelligence score for males was 'carried' by their analytical performance abilities, while verbal ability was the greater determinant of female scores. Future research in this area is needed to clarify these factors.

The results of this study regarding various correlations with body concepts, derived using the WSS, yielded further sex differences. For males, there was a significant relationship between their body concept and academic self-concept. This relationship was random for the female group. According to Witkin (1954), the "presence or absence of a relatively well-defined self-concept is an important factor related to perceptual performance" (p. 473). He believed the figure drawings to be highly indicative of the individual's self-concept.

In this study, the highly significant relationship between field dependence and figure drawing scores was true for the total group and for the males. The female group was again an exception. This may result from the fact that for 11-year-old females, both their body concept and academic self-concept are related to different variables than those of their male counterparts. This notion coincides with Witkin's (1954) findings that there was evidence of "a closer connection in men than in women between attitudes towards the body and other aspects of psychic life" (p. 485). He cites the problems of sexual growth that assume somewhat different forms in males and females as partly accountable for some differences in their body concepts.

The importance of peer acceptance in these pre-adolescent children is widely recognized. Witkin (1962) cited studies that suggest that boys, who are field independent, are popular with other boys. Girls tend to rate other field dependent girls as having high sociometric status. This distinction may have definite relevance to the varying self-concepts of the males and females

in relation to their field dependence scores.

Crandall's and Lacey's study (1972) with elementary school children further illuminates the sex discrepancies found in this study. They also discovered that intelligence scores correlated significantly with Embedded Figures Test scores for males. In their female group, partial correlations indicated that their perceptions of being responsible for their own rewards and punishments was the factor most predictive of their field dependence scores. The difference between such females, and those who feel some external agent controls their experiences, may also be operant in the results of this study.

Perhaps the Behavioral Q Sort, as the measure of academic self-concept used in this study, requires further examination with respect to sex differences. Kroth (1971) has stated that "the real/ideal sortings of some children do not reveal the expected discrepancies" (p. 321). High achievement needs sometimes account for 'mal-adjusted' scores. A possible shortcoming of the derived self-concept score for females may be the result of the fact that several of the sorted behavioral items appear more applicable to the aggressiveness more often attributed to males. This could have resulted in some of the discrepancies among the various relationships with the academic self-concept.

The educational implications of the various relationships found in this study are apparent. The construct of field dependence was investigated because of its relationship to the development of an adaptive cognitive style. The flexibility to deal optimally with acquired knowledge is a major goal

that should be fostered within our educational system. The importance of self-concept for academic achievement cannot be overlooked in the pursuit of the quality of adaptiveness. The significant relationships discovered between intelligence scores and self-concept confirm the importance of self-concept for education.

The relationship between self-concept and field dependence should not be overlooked. Boschi & Loprieno (1968) have noted the possibility of effective intervention leading to improved personality development. Witkin's (1962) studies on parent-child relations showed that field dependent children were not urged to be actively analytical or develop impulse control, and were guided towards conformity. Field independent children had received early encouragement for the development of curiosity and responsibility. He also found that adult females are generally less field independent than males. This may reflect the cultural roles fostered by our society, whereby males have traditionally been more encouraged to develop independent characteristics. Perhaps the schools can play a greater role in universally fostering both positive self-concepts and independent attitudes.

In summary, the results of this study indicate a significant relationship between academic self-concept and field dependence for elementary school males, but not for females. The present study also supports Witkin's (1962) findings regarding a highly significant relationship between 'sophistication-of-body-concept' and differentiation in children. The results also indicate that

there is a very significant relationship between general intelligence scores and field dependence.

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APPENDIXES

APPENDIX A

Instructions for the Administration of the GEFT

The test booklets were distributed and the subjects were told to read the directions and do the two practice problems. Subjects were then told to consult the back cover of their booklets to find the appropriate simple forms. They were asked to trace it in pencil over the lines of the complex figure. They were told to note the following points:

1. Look back at the simple forms as often as necessary.
2. Erase all mistakes.
3. Do the problems in order. Don't skip unless you are stuck on a problem.
4. Trace only one simple form for each problem, even if you see more than one.
5. The simple form in the complex figure must be the same size, the same proportion, and face the same direction as it does on the back cover of the booklet (Oltman, Raskin, & Witkin, 1971).

They were told that they would have 3 minutes for the First Section. This was an unscored practice section. They were told they would have 8 minutes to complete the Second Section and also 8 minutes to complete the Third Section.

APPENDIX B

Sophistication of Body Concept Scale Ratings

1 - Most sophisticated drawings

. . . high form level . . .

appendages and details represented in

proper relation to the body outline . . .

appropriate detailing . . .

sophistication in mode of presentation.

2 - Moderately sophisticated drawings.

. . . definite attempt at role assignment

through adequate detailing, shaping, clothing . . .

integration of parts attempted.

3 - Drawings intermediate in level of sophistication

. . . identification of sex is evident . . .

fair level of integration of parts are manifest . . .

minimum of detailing is present.

4 - Moderately primitive drawings

. . . lack features of differentiation through

form, identity, or detailing, however, . . . show

slightly more complexity in some respect . . .

5 - Most primitive and infantile drawings

. . . very low level of form . . .

. . . no evidence of role or sex identity . . .

(Witkin, et al., 1962, pp. 120, 121)

APPENDIX C

Behavioral Q Sort Items

1. Gets work done on time.
2. Pokes or hits classmates.
3. Out of seat without permission.
4. Scores high in spelling.
5. Plays with objects while working.
6. Scores high in reading.
7. Disturbs neighbors by making noises.
8. Is quiet during class time.
9. Tips chair often.
10. Follows directions.
11. Smiles frequently.
12. Often taps foot, fingers, or pencil.
13. Pays attention to work.
14. Works slowly.
15. Throws objects in class.
16. Reads well orally.
17. Talks to classmates often.
18. Scores high in English.
19. Talks without permission.

20. Rocks in chair.

21. Scores high in arithmetic.

22. Asks teacher questions.

23. Uses free time to read or study.

24. Works until the job is finished.

25. Walks around the room during study time.

Q Sort Categories

1 - Most like me

2 - Very much like me

3 - Like me

4 - A little like me

5 - Undecided

6 - A little unlike me

7 - Unlike me

8 - Very much unlike me

9 - Most unlike me

(Kroth, 1971)

APPENDIX D

Raw Scores for Males

Subjects	Intelligence	Field Dependence	Self-Concept	Figure Drawings
1	127	18	34	1
2	127	17	62	2
3	122	15	90	3
4	109	2	118	3
5	107	9	238	4
6	106	12	108	3
7	105	12	108	3
8	103	17	168	1
9	102	12	154	5
10	102	1	216	5
11	101	12	201	3
12	98	10	68	3
13	97	15	50	2
14	90	0	138	5
15	89	13	180	2
16	83	2	256	4
17	81	5	130	4

Raw Scores for Females

Subjects	Intelligence	Field Dependence	Self-Concept	Figure Drawings
18	131	16	48	1
19	124	10	46	2
20	117	2	118	2
21	111	6	52	1
22	110	5	108	2
23	109	2	118	3
24	107	7	68	3
25	106	4	84	2
26	105	13	64	4
27	104	14	246	1
28	96	13	163	3
29	88	13	46	3
30	87	13	258	3