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Relationships among Cognitive Style, Learning Style and Targeted Reading Skills

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RELATIONSHIPS AMONG COGNITIVE STYLE, LEARNING STYLE AND TARGETED READING SKILLS

THESIS

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ABSTRACT

This study investigated the relationships among cognitive style, learning style and targeted reading skills. To determine the variables the sample, 18 college students, was given the Group Embedded Figures Test, an adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire, the McGraw-Hill Basic Skills System Reading Test, the LaPray-Ross Graded Word List, and a cloze passage.

The test scores and subscores were computer analyzed to determine correlation coefficients. Significant results were found between cognitive style (field dependence/independence) and several of the targeted reading skills. No significant correlation was shown between cognitive style and learning style. Learning style did not correlate significantly with the targeted reading skills.

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Chapter I

Statement of the Problem

Purpose

The purpose of this study was to determine the relationships among cognitive style, learning style, and targeted reading skills. The aspect of cognitive style which was assessed is field dependence/independence. Among the targeted reading skills measured were: identifying words in isolation, completing a cloze passage, adapting rate to material and purpose, skimming and scanning, and comprehension. The catagories of learning style determined by the adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire were: independent, avoidant, collaborative, dependent, participant, and competitive.

Need for the Study

In recent years there has been a resumed interest in cognitive style. The original interest was in the field of psychology; however, the current interest encompasses many other fields, including education. Cognitive style refers to the manner in which an individual conceptually organizes his/her environment (Goldstein & Blackman, 1978). For example, one individual might be globally oriented and very aware of the opinions of others, while another individual might be very analytical and personally aware. The measurement of cognitive style is focused on the

structure rather than the content of thought, and the behavioral consistency of that structure is viewed as the end product (Goldstein & Blackman, 1978). "Structure refers to how cognition is organized; content refers to what knowledge is available." (Goldstein & Blackman, 1978, p. 4).

One type of cognitive style of interest to education is field dependence/independence, which can be defined as an articulated-global continuum of individual differences in information processing (Martens, 1976). One behavioral trait measured in this style is the ability or lack of ability to separate an item from its surrounding field. The dimension of field dependence/independence has been studied in relation to many aspects of learning, some of which are: curricula choice (DeRussy & Futch, 1971; Martens, 1976), creativity (Spotts & Mackler, 1967), implications for teaching (Mahlios, 1978; Ohnmacht, 1967; Stuart, 1967), and reading achievement (Blanton & Bullock, 1973; Daku, 1978; Davey, 1976; Kaplan, 1970; Stuart, 1967; Wineman, 1971).

Derussy and Futch found that students whose curricula choice was liberal arts were more field dependent than those who chose math, science, or physics. Field dependent college students tend to be more socially oriented, majoring in areas that emphasize working with others, while field independent students tend to choose careers of a more technical nature (Martens, 1976). It has also been shown that field dependent students are poorer in analytical problem solving than field independent students (Martens, 1976).

Spotts and Mackler (1967) found that field independent students scored higher on creative test performance than field dependent students.

Students and teachers give evidence of field dependence/independence suggesting that the matching of students and teachers of similar cognitive style might be effective for enhancing the learning experience (Mahlios, 1978). Ohnmacht (1967) suggested the determination of a student-teacher's cognitive style would enable that person to be aware of his/her teaching style and the options available to him/her.

Field dependence/independence has been shown to have a significant relationship to reading achievement (Blanton & Bullock, 1973; Kaplan, 1970; Stuart, 1967). Stuart (1967) found strong positive correlation for seventh and eighth graders between field independence and reading achievement. Kaplan (1970) found positive results for first and second graders. However, the findings of several studies were inconclusive. Wineman (1971) found mixed results, with field dependence/independence significant for fourth and sixth graders, but not for fifth graders. Daku (1978) found that when IQ was controlled there was no significant difference between field dependent/independent sixth graders on reading comprehension test scores.

On the whole, field dependence/independence has shown a significant correlation with reading achievement, but further examination of the components of the reading process needs to be carried out. This

study examined the relationships among field dependence/independence and targeted reading skills.

Another variable in this study was learning style, what the individual perceives as his/her best way of learning. Grasha (1972) developed a questionnaire to determine student response styles to methods of teaching. An adaptation of this questionnaire was used to determine if the way a student perceives his/her best method to learn (learning style) is correlated with field dependence/independence. It was also used to determine if learning style is correlated with targeted reading skills.

Definitions

Cognitive style: This refers to the extent an individual perceives a given part of a field as distinct from the surrounding field as a whole (Daku, 1978). This cognitive style is seen as a continuum, with field dependence at one end and field independence at the other.

Field dependence: At one end of the continuum is field dependence (FD) which is the degree of dependence of the structure of the prevailing visual field (Witkin, Lewis, Hertzmann, Machover, Messner, & Wapner, 1972). Individuals who are field dependent tend to be globally and socially oriented.

Field independence: At the other end of the continuum, field independence is the degree of ability to separate an item from the

configuration in which it occurs (Witkin et al., 1972). Individuals who are field independent tend to be analytical and internally oriented.

In this study field dependence/independence was determined by the Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971).

Learning style: This refers to the style the individual perceives as the best way for him/her to learn, as determined by the scores obtained on an adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire.

Targeted reading skills: These are identifying words in isolation, completing a cloze passage, reading at a rate appropriate for level, adapting rate for material and purpose, retention, skimming and scanning, and comprehension.

Words in isolation: This refers to the score achieved on the LaPray-Ross Graded Word List, when the words were presented one at a time. Words which were graded from seventh to eleventh were used.

Cloze procedure: The method for determining a student's reading comprehension, giving attention to syntactic and semantic correctness on a given selection is called the cloze procedure. The procedure involves eliminating every fifth word, substituting a uniform line, and asking the subject to supply the missing word (Farr, 1969).

Comprehension: This was measured by the score on the paragraph comprehension subtest of the McGraw-Hill Basic Skills System Reading

Test, Form B, 1970 Edition (Raygor, 1970).

Limitations of the Study

The limitations of this study can be directly related to the small number of the subjects in the sample, eighteen, and the fact that this might not be a representative group of college students. The sample was evenly divided between females and males and was basically taken from a select group of the college population. Most of the subjects were enrolled in developmental reading or writing classes, because they needed additional academic support. Therefore, conclusions drawn from this study may not be extended to other groups without further research.

Summary

There is a need to investigate the relationships between cognitive style and some of the components of the reading process, since research has demonstrated mostly a positive correlation between field dependence/independence and reading achievement. The research reported throughout the literature deals mainly with the outcome of the reading process, achievement, with most of the research relating to elementary and secondary readers. Additionally, there is a need to determine the relationships between: learning style and cognitive style; and learning style and targeted reading skills. This study examined relationships among some of the variables of college reading and cognitive style and learning style.

Chapter II

Review of the Literature

Purpose

This chapter contains a general discussion of cognitive style (field dependence/independence in particular), a review of the literature dealing with field dependence/independence and reading, and a discussion of learning styles.

Cognitive Style

Educators have for many years realized that each student is an individual, and that many factors can affect how a student learns. Abilities, values, demographic differences, and personality are just a few of these factors. In the last few decades, cognitive styles have been recognized as factors which have implications in the classroom.

Cognitive style, as a general concept, can be defined as the individual variation and preference in perceiving, remembering, and thinking (Davey, 1976; Kogan, 1971).

> First, cognitive styles are concerned with the form rather than the content of cognitive activity. They refer to individual differences in how we perceive, think, solve problems, learn, relate to others, etc. The definition of cognitive styles is thus cast in process terms.
>
> Second, cognitive styles are pervasive dimensions. They cut across the boundaries traditionally--and, we believe, inappropriately--used in compartmentalizing the human psyche and so help restore the psyche to its proper status as a holistic entity.

> A third characteristic of cognitive styles is that they are stable over time. This does not imply that they are unchangeable; indeed, some may easily be altered. In the normal course of events, however, we can predict with some accuracy that a person who has a particular style one day will have the same style the next day, month, and perhaps even years later.
>
> Fourth, with regard to value judgments, cognitive styles are bipolar. This characteristic is of particular importance in distinguishing cognitive styles from intelligence and other ability dimensions. To have more of an ability is better than to have less of it. With cognitive styles, on the other hand, each pole has adaptive value under specified circumstances, and so may be judged positively in relation to those circumstances. (Witkin, Moore, Goodenough, and Cox, 1977, p. 15-16)

There are many separate dimensions of cognitive style, but in this study field dependence/independence was the only dimension studied and measured. The field dependence/independence dimension is probably the most widely known and researched (Kogan, 1971). Originally, the research in the area of field dependence/independence was concerned with the perceptual ability of individuals to orient themselves in space. The Rod and Frame Test (RFT) and the Body Adjustment Test (BAT) are two measures which require the subject to judge the position of an item (e.g. a rod, his body) in a field and adjust it to the true vertical. Structurally similar to these tests, but differing in regard to the specific perceptual function, is the Embedded Figures Test (EFT). Both the RFT and the BAT are concerned with the orientation toward the upright in space, while the EFT requires the disembedding of a figure from a more complex one. All three measures have in common that the subject must separate a part of the field from the whole. Showing this communality

in their structure, high consistency in subjects' mode of performance was found across the EFT, RFT, and BAT (Witkin, Oltman, Raskin, & Karp, 1971). From the original EFT developed by Witkin (1950) several other tests have been developed. Among these are: a shortened version of the EFT (Jackson, 1956); a version for children (CHEF) (Goodenough & Eagle, 1963); the Children's Embedded Figures Test (CEFT) (Karp & Konstadt, 1971; in Witkin, Oltman, Raskin, & Karp, 1971); and the Group Embedded Figures Test (GEFT) (Witkin, Oltman, Raskin, & Karp, 1971). All these measures of field dependence/independence have had satisfactory reliability coefficients, both in internal consistency and test-retest analyses (Kogan, 1971; McDaniel, 1973; Witkin, et al., 1971).

Field dependence (FD) and field independence (FI) are seen, respectfully, as the global and analytical dimensions of perceptual functioning. Various characteristics of field dependent/field independent persons have been identified. The following table, compiled by Dixon (1977), shows the extreme differences which have been identified for persons at either end of the continuum, (p. 4).

Field Dependent	Field Independent
Great awareness to social cues (e.g. facial expression, eye contact, body language)	Little awareness of social cues
"People oriented"--desire for physical closeness	Impersonal orientation--maintain physical distance
Influenced by ideas of others	Individualistic

Cooperative	Competitive
Sensitive to external positive or negative reinforcement	Sensitive to intrinsic motivational factors
Non-directive in relationships with others	Directive in interpersonal relationships
Accepting of environmental organization	Overcoming or restructuring of field organization
"Big picture"	Significant details

"Field-dependent subjects may well be more adept at the art of interpersonal accomodation; field-independents seem better able to resist the influence of others" (Kogan, 1971, p. 253).

Kogan (1971) also states that "those styles possessing the quality of a capacity (Witkin's analytical-global dimensions) are more resistant to modification than those styles which have the properties of a strategy" (p. 290). There is a considerable amount of evidence to support field dependence/independence as an important dimension of cognition, distinct from intelligence and verbal abilities, which has implications for thinking and learning (Vernon, 1972).

Field Dependence/Independence and Reading

A number of studies have been carried out with field dependence/independence and reading ability. The following are descriptions of these studies.

Cox (1976), using the Portable Rod and Frame Apparatus (PRFA), the Slosson Oral Reading Test (SORT) and the Slosson Intelligence

Test (SIT) in kindergarten, found that field independent children were not more likely to be early readers than field dependent children. She found no significant differences in cognitive style between early and non-early readers.

Gill, Herdtner and Lough (1968) examined perceptual performance in 184 nursery, kindergarten and first grade children. A Frostig test, the Modified Rod and Frame Test (MRFT) and the Metropolitan Achievement Test were used to measure the different variables. They found that the MRFT was a moderate predictor of reading success for boys, but the correlations on the Frostig and the Metropolitan were more highly correlated with predicted academic success for girls.

Gluck (Davey, 1976) found a strong positive relationship between field independence and spelling and word study skills for first graders.

Dermott (1978) used two dimensions of field dependence/independence, the Portable Rod and Frame Test (PRFT) and the Children's Embedded Figures Test (CEFT), and correlated them to nine other variables to predict specific reading skills at the end of first grade. The field dependence/independence of the CEFT was found to be a better predictor of specific reading skills than the vertical (PRFT), but both were poor predictors. Dermott (1978) felt the importance of field dependence/independence seems to lie only with the difficulty a poor reader may have in discriminating parts inside of wholes.

Baber (1977), using 71 first graders and 94 fourth graders, found a significant correlation between field dependence/independence and several other variables and silent reading comprehension in the first grade. He also found a significant correlation between field dependence/independence and silent reading comprehension in the fourth grade.

Investigating the effect of teachers' cognitive style in relation to students' reading achievement and field articulation at the end of first grade, Estes (1976) found no significant results. The Portable Rod and Frame Apparatus (PRFA) was used to measure cognitive style in the students; the Group Embedded Figures Test (GEFT) was used to determine the teachers' cognitive style; and the Cooperative Primary Tests, reading subtests, were used to measure reading achievement.

Smith (1973) studied the interrelationships among five measures of aided reading comprehension and three measures of cognitive style variables in 34 first grade children. The instruments used were the Children's Embedded Figures Test (CEFT), the Matching Familiar Figures Test (MFFT) and Sigel's Cognitive Style Test, for cognitive styles; the Wechsler Intelligence Scale for Children, for IQ; and the Wisconsin Tests for Reading Skills Development, for reading skills. With intelligence controlled, significant relationships between the CEFT and reading for details were found for females ($r=.611$, $p<.01$) and for the total sample ($r=.480$, $p<.01$). Smith

concluded that the...

> data derived from the present study are interpreted as support for emphasizing the potentially important roles which cognitive styles may play in the understanding of processes involved in aided reading comprehension and in the teaching of reading comprehension skills. (p. 82)

Watson (Blanton & Bullock, 1973; Daku, 1978) found significance for Paragraph Meaning, Word Study Skills and Total Reading with field dependence/independence for first, second, and third grade boys. The measures used were the Children's Embedded Figures Test (CEFT), the Stanford Achievement Test (reading portion) and the Draw-A-Person Test. Watson found that field independent boys were better readers than field dependent boys in the first, second and third grades.

Bruininks (1969) found six variables with a significant relationship to reading achievement. They were: the Wepman Auditory Discrimination Test, Digit Span (from Wechsler Intelligence Scale for Children), Children's Embedded Figures Test, Roswell-Chall Auditory Blending Test, Auditory Attention Span for Related Syllables (from Detroit Tests of Learning Aptitude), and Visual Automatic Test. His population consisted of 105 disadvantaged boys with a mean age of 8.7. Ninety-five of the subjects were in third grade; 10 were retained in the second grade. The correlations were low to moderate and ranged in absolute value between .235 and .557.

Mixed results were found by Wineman (1971): Field dependence/independence was found to be significantly related to reading

ability for males and females in the fourth and sixth grades, but not in the fifth grade. Field dependence/independence was measured by the Human Figures Drawing Test, evaluated for sophistication. Reading ability was measured by the California Reading Test. Significant correlations ($p < .01$) were found for both males and females on Reading Vocabulary (r_b = .49 and .92) and Reading Comprehension (r_b = .52 and .97).

Conoley (1976) studied differences in cognitive style and visual motor ability in 89 fourth grade students divided into good, average and poor readers. Instruments used were the Children's Embedded Figures Test (field dependence/independence), Matching Familiar Figures Test (conceptual tempo-the differences in the speed with which subjects make decisions under conditions of uncertainty), Pick Two Pictures Test, Developmental Test of Visual Motor Integrity, and Slosson Intelligence Test. She found no significant differences in conceptual tempo, but found differences in the field dependence/independence of the three groups. Good and average readers were more field independent than poor readers.

Kaplan (1970) examined the relationships among cognitive style, personality traits and reading achievement using 100 fourth grade students. The Embedded Figures Test and the Metropolitan Reading Achievement Test were the instruments used. Significant results were found between field independence and reading achievement (r = .464 at the .01 level).

Fiebert (1967) used the Rod and Frame Test, the Children's Embedded Figures Test and the Poppelreuter Test (P-T) to study cognitive differentiation among deaf children. He found low level relationships between field independence and reading ability for girls, but not for boys.

Daku (1978) used 222 sixth grade students to examine field dependence/independence and reading achievement relationships. The Group Embedded Figures Test and the Iowa Tests of Basic Skills (vocabulary and comprehension sections) were used as measures of field dependence/independence and reading achievement. He found no significant differences between field dependent and field independent students in reading achievement when IQ was controlled.

McDaniel (1973) examined 10 motion picture tests of perceptual ability with 48 public school children, grades one through six, 24 of which were compared with a dyslexic group. He found that Embedded Figures and Spatial Orientation of Objects have the highest correlation with reading, with a range of .21 to .65 ($r = .194$ at the .05 level). Analysis suggests...

> the ability to recognize visual patterns accurately, to hold such patterns in memory, and to find the patterns among distracting elements may be among the more important perceptual processes related to severe reading disabilities. (McDaniel, 1973, p. 758)

Cohn (1968) tested 59 boys and 63 girls in sixth grade with the Sangren-Woody Reading Test, the Lorge Thorndike Intelligence Test and the short form of the Embedded Figures Test. He found significant

positive correlations with those aspects of comprehension that require reorganization of a field to solve a problem and field independence. Variables partialed out were the effects of sex and verbal, nonverbal, and total intelligence.

Stuart (1967) used the Embedded Figures Test and the Metropolitan Reading Achievement Test with 83 seventh and eighth grade students. He found a strong positive correlation between field independence and reading grade achievement. In general, good readers seem to be less dependent upon the perceptual field than poor readers.

Santostefano, Rutledge and Randall (1965) compared 24 boys aged 8 to 13, who were classified as remedial readers, with 24 boys of the same age (control group), classified as good readers, for cognitive style. They determined that the failure to have available the critical cognitive mechanisms which actively select, organize, assimilate, and process shapes and forms result in a reading disability (Santostefano et al., 1965).

Ausburn, Back and Hoover (1976) examined 80 students, between the ages of 15 and 17, 40 designated non-remedial and 40 designated remedial as identified by the Reading for Understanding Placement Test, with two tests of cognitive style. The measures of cognitive style used were the Hidden Figures Test (HFT) for field dependence/independence and the Matching Familiar Figures Test (MFFT) for reflectivity/implusivity. Average readers (non-remedial) scored significantly higher than the remedial readers. They were found to be more field independent and reflective than the remedial group.

Analysis showed the HFT scores ($F = 9.4947$, $df = 1,78$, $p<.005$), MFFT errors ($F = 5.4818$, $df = 1,78$, $p<.025$), and latency on MFFT ($F = 13.5333$, $df = 1,78$, $p<.001$) were each significant predictors of reading status (remedial/non-remedial) when each was considered separately as a simple linear predictor variable.

Petersen and Magaro (1969) used the Embedded Figures Test with high school students, 10 enrolled in regular class and 10 enrolled in special education class. The correlations were not statistically confirmed, however, they felt it was important that all the statistics were in the predicted direction. Tasks which require disembedding are learned slower by field dependent persons.

Martin (1979) examined 123 college students, the majority enrolled in reading and study skills classes, and found no significant relationships between the Hidden Figures Test and reading performance.

Overall, the research on cognitive style and reading achievement indicates a positive relationship between the two. The research shows that field independent students encounter a greater degree of reading and academic success, particularly when the tasks are self-directed as is so often the case in the classroom, than field dependent students.

Learning Styles

The placement of a student into an educational program should be on the basis of the way a student learns, not on the hypothetical

value of a given program (Kaley, 1977). The design of a given program or the teacher's manner of presentation many times do not take into account the students' individual differences in learning. "Individual differences occur in how fast we learn and the approach we take to learning" (Grasha, 1978, p. 99). Teaching styles, as well as learning styles, affect the amount of learning in a classroom. A teacher's consciousness of the range of students' abilities in a class are partly biased by class designs which favor the teacher's needs rather than the students' needs (Grasha, 1972).

Grasha (1972), cognizant of the differences in the approach to learning, identified six different learning styles--avoidance, dependent, competitive, participant, collaborative, and independent. The following are descriptions of those learning styles:

> (Competitive) This response is exhibited by students who learn material in order to perform better than others in the class. They feel they must compete with other students in the class for the rewards of the classroom, such as grades or teacher attention. They view the classroom as a win-lose situation, where they like to win.
>
> (Collaborative) This style is typical of students who feel they can learn the most by sharing ideas and talents. They cooperate with teachers and peers and like to work with others. They see the classroom as a place for social interaction as well as content learning.
>
> (Avoidance) This response style is typical of students who are not interested in learning course content in the traditional classroom. They do not participate with students and teachers in the classroom. They are uninterested or overwhelmed by what goes on in classes.
>
> (Participant) This style is characteristic of students who want to learn course content and like to go to class. They take responsibility for getting the most out of class and

participate with others when told to do so. They feel that they should take part in as much of the class-related activity as possible and little that is not part of the course outline.

(Dependent) This style is characteristic of students who show little intellectual curiosity and who learn only what is required. They see teacher and peers as sources of structure and support. They look to authority figures for guidelines and want to be told what to do.

(Independent) This response style is characteristic of students who like to think for themselves. They prefer to work on their own, but will listen to the ideas of others in the classroom. They learn the content they feel is important and are confident in their learning abilities. (Grasha, 1978, p. 73)

These learning styles are basically how individuals approach the learning environment in the classroom. There is evidence that student learning styles are important in what and how well students learn, but not for this particular measure of learning styles. This study used an adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire. The change being one of making the questions of a more general nature than the original. The appendix contains the questionnaire as used in this study.

Summary

As shown by the research, there seems to be a positive relationship between cognitive style and reading. Many variables affect how and what a child learns. It is necessary for all these variables to be identified for the complete understanding of each individual. The more the teacher knows about each individual the better able the teacher is to understand how that individual is functioning and

is better able to aid that person to his potential.

Any factor which affects how students learn should be of importance to educators. This study attempted to determine if two factors, cognitive style and learning style, are important to a particular group in relation with targeted reading skills.

Chapter III

Design of the Study

Purpose

This research study was interested with the degree of relationships among cognitive style, learning style and targeted reading skills. The study answered the following questions:

1. Is there a significant relationship between field dependence/independence and targeted reading skills?

2. Is there a significant relationship between field dependence/independence and learning style?

3. Is there a significant relationship between learning style and targeted reading skills?

Methodology

Subjects

The sample consisted of 18 college students, 9 males and 9 females, who were attending a four year co-educational college. Most of the subjects were enrolled in a developmental reading or writing class.

Instruments

The Group Embedded Figures Test (GEFT), Consulting Psychologists Press, Inc., 1971, was used as the means to determine field dependence/independence. The GEFT was designed as the group form

of the Embedded Figures Test (EFT), an individually administered test (Witkin et al., 1971).

The GEFT is a test of perception. The subject is to locate a simple form in a more complex figure in which it has been embedded. The simple form is always the same size, proportion and direction in the complex figure as when given in isolation. One score is obtained, the number of simple figures correctly outlined out of 18. This score reflects the subjects' ability of perceptual disembedding (Witkin et al., 1971).

The GEFT has a reliability estimate of .82 for both males and females as computed by the Spearman-Brown prophecy formula (Witkin et al., 1971). The validity coefficients for the GEFT are .82 for males and .63 for females when compared with the EFT (Witkin et al., 1971). The GEFT was normed on men and women from an eastern liberal arts college.

An adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire was used to determine subjects' dominate preference of learning style. The original learning styles questionnaire was developed to determine students' learning styles for a particular class, it was adapted to refer to classes in general. Studies have not been conducted to determine the reliability or validity, but it appears to give a good general indication of student learning style preference.

The McGraw-Hill Basic Skills System (MHBSS) Reading Test

(Raygor, 1970) was used to measure rate of reading, rate flexibility, skimming and scanning, and comprehension. The MHBSS Reading Test was designed to measure the student's general level of competence in those reading skills which are relevant to success in college (Raygor, 1970).

The MHBSS Reading Test is divided into three parts: Reading Rate and Comprehension (Part I), Skimming and Scanning (Part II), and Paragraph Comprehension (Part III); with a total of seven scores, four from Part I, one from Part II, one from Part III, and a total score. The four scores from Part I include: a rate score on an easy passage, a rate score on a hard passage, a retention score, and a reading flexibility score. In this study all the scores except the total were used. Form B of the MHBSS Reading Test was administered.

The MHBSS Reading Test has a coefficient of internal consistency of .89, using the Kuder-Richardson 20 formula (KR-20). The manual had no data on stability of scores or interform reliability.

The LaPray-Ross Graded Word List was used to examine words in isolation. Words graded from seventh to eleventh were typed on single cards and shown one at a time to each subject.

A cloze passage, every fifth word deleted, was used to examine syntactic and semantic competence of the subjects.

Procedure and Statistical Design

The McGraw-Hill Basic Skills System Reading Test was administered

to the subjects by their classroom teacher, during the later part of May. Within the same time period, the Group Embedded Figures Test, the adapted form of the Grasha-Riechmann Student Learning Styles Questionnaire, the cloze passage, and the LaPray-Ross Graded Word List were administered by the researcher. The graded word list was administered individually. To suggest anonymity, no student names or social security numbers were put on the reseacher's instruments. All instruments were coded by number prior to testing.

The data collected from the scores of these instruments were computer analyzed to determine correlation coefficients among the variables.

Summary

The degree of relationship among cognitive style, learning style and targeted reading skills was determined by obtaining from a sample of college students scores which indicated field dependence/independence, learning style, and various levels of functioning in subskills of reading. The scores were obtained by administering the Group Embedded Figures Test, the McGraw-Hill Basic Skills System Reading Test, and adaptation of the Grasha-Riechmann Student Learning Styles Questionnaire, a cloze passage, and the LaPray-Ross Graded Word List. Correlation coefficients were determined among the variables.

Chapter IV

Analysis of Data

Purpose

The relationships among cognitive style, learning style and targeted reading skills were examined in this study. This chapter contains: analysis of the data; findings and interpretations of the analysis.

Findings and Interpretations

The data from the various instruments was computer analyzed for relationships. When the correlation coefficients were computed between cognitive style and the targeted reading skills and between learning style and the targeted reading skills the following results were found: (see Table 1, p. 26)

Table 1

Correlation Coefficients Between

Targeted Reading Skills and: Cognitive Style; Learning Style

Reading Skills	Field dependence/independence	Learning Style
Easy passage rate	0.236	0.088
Hard passage rate	0.228	-0.028
Reading flexibility	0.103	0.165
Retention	0.660*	0.296
Skimming & scanning	0.564*	0.154
Comprehension	0.525*	0.183
Words in isolation	0.700*	0.398
Cloze (number exact)	0.781*	0.423
Cloze (number blank)	-0.719*	-0.439
Cloze (semantic)	0.243	0.349
Cloze (syntactic)	0.308	0.363

r_{crit} (alpha = .05, df = 16) = 0.4683

* = significant correlation

When the number of the sample is 18, the correlation coefficient must be 0.4683 (alpha = .05, df = 16) for a significant relationship to exist. When the findings of this study are compared with this figure, it is observed that a significant relationship exists between field dependence/independence and several of the

targeted reading skills. Field dependence/independence showed a significant relationship with: retention, r = 0.660; skimming and scanning, r = 0.564; comprehension, r = 0.525; identifying words in isolation, r = 0.700; the number of exact fill ins on the cloze passage, r = 0.781; and the number of spaces left blank on the cloze passage, r = -0.719. Because field dependence/independence correlated significantly with the number of exact fill ins on the cloze passage, it is to be expected that a significant negative correlation would be found between field dependence/independence and the number of spaces left blank on the cloze passage. The more spaces filled in correctly on the cloze passage the less blanks there would be. A negative significant relationship for the number of blanks would therefore be found with any variable that showed a significant positive relationship with the number of exact fill ins on the cloze passage.

The correlation coefficient between field dependence/independence and learning style was not significant, r = 0.320.

Learning style was not significantly correlated with the targeted reading skills. The range was, in absolute values, r = 0.028 for the rate on the hard passage to r = 0.439 for the number of exact fill ins on the cloze passage.

Witkin (1949, 1950) and others have found small but significant differences between field dependence/independence for males and females. This study did not find similar results. The correlation coefficient for field dependence/independence and sex was 0.214.

Table 2

Correlation Coefficients Among Targeted Reading Skills

	Easy Rate	Hard Rate	Read. Flex.	Reten.	Skim & Scan	Comp.	WII	Cloze (exact)	Cloze (blank)	Cloze (seman)
Hard Passage Rate	0.878*									
Reading Flexibility	0.735*	0.335								
Retention	0.607*	0.675*	0.219							
Skimming & Scanning	0.600*	0.636*	0.279	0.633*						
Comprehension	0.289	0.335	0.103	0.659*	0.492*					
Words in Isolation	0.196	0.085	0.211	0.507*	0.416	0.623*				
Cloze (number exact)	0.362	0.339	0.247	0.706*	0.550*	0.795*	0.692*			
Cloze (number blank)	-0.330	-0.397	-0.086	-0.708*	-0.577*	-0.715*	-0.545*	-0.887*		
Cloze (semantic)	0.048	0.080	-0.050	0.317	0.262	0.298	0.126	0.458	-0.682*	
Cloze (syntactic)	0.276	0.245	0.179	0.430	0.393	0.479*	0.284	0.581*	-0.795*	0.882*

r_{crit} (alpha = .05, df = 16) = 0.4683 * = significant correlation

This finding might be due to the small sample and the type of group studied.

See Table 2 for the results of the computer correlation coefficients among the targeted reading skills.

Rate on an easy passage correlated significantly with: rate on a hard passage, r = 0.878; reading flexibility, r = 0.735; retention, r = 0.607; and skimming and scanning, r = 0.600.

Rate on a hard passage correlated significantly with: retention, r = 0.675 and skimming and scanning, r = 0.636.

Retention showed a significant relationship with: skimming and scanning, r = 0.633; comprehension, r = 0.659; identifying words in isolation, r = 0.507; the number of exact fill ins on the cloze passage, r = 0.706; and the number of spaces left blank on the cloze passage, r = -0.708. Retention and comprehension differed in the kinds of information concerning which the reader must answer questions. Retention asked for factual information only, while comprehension asked for more advanced understanding (e.g. main idea, paragraph organization). Subjects were not allowed to look back while answering the retention questions, but could while doing the comprehension section.

Skimming and scanning, in addition to the variables previously mentioned, showed significant correlation with: comprehension, r = 0.492; the number of exact fill ins on the cloze passage, r = 0.550; and the number of spaces left blank on the cloze passage, r = -0.577.

Comprehension was additionally significantly correlated with: identifying words in isolation, r = 0.623; the number of exact fill ins on the cloze passage, r = 0.795; the number of blanks left on the cloze passage, r = -0.715; and the syntactic factor of the cloze, r = 0.479.

Identifying words in isolation showed significant correlation with: the number of exact fill ins on the cloze passage, r = 0.692 and the number of blanks left on the cloze passage, r = -0.545.

The number of exact fill ins on the cloze passage showed significant correlation with: the number of spaces left blank on the cloze passage, r = -0.887 and the syntactic factor of the cloze, r = 0.581.

The number of spaces left blank on the cloze passage showed significant negative correlation with: the semantic factor of the cloze, r = -0.682 and the syntactic factor of the cloze, r = -0.795.

The semantic factor of the cloze correlated significantly with the syntactic factor of the cloze, r = 0.882.

Summary

Field dependence/independence was found to correlate significantly with several of the targeted reading skills. They were retention, skimming and scanning, comprehension, identifying words in isolation, the number of exact fill ins on the cloze passage, and the number of spaces left blank on the cloze passage. No significant correlation was found between field dependence/independence

and learning style.

Learning style showed no significant correlation with the targeted reading skills.

Among the targeted reading skills, several showed significant relationships. The aspects of reading which showed the greater number of significant relationships were: retention, skimming and scanning, comprehension, exact filling in of the cloze passage, and the number of spaces left blank on the cloze passage.

Chapter V

Conclusions and Implications

Purpose

This chapter contains the conclusions that may be drawn from this study, implications for research and implications for the classroom.

Conclusions

The findings derived from this study indicate that field dependence/independence is a factor which is related to targeted reading skills. In particular, it is facile to understand the relationship between field dependence/independence and skimming and scanning. Both the GEFT and skimming and scanning require the locating and disembedding (in a sense) of something (e.g. a simple form, a word) from the surrounding context. The other variables--retention, comprehension, identifying words in isolation, the number of exact fill ins on the cloze passage, and the number of blanks left on the cloze passage--are not so easy to discern as to how they relate to field dependence/independence. It is understood that correlation does not signify causation; however, the significant relationships found in this study between field dependence/independence and several of the targeted reading skills are noteworthy.

Learning style, as determined for this study, showed no significant relationship with either the targeted reading skills or field dependence/independence.

Implications for Research

As with other studies, this study raised many additional questions.

Would a replication of this study using a random sampling of college students show the same significant results?

Would a replication of this study using a different measure of learning style change the significance for that factor?

Can causation be determined between field dependence/independence and the targeted reading skills found to be significantly correlated?

Given a group of field dependent students, would teaching them reading in a manner that utilizes their style to advantage show a significant increase in their reading achievement?

Implications for Classroom Practice

It has been demonstrated that the cognitive style of field dependence/independence does relate to the functioning of students in school. Field dependent students tend to rely more on external sources for support in learning than field independent students. Field dependent students tend to be more affected by social reinforcements and criticism than field independent students. Studies have demonstrated that field dependence/independence is related to the unique way each individual learns, therefore each individual's style must be taken into account for the many facets of learning. If an individual learns best when socially reinforced and/or when

taught in small groups, the teacher should be willing to make accomodations for his/her style.

If a specific cognitive style hinders a student's success in school, it is probably not his/her style which is at fault but the instructional practices with which he/she has to deal. The goal of educators today is to have each individual functioning at his/her highest level. Before this can happen, the method of instruction, the materials and even the style of education must fit each student's perceptual style.

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Appendix

STUDENT LEARNING STYLES QUESTIONNAIRE

Answer each statement as you generally feel about your classes.

Mark the answer you chose on the separate answer sheet.

Mark 1 if you strongly disagree with the statement
Mark 2 if you moderately disagree with the statement.
Mark 3 if you are undecided.
Mark 4 if you moderately agree with the statement.
Mark 5 if you strongly agree with the statement.

1. Most of what I know about materials relating to my courses, I learned on my own.
2. I have a difficult time paying attention during class sessions.
3. I find the ideas of other students relatively useful for helping me to understand course materials.
4. I think that if teachers let the students in classes do whatever they want, teachers would not be doing their job well.
5. I like other students in my classes to know when I have done a good job.
6. I try to participate as much as I can in all aspects of my courses.
7. I study what is important to me and not necessarily what the instructors say is important.
8. I feel that I have to attend my classes rather than feeling that I want to attend.
9. I think an important part of my classes is to learn to get along with other people.
10. I accept the structure teachers set for courses.
11. To get ahead in class, I think sometimes you have to step on the toes of other students.
12. I do not have trouble paying attention in class.
13. I think I can determine what the important issues are in my courses.
14. If I do not understand course material, I just forget about it.
15. For most courses, I think students can learn more by sharing their ideas than by keeping their ideas to themselves.
16. I think teachers should clearly state what they expect from students.
17. I think students have to be aggressive to do well in most classes.
18. I get more out of class than spending time at home.
19. I feel my ideas about the content of courses are often as good as those in the textbooks.
20. I try to spend as little time as possible on my courses outside of class.
21. For my courses, I like to study for tests with other students.
22. I like tests for my courses to be taken right out of the book.
23. I feel I must compete with other students in my classes to get a grade.
24. I attend classes because I want to learn something.
25. I am confident in my ability to learn the important material.
26. Most courses do not really interest me.
27. I think students should be encouraged to work together.
28. I feel that facts presented in textbooks and lectures are correct.
29. I like teachers to notice me.
30. I feel most activities I have in my classes are generally interesting.

31. I like to think things through for myself before my teachers lecture on course materials.
32. I seldom get excited about materials covered in my courses.
33. I prefer not to work alone on assignments.
34. Before working on a class project, I try to get the approval of the instructor.
35. To do well in my courses, I have to compete with other students for the teacher's attention.
36. I do my assignments before reading other things that interest me.
37. I do not like a lot of structure in my classes.
38. I have given up trying to learn anything from going to classes.
39. I like to hear what other students think about issues raised in class.
40. I think teachers are the best judge of what is important to know.
41. During class discussions, I feel that I have to compete with other students to get my ideas across.
42. I think most classes are worthwhile.
43. I work by myself on class related projects (e.g. studying for exams, preparing term papers).
44. I feel that activities in class are generally boring.
45. I prefer to work in groups rather than alone on class projects.
46. I try my best to do assignments for my classes the way the professors say they should be done.
47. I like to see if I can get the answers to problems or questions before anyone else in my classes does.
48. I am eager to learn about most areas covered in my classes.
49. I do assignmennts for my courses my own way without checking with other students about how they are going to do them.
50. I usually do not feel that I miss anything if I cut class.
51. I like to talk to other students outside of class about the ideas and issues raised in class.
52. I tend not to think or work on problems or issues related to my courses unless they were first covered in texts or lectures.
53. I think a student, in most courses, is hurting himself if he shares his notes and ideas with other students before an exam.
54. I feel I can really learn something in my courses.
55. I feel that too much assigned work keeps students from developing their own ideas.
56. I am in most of my courses only to fulfill a requirement.
57. I try to get to know other students in my classes on a personal level.
58. I think too much discussion in class prevents teachers from covering enough required material.
59. I like to know that I have done better than other students in my classes.
60. I do my assignments for my courses whether I think they are interesting or not.
61. My ideas about content issues are often as good as those of my instructors.
62. For most courses I sit where the teachers are unlikely to notice me.
63. I feel that students and teachers should develop the kind of relationship where the student can tell the teacher if he feels the course is not going well.
64. I feel I can learn what is important in my courses by doing what the professors say.

65. I think students should be graded according to how well they do in class.
66. I try to do the best I can in my classes.
67. I do not like teachers telling me what I have to learn.
68. I study just hard enough to get by in my courses.
69. I like courses where students are encouraged to discuss course materials.
70. I seldom try to learn materials related to my courses when it is not covered in the texts or lectures.
71. I like to know how well other students in my courses are doing on exams.
72. I feel I can get something out of going to classes.
73. I like courses that allow students to pursue topics that interest them.
74. I prefer that teachers never call on me.
75. I think learning should be a cooperative effort between the teacher and students.
76. I think the teacher should emphsize the content I must learn.
77. I only help other students with material for courses when I feel it will not hurt me.
78. In my classes I sit where I can be sure to hear my professors and see what they write.
79. If a topic raised in class interests me, I will go out on my own and find out more about it.
80. I think one of the most important things about a course is how easy it is for me to get a good grade.
81. I try to help other students when they have a hard time understanding course material.
82. I enjoy courses when class sessions are highly organized.
83. I do not like instructors to deviate from their lectures.
84. I work on reading assignments for my courses until I feel I understand the material.
85. I have my own ideas about how courses should be run.
86. I feel that most courses are not relevant to what I want to do when I graduate.
87. I feel a responsibility to help other students in my classes learn course material.
88. I try my best to write in my notes everything my teachers say.
89. I try to do my assignments better than other students.
90. I do my assignments as soon as possible after assignments are made.