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# Field dependence and recall of related and unrelated lists of words

Lynda L. King

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FIELD DEPENDENCE AND RECALL OF  
RELATED AND UNRELATED LISTS  
OF WORDS

by

Lynda L. King  
Bachelor of Science  
Denison University

A Thesis Submitted in Partial Fulfillment of  
The Requirements for the Degree of  
Master of Arts  
in the  
Department of Psychology  
of the  
Graduate School  
University of Richmond  
May, 1979

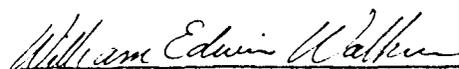
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BY  
LYNDA L. KING

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## Table of Contents

	Page
Introduction . . . . .	1
Method . . . . .	5
Results . . . . .	12
Discussion . . . . .	23
Appendix . . . . .	29
Reference Notes . . . . .	30
References . . . . .	31
Vita . . . . .	33

## Table of Figures

Figure	Page
1. Number of Words Recalled Across Trials for Blocked List of Words . . . . .	13
2. Number of Words Recalled Across Trials for Random List of Words . . . . .	14
3. Mean Number of Words Recalled Across Word Lists for Cognitive Styles . . . . .	18
4. Mean Number of Words Recalled Across Trials for Cognitive Styles . . . . .	21
5. Mean and Range of Subjective Organization Scores for All Cognitive Styles Who were Given Uncategorized List of Words . . . . .	25

Table of Tables

Table	Page
1. Word List . . . . .	7
2. Analysis of Variance: Cognitive Style, Word List, Trials . . . . .	15
3. Analysis of Variance: Cognitive Style By Word List Simple Effects . . . . .	16
4. Newman Kuels' Multiple Range Test on Cognitive Style By Word List Interaction . . . . .	19
5. Analysis of Variance: Cognitive Style By Trials Simple Effects . . . . .	20
6. Newman Kuels' Multiple Range Test on Cognitive Style By Trials Interaction .	22
7. Analysis of Variance: Subjective Organization . . . . .	24

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## Abstract

This study dealt with the particular cognitive style known as field-independence and field-dependence as an influential factor upon the number of words recalled from categorized and uncategorized lists of words across three trials. After being tested for cognitive style using Witkin's Group Embedded Figures Test, 6 subjects from each of three identified styles, field-independent, medium, and field-dependent, were given a related (categorized) list of words while 6 different subjects from each of the cognitive styles were given an unrelated (uncategorized) list of words. Each word list was presented three times with recall after each trial for every subject being recorded. An analysis of variance, analyses of simple effects, and Newman Kuels' multiple range tests all indicated that all subjects in all groups recalled a relatively equal number of words on the categorized word list, but on the uncategorized list, field-independent people recalled a significantly greater number of words than field-dependent people. But field-independent subjects did not use subjective organization, as measured by Tulving's formula, more than field-dependent subjects. It was postulated that with more than 3 trials, the use of subjective organization by the field-independent group might have become apparent.

Field Dependence and Recall of  
Related and Unrelated Lists  
of Words

The interest in cognitive psychology in recent years has been attributed to the Gestalt field of psychology, although today this school has been incorporated into other theories and may no longer be recognized as a separate entity (Lundin, 1972). Within the field of cognitive psychology much recent work has been devoted to what is called an individual's "cognitive style." Witkin and Moore (Note 1) define cognitive styles as truly broad personal styles, ". . . typical ways of processing information, regardless of whether the information has its primary source in the world outside or within ourselves; and, when in the world outside, regardless of whether the information is provided primarily by things or by other persons and their doings" (p. 2). Two cognitive styles known as field-dependence and field-independence have been differentiated by Witkin (1973).

Field-dependent individuals employ a global view of their surroundings; they do not see their field as discrete parts, separate from each other, but rather as a total whole. For relatively field-independent people, the world is seen as composed of separate entities. These individuals perceive analytically

(Stasz, Shavelson, Cox, and Moore, 1976; Witkin, 1973; Witkin and Moore, Note 1). When presented with a problem solving task, a field-dependent person takes a relatively long period of time to solve it when he must reorganize or impose his own structure to the material. In contrast, it has been noted that relatively field-independent individuals can solve problems more rapidly, and it has been suggested that the reason for this is that field-independent people can apply their own structure and organization to a particular problem (Witkin and Moore, Note 1).

Goodenough and Karp (1961) state that field-independent people actively initiate and organize relationships in their environment, whereas field-dependent persons are dependent on interpersonal relations and conforming. On perceptual tasks, the above authors found that field-independent persons can easily "break up" an organized perceptual field. They have little trouble overcoming the prevailing structure and separating the items from their context, organizing them into relationships. On the other hand, field-dependent people do not readily separate an item from its context but accept the present field or organization.

With college students, the difference between field-dependent and field-independent people is not a difference in their learning ability or memory, but rather because these people attune themselves to different

aspects of their environment or materials (Witkin, Moore, Goodenough, and Cox, 1977). This is an important factor to stress so that one does not conclude any results obtained might be a function of the ability to learn the material. Witkin and Moore (Note 1) contend that "field-dependent persons are better at learning and remembering social material and field-independent persons are better at learning and remembering impersonal material . . . the difference in what attracts them has found to make for opposite outcomes in learning efficiency for field-dependent and field-independent people in the same learning situation" (pp. 6-7). Therefore, differences in learning material is a function of how these two cognitive styles are utilized by the individuals. One style is not better than the other, each is just different.

A means for measuring and quantifying subjective organization has been put forth by Tulving (1962). Using a formula that he has derived, Tulving has shown that "subjects recall behavior manifests such subjective organization, that this organization increases with repetition, and that there is a positive correlation between organization and performance" (p. 270).

Along the same lines of word recall, evidence has been put forth to show that there is a blocked-random effect on the recall of word lists. For both blocked and random word lists, the number of words recalled

increases over trials (Klatzky, 1975). It has also been shown (Klatzky 1975; Tulving, 1962) that when a subject imposes subjective organization to a random list of words, his recall of those words increases. Because of the difference in cognitive styles it has been suggested (Witkin, 1973; Witkin and Moore, Note 1) that field-independent individuals are better able to utilize their own organization with word lists that are random, where as field-dependent people are not readily as able to impose their own organization on random word lists. As a result, field-independent people will recall more words on an unstructured (or unrelated) list than field-dependent individuals.

It was hypothesized that when field-independent people were presented with two word lists, one structured (blocked or related) and the other unstructured (random or unrelated), field-independent people would recall more words than field-dependent people on the unstructured list because of their ability to use subjective organization as measured by Tulving (1962). But on the structured list, where organization was apparent, there should be no difference in recall between field-dependent, medium, and field-independent individuals. For all cognitive groups in both word list conditions, the number of words recalled should increase over trials.

## Method

### Subjects

The subjects in this experiment were University of Richmond undergraduates enrolled in an introductory psychology class. There were a total of thirty-six subjects ranging in age from approximately 17-22 years. Refer to Appendix A for the informed consent agreement which all subjects were required to sign.

### Apparatus

The Group Embedded Figures Test (Oltman, Raskin and Witkin, 1971) was used to screen all subjects for field-dependence or field-independence. This test was administered in booklet form and took about twenty minutes to complete. On the back cover of the booklet there were eight simple forms which the subject was to study, while the booklet itself contained three groups of complex forms. The subject's task was to locate the simple forms embedded in the complex figures. The booklet was divided into three sections with the first section, consisting of seven complex forms, serving as a practice section. The second and third sections each contained nine complex forms and the total number right in these two sections was the score which designated a subject as field-dependent, medium, or field-independent. A clock was also used by the experimenter to time the subjects.

For the second part of the experiment, the recall of blocked or random lists of words, each word was projected on a screen by a slide projector. Choice of the 50 blocked and 50 random words was made on the basis of work done by Thorndike and Lorge (1944) and Battig and Montague (1969). Battig and Montague (1969) list a number of categories with the first to the last most frequently occurring word in each category. The blocked list of words was composed of the 1st, 2nd, 4th, 5th, and 6th most frequently occurring words of that particular category which was chosen at random from a larger list of categories. The random list of words was composed of the 3rd most frequently occurring words from 50 different categories. These words, found in Table 1, were then all checked against Thorndike and Lorge's (1944) list of 30,000 words and most of the 100 words being used were found to occur with the same relative frequency.

Subjects were presented with sheets of paper made into a booklet, and each page of the booklet was labelled Trial 1, Trial 2, or Trial 3. These booklets were then used by subjects to write down any of the words that they could recall for each individual trial. The experimenter also used a stop watch to time subject's recall.

Table 1

Word Lists

Blocked List

Random List

diamond            mile  
 ruby                foot  
 sapphire          yard  
 pearl               meter  
 opal                centimeter

aunt                hour  
 uncle               minute  
 mother             year  
 brother            day  
 sister              century

aluminum          France  
 iron                United States  
 steel               England  
 gold                Germany  
 silver              Canada

cotton  
 wool  
 rayon  
 nylon  
 dacron

blue  
 red  
 yellow  
 orange  
 black

knife  
 spoon  
 pan  
 pot  
 spatula

dog  
 cat  
 cow  
 lion  
 tiger

second  
 emerald  
 father  
 inch  
 copper  
 newspaper  
 sergeant  
 horse  
 silk  
 green  
 fork  
 temple  
 pronoun  
 bed  
 head  
 pear  
 rifle  
 senator  
 tent  
 gin  
 Russia  
 robbery  
 nails  
 rabbi  
 sugar  
 coal  
 teacher  
 valley  
 basketball  
 rain  
 pants  
 roof  
 nitrogen  
 trumpet  
 dimes  
 cardinal  
 water  
 airplane  
 car  
 waltz  
 corn

sandals  
 bee  
 Bill  
 carnation  
 measles  
 pine  
 battle  
 shark  
 cobra

## Procedure

In the first part of the experiment subjects were tested for field-dependence/independence using the Group Embedded Figures Test (Oltman, Raskin, Witkin, 1971). The instructions in the Embedded Figures Test manual (Witkin, Oltman, Raskin, and Karp, 1971) were as follows. After the booklets had been distributed to each subject, the experimenter said, "Now start reading the Directions, which include 2 practice problems for you to do. When you get to the end of the Directions on Page 3, please stop. Do not go beyond Page 3." When all subjects were done reading the directions on Page 3 of the booklet, the experimenter then said, "Before I give the signal to start, let me review the points to keep in mind" (p. 27).

1. Look back at the simple forms as often as necessary.
2. Erase all mistakes.
3. Do the problems in order. Don't skip a problem unless you are absolutely "stuck" on it.
4. Trace only one simple form in each problem. You may see more than one, but just trace one of them.
5. The simple form is always present in the complex figure in the same size, the same proportions, and facing in the same direction as it appears on the back cover of this booklet. (Oltman, Raskin, and Witkin, 1971, p. 3).

The experimenter then said, "Are there any questions about the directions? Raise your hand if you need a new pencil during the test. When I give the signal,

turn the page and start the First Section. You will have 2 minutes for the 7 problems in the First Section. Stop when you reach the end of this section. Go ahead." After 2 minutes the experimenter then said, "Stop - whether you have finished or not. When I give the signal, turn the page and start the Second Section. You will have 5 minutes for the 9 problems in the Second Section. You may not finish all of them, but work as quickly and accurately as you can. Raise your hand if you need a new pencil during the test. Ready, go ahead." After the 5 minutes were up, the experimenter said, "Stop - whether you have finished or not. When I give the signal, turn the page and start the Third Section. You will have 5 minutes for the 9 problems in the Third Section. Raise your hand if you need a new pencil during the test. Ready, go ahead." After 5 minutes the experimenter said, "Stop - whether you have finished or not. Please close your test booklets." (Witkin, Oltman, Raskin, and Karp, 1971, pp. 27-28).

Field-dependence/independence is a continuous variable rather than a dichotomous one. Since field-independent individuals should be able to easily locate the simple forms within the complex figures, these people should obtain more tasks right than the field-dependent people within the allotted time period of five minutes for each of the last two sections of the

booklet. A large number of individuals were screened for field-dependence and field-independence. To ensure each labelled group would contain subjects that were truly representative of their group (i.e. the group labelled field-dependent would contain field-dependent individuals), only the subjects who obtained scores at the extreme ends of the total range of scores were used for the field-dependent and field-independent groups. The field-dependent group was composed of the 12 subjects who received a score between 0 and 5 correct, and the field-independent group contained those 12 subjects who obtained a score between 13 and 18 correct. A third group, the medium group, was made up of the 12 individuals with a score between 7 and 11 correct. Each group thus contained individuals who scored in approximately 30% intervals of a total possible 18 items.

For the second portion of the study all subjects who met the above requirements were asked to participate in a recall experiment using blocked and random lists of words. Subjects were broken into six groups, two groups containing only field-dependent people, two groups containing only field-independent people, and two groups containing only people who scored in the medium range. One group of 6 field-dependent, 6 field-independent, and 6 medium range subjects were given a

random list of words. Another group of 6 field-dependent, 6 field-independent, and 6 medium subjects were given a blocked list of words meaning that there were 10 categories, 5 words per category, and these words were presented randomly. Minimum subjective organization should have been required to recall these words where as in the random list of words, maximum subjective organization was called for.

For the presentation of the words, each group was given a list of words on a screen, each word for 3 seconds. There were a total of 3 trials per word list. At the end of each trial subjects were given 3 minutes to write down as many of the words as they could remember.

The instructions for all subjects were as follows:

This is the second part of the experiment that you all participated in earlier this semester. You will be presented with a series of words on the slide screen in front of you. Each word will be presented for 3 seconds. At the end of the series of words you will be asked to recall as many of the words that you can remember. You will have 3 minutes to write down the words in the booklet that you were given. We will go through the same procedure with the same words for 3 trials. For trial 1 please use the page marked trial 1, doing the same for trials 2 and 3. Mark only on the page that is labelled the same as the trial that you are presently working on. Please do not return to any previous trial pages in the booklet if you should remember another word at any time during the experiment. Are there any questions?

Tulving's (1962) formula for quantifying subjective organization was then applied to all subjects who were presented with the random list of words.

### Results

The mean number of words recalled correctly over three trials for all cognitive style groups is presented in Figure 1 for the categorized or blocked list of words, and in Figure 2 for the random list of words.

An analysis of variance was performed to see if there were any significant effects of the three factors, cognitive style, word list, and trials (repeated), and interactions between any of them. A significant interaction was found for cognitive styles by word list and for cognitive styles by trials. The results of the analysis of variance are depicted in Table 2.

The breakdown of the interaction for simple effects between cognitive styles and word list, presented in Table 3, yielded a significant difference for the uncategorized word list but not for the categorized word list. A Newman Kuels' multiple range test was then performed to determine if the differences were between field-independent and medium groups, medium and field-dependent groups, or field-independent

Figure 1

Number of Words Recalled Across  
Trials For Blocked Lists of Words

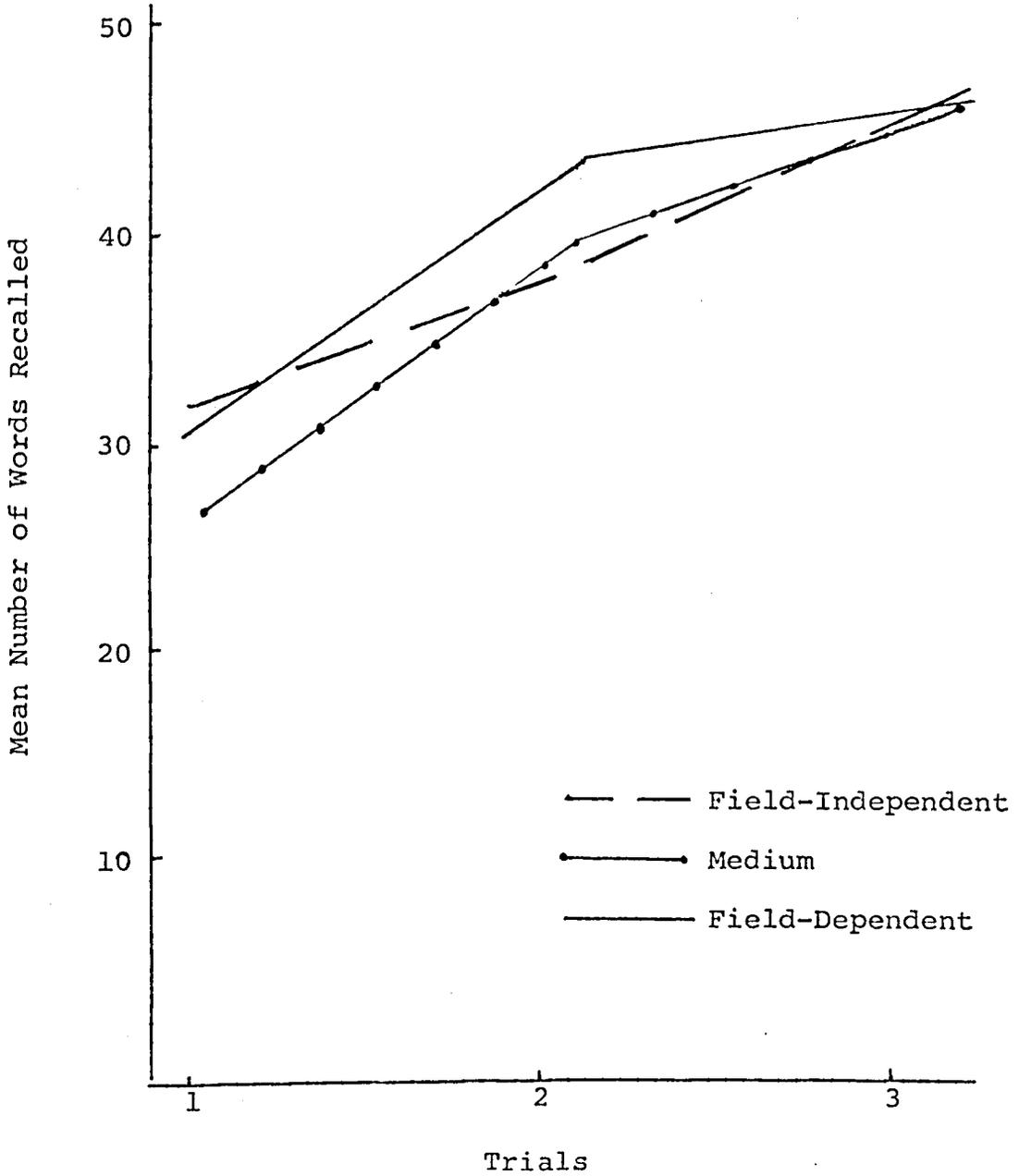


Figure 2

Number of Words Recalled Across  
Trials For Random Lists of Words

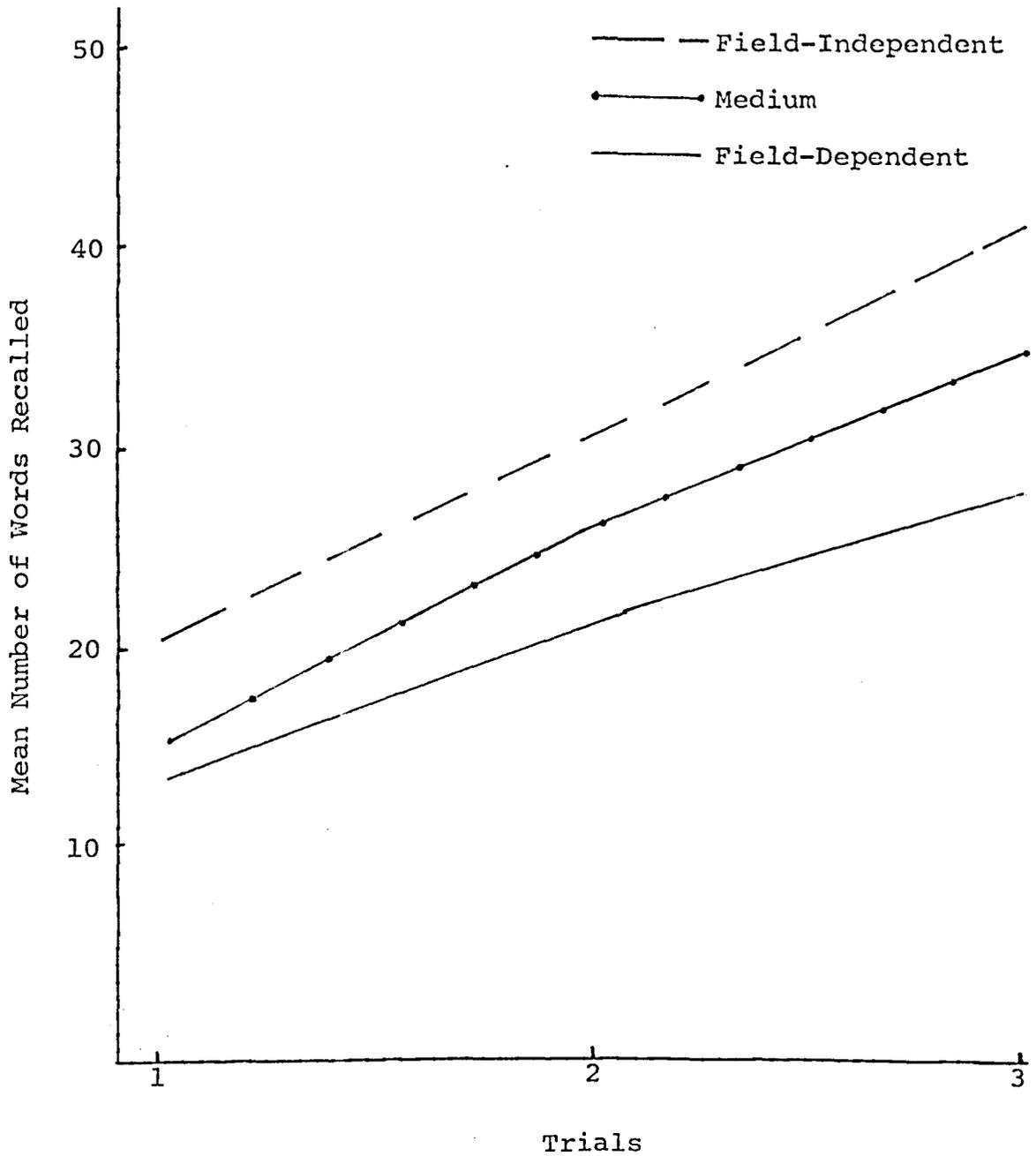


Table 2

Analysis of Variance:  
Cognitive Style, Word List, Trials

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Between Ss</u>	<u>35</u>			
Cognitive Style	2	181.6	3.19	
Word List	1	4459.6	78.37*	< .05
Cognitive Style X Word List	2	203.6	3.57*	< .05
Error	30	56.9		
<u>Within Ss</u>				
Trials	2	2614.15	318.02*	< .05
Cognitive Style X Trials	4	31.17	3.79*	< .05
Word List X Trials	2	22.5	2.73	
Cognitive Style X Word List X Trials	4	10.55	1.2	
Error	60	8.22		

\*Significant

Table 3

Analysis of Variance:  
Cognitive Style By Word List  
Simple Effects

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Categorized List</u>				
Total	17			
Between Ss	2	59.06	.332	> .05
Within Ss	15	178.1		
<u>Uncategorized List</u>				
Total	17			
Between Ss	2	1096.22	6.71*	< .05
Within Ss	15	163.28		

\*Significant

and field-dependent groups. The results obtained between the field-independent and field-dependent groups were significant, but not between the other levels of cognitive style. This indicated that between the field-independent and field-dependent groups only, the number of words recalled on the uncategorized list differed significantly. The graphic illustration can be seen by referring to Figure 3, and the Newman Kuels' results are given in Table 4.

Table 5 shows the results of an analysis of simple effects for cognitive styles by trials which indicated that there was a significant difference in the number of words recalled between cognitive styles on trial 3, but not on trials 1 and 2. The Newman Kuels' multiple range test performed between all levels of cognitive styles for trial 3 showed a significant difference between all three styles. Thus, on trial 3, there was a significant difference in the number of words recalled between the three groups with the field-independent group recalling more than the medium group and the medium group recalling more than the field-dependent group. The interaction between cognitive styles and trials is depicted in Figure 4, and the results of the Newman Kuels' test are shown in Table 6.

Applying Tulving's (1962) subjective organization formula to the unrelated word list data and then performing an analysis of variance yielded a non-significant

Figure 3

Mean Number of Words Recalled Across Word Lists  
For Cognitive Styles

A<sub>1</sub> = Field-Independent

A<sub>2</sub> = Medium

A<sub>3</sub> = Field-Dependent

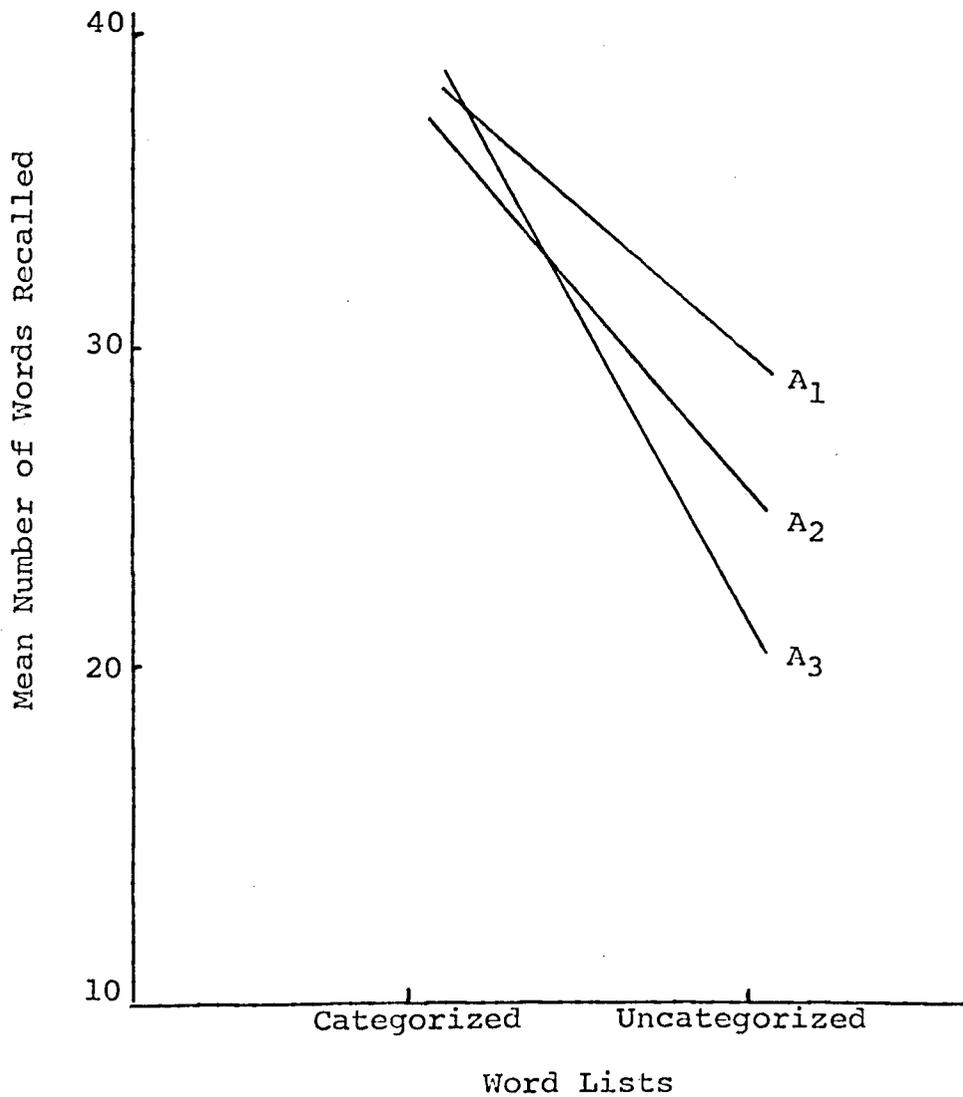




Table 5

Analysis of Variance:  
Cognitive Style By Trials  
Simple Effects

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Trial 1</u>				
Total	35			
Between Ss	2	68.25	1.17	> .05
Within Ss	33	58.53		
<u>Trial 2</u>				
Total	35			
Between Ss	2	10.19	.11	> .05
Within Ss	33	93.1		
<u>Trial 3</u>				
Total	35			
Between Ss	2	1079.59	107.96*	< .05
Within Ss	33	10.0		

\*Significant

Figure 4

Mean Number of Words Recalled Across Trials  
For Cognitive Styles

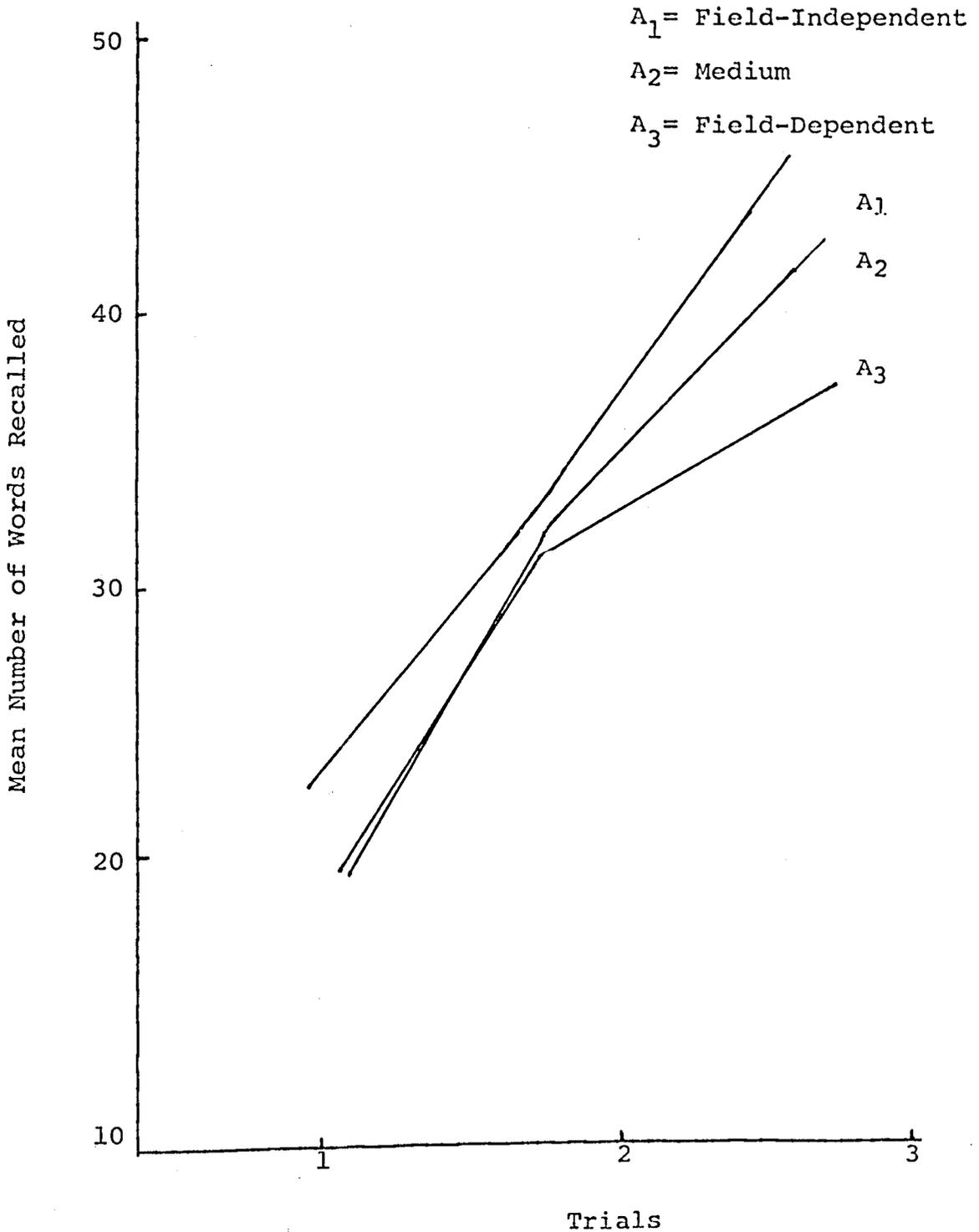


Table 6

Newman Kuels Multiple Range Test  
 On Cognitive Styles By Trials Interaction

Means of Cognitive Styles     $A_1 = 43$   
     $A_2 = 39.25$   
     $A_3 = 35.5$

	$A_1$	$A_2$	$A_3$
$A_1$	-	3.67*	7.42*
$A_2$		-	3.75*
$A_3$			-

\*Significant at .05 level

$F=2.5$  as is shown in Table 7. An ad-hoc Pearson Product Moment correlation was done using the subjective organization scores and the mean number of words recalled. This resulted in a non-significant correlation coefficient of  $+0.39$  ( $df=10$ ). The subjective organization scores are plotted for subjects in all cognitive styles for the uncategorized list of words in Figure 5.

### Discussion

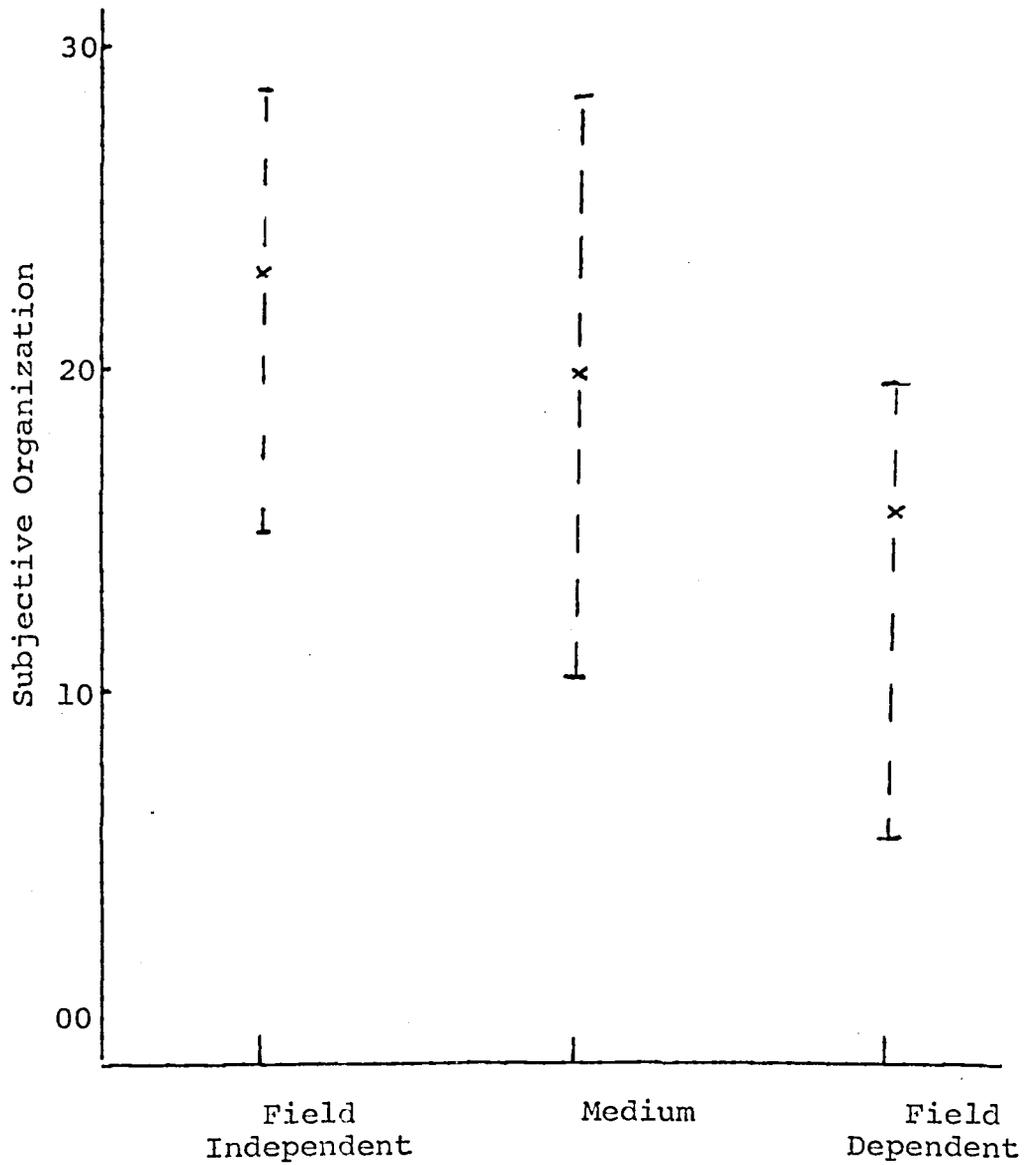
It can be seen from the results obtained that there is support for the stated hypothesis that recall for field-independent, medium, and field-dependent groups with the structured list of words was not significantly different. But for the unstructured or uncategorized list, as hypothesized, the field-independent group recalled a significantly greater number of words than the field-dependent group. These findings would seem to lend support to the contention (Witkin, 1973; Witkin and Moore, Note 1; Goodenough and Karp, 1961) that how a person perceives and organizes data influences his learning of the material. Viewed in light of the application of Tulving's (1962) subjective organization formula to the uncategorized list data, though, there is no evidence to suggest that field-independent people used subjective organization more than the other two groups. One explanation for this finding may be that

Table 7Analysis of Variance:  
Subjective Organization

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Total	17			
Between Ss	2	.01	2.5	>.05
Within Ss	15	.004		

Figure 5

Mean and Range of Subjective Organization  
Scores For All Cognitive Styles Who  
Were Given Uncategorized  
List of Words



with only a total of three trials being given for recall of 50 words, there was not sufficient opportunity for individuals to apply subjective organization in this particular task. Tulving's (1962) experiment utilized 16 trials for recall of 16 words, and if more than three trials had been presented here, subjective organization may have become apparent.

Further support that more trials may be needed to detect subjective organization can be found in the results obtained in the trials by cognitive styles interaction findings. Here it was indicated that not until the third trial was there a significant difference in the number of words recalled between any of the cognitive style groups. On trials 1 and 2, no difference in amount of words recalled was found between any of the three levels of cognitive styles. So the employment of subjective organization may take more than a few trials to be advantageously utilized by the individual when presented with a list composed of more than 16 words.

Referring to the factor of trials results also indicated, as can be seen in Figure 4, that all groups recalled more words on each successive trial though this increase was not uniform for all groups across trials. This is further support for the findings of Klatzky (1975) who showed that recall increases over trials.

The overall results are in direct line with Witkin and Moore's (Note 1) contention that there is a difference in how field-independents and field-dependents learn material. Both groups performed well when presented with structured material, but with unstructured material there is a distinction in the learning efficiency between the two cognitive styles. This in itself is a very important consideration, as people are involved in academic as well as non-academic, but nonetheless, just as important, learning most of their lives.

Hopefully, this study will lead to further much needed research which will not be limited to psychology alone but will be expanded into other areas of education as well. Since this study supports the idea that field-dependent and field-independent people learn differently, who is doing the teaching and their cognitive style may largely affect the student's learning with his own cognitive style. More competent but different means of teaching field-independent and field-dependent individuals might need to be identified and utilized so that the maximum amount of learning is achieved by each person.

One interesting point to note is that the experimenter tested over one hundred students and found only twelve field-dependent individuals. Two similar studies by Smith and Johnson (Note 2) and King (Note 3)

also noted problems in obtaining field-dependent subjects from populations similar to the one used in this study. It is possible that the reason for this lack of field-dependent subjects is due to the particular populations involved, students from small liberal arts institutions. Or for some yet unidentified reason, there may be a smaller percentage of the total college population with field-dependent cognitive styles than medium or field-independent styles. Whatever the reason for finding so few field-dependent subjects, further research in this area may shed some light on our present educational system.

The study presented here is only one in a series of steps needed in order to fully understand the differences in learning between the field-independent and field-dependent student, and the repercussions these differences may have. Two similar studies (Smith and Johnson, Note 2; King, Note 3) both yielded non-significant results and replication of this study would certainly be in order. No one style is better than the other, but to fully comprehend the differences between them could only increase our understanding of individuals and their interpretations of the world around them.

Appendix 1

## Informed Consent Agreement

1. In the first part of this study you will be asked to take a test which determines cognitive style, field-dependence or field-independence. This is not a measure of intelligence.
2. At a later time you may be asked to return and a list of words will be presented to you that you will be asked to recall.
3. You can terminate your participation at any time.
4. A full explanation of the study will be given to you at its completion.

I understand what this study entails and I volunteer to participate.

---

Signature

---

Date

Reference Notes

1. Witkin, H. A., and Moore, C. A., Cognitive styles and the teaching-learning process. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April, 1974.
2. Smith, Linda, and Johnson, Terry. Organization and recall of structured versus unstructured lists by field dependent and field independent subjects. Unpublished Manuscript, Denison University, 1976.
3. King, Lynda, The effects of field dependence and field independence upon recall of blocked and random lists of words, Unpublished Manuscript, Denison University, 1977.

References

- Battig, W. F., and Montague, W. E., Category norms for verbal items in 56 categories. Journal of Experimental Psychology, 1969, 80, 1-45.
- Goodenough, D. R., and Karp, S. A., Field dependence and intellectual functioning. Journal of Abnormal and Social Psychology, 1961, 63, 241-246.
- Klatzky, R. L., Human memory - structures and processes, San Francisco: W. D. Freeman and Co., 1975.
- Lundin, R. W., Theories and systems of psychology, Massachusetts: D. C. Heath and Co., 1972.
- Oltman, P. K., Raskin, E., and Witkin, H. A., Group Embedded Figures Test, California: Consulting Psychologists Press, 1971.
- Stasz, C., Shavelson, R. J., Cox, D. L., and Moore, C. A., Field-independence and the structuring of knowledge in a social studies minicourse. Journal of Educational Psychology, 1976, 68, 550-558.
- Thorndike, E. L., and Lorge, I., The teachers wordbook of 30,000 words, New York: Teachers College, Bureau of Publications, 1944.
- Tulving, E., Subjective organization in free recall of "unrelated" words. Psychological Review, 1962, 69, 344-354.
- Witkin, H. A., A cognitive-style perspective on education and guidance. 1973 Invitational Conference on Testing

Problems - Measurement for Self-Understanding and Personal Development, N. J.: Educational Testing Service, 1973, 21-27.

Witkin, H. A., Moore, C. A., Goodenough, D. R., and Cox, P. W., Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 1977, 47, 1-64.

Witkin, H. A., Oltman, P. K., Raskin, E., and Karp, S. A., Manual - embedded figures test, California: Consulting Psychologists Press, 1971.

Vita

Lynda Laura King was born on October 14, 1955, in Philadelphia, Pennsylvania. She grew up and attended public schools in Wyndmoor, Pennsylvania and was graduated from Springfield High School in 1973.

From 1973 to 1977 Miss King attended Denison University in Granville, Ohio. She was graduated from that institution in May, 1977 with a B.S. in Psychology. While at Denison University Miss King was honored with memberships in Who's Who Among Students in American Colleges and Universities, Mortar Board, and Psi Chi Psychology Fraternity.

Miss King studied at University of Richmond in Richmond, Virginia, from 1977 to 1979 and expects to receive a M.A. degree in Psychology from that institution in May, 1979.

Upon completion of her studies at University of Richmond Miss King plans to work in Philadelphia for a year and then resume her studies in 1980.