

**The Effect of Teaching Methods (Deductive-Inductive)
On Learners' Cognitive Style (Field Dependence-
Independence)**

A Thesis

**Submitted To The Faculty Of Letters
And The Institute Of Economics And Social Sciences
Of Bilkent University
In Partial Fulfillment Of The Requirements
For The Degree Of Master Of Arts
In The Teaching Of English As A Foreign Language**

Dilek Behcetogullari

August 1992

THESES
LB
1051
B44
1992

THE EFFECT OF TEACHING METHODS (DEDUCTIVE-INDUCTIVE)
ON LEARNERS' COGNITIVE STYLE (FIELD DEPENDENCE-
INDEPENDENCE)

A THESIS
SUBMITTED TO THE FACULTY OF LETTERS
AND THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES
OF BILKENT UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS
IN THE TEACHING OF ENGLISH AS A FOREIGN LANGUAGE

BY

DILEK BEHCETOĞULLARI

AUGUST 1992

LB
1051
. B44
1992

D 11126

BILKENT UNIVERSITY
INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES
MA THESIS EXAMINATION RESULT FROM
AUGUST 31, 1992

The examining committee appointed by the
Institute of Economics and Social Sciences for the
thesis examination of the MA TEFL student

Dilek BEHCETOĞULLARI

has read the thesis of the student.
The committee has decided that the thesis
of the student is satisfactory.

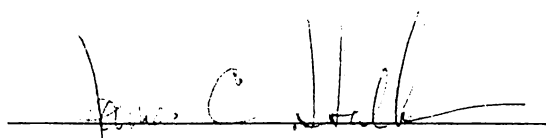
Thesis title : The Effect of Teaching
Methods (Deductive-Inductive)
on Learners' Cognitive Style
(Field Dependence-Independence)

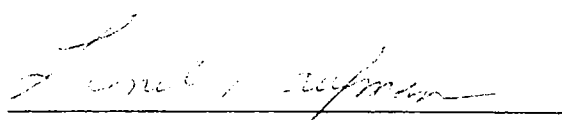
Thesis Advisor : Dr. James C. Stalker
Bilkent University, MA TEFL Program

Committee Members : Dr. Lionel Kaufman
Bilkent University, MA TEFL Program

Dr. Eileen Walter
Bilkent University, MA TEFL Program

We certify that we have read this thesis and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts.

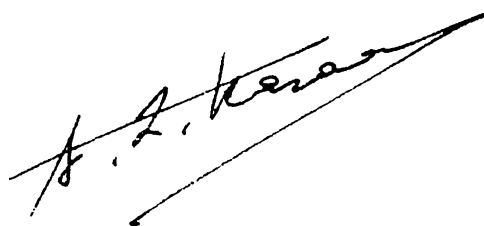

James C. Stalker
(Advisor)


Lionel Kaufman
(Committee Member)


Eileen Walter
(Committee Member)

Approved for the
Institute of Economics And Social Sciences


Ali Karaosmanoglu
Director
Institute of Economics and Social Sciences



To my parents

TABLE OF CONTENTS

CHAPTER	PAGE
LIST OF TABLES.....	viii
1.0 INTRODUCTION.....	1
1.1 Background and Goals of the Study.....	1
1.1.1 Introduction.....	1
1.2 Statement of Research Question.....	3
1.2.1 Definitions.....	3
1.2.2 Statement of Expectations.....	5
1.3 Hypotheses.....	6
1.3.1 Hypothesis 1.....	6
1.3.2 Hypothesis 2.....	6
1.3.3 Variables.....	7
1.4 Overview of Methodology.....	7
1.4.1 Subjects.....	7
1.4.2 Procedures.....	9
1.5 Overview of Analytical Procedures.....	10
1.6 Plan of Organization.....	10
2.0 REVIEW OF THE LITERATURE.....	11
2.1 Introduction.....	11
2.2 Conceptual Background.....	11
2.2.1 Trends in TEFL.....	12
2.3 Theoretical Assumptions.....	13
2.3.1 Description of Learning Style and Cognitive Style.....	14
2.3.2 The Cognitive Style of Field Dependence-Independence.....	17

2.4	The Impact of Personality on Language Learning.....	20
2.4.1	The Effect of Field Dependent-Independent Cognitive Style on Language Learning.....	20
2.4.2	The Effect of FDI Cognitive Style on Cloze Test Performance.....	25
2.4.3	Conflicting Research Findings.....	26
2.5	The Learning Styles of Field Dependent and Independent Learners.....	28
2.5.1	Educational Implications of Studies.....	33
2.6	Conclusion.....	35
3.0	METHODOLOGY.....	36
3.1	Introduction.....	36
3.2	Subjects.....	37
3.3	Materials.....	38
3.3.1	Tests.....	39
3.3.1.1	Group Embedded Figures Test..	39
3.3.1.2	Pre- and Post-Tests.....	41
3.3.2	Teaching Materials.....	42
3.4	Treatment and Data Collection Procedures..	44
3.4.1	Treatment.....	44
3.4.2	Testing.....	46
3.5	Variables.....	46
3.6	Analytical Procedures.....	47
4.0	DATA ANALYSIS.....	49
4.1	Introduction.....	49
4.2	Data Analysis Procedure.....	50

4.3	Presentation of Data.....	51
4.3.1	Relationship Between Teaching method and Cognitive Style.....	51
4.3.2	Relationship Between Cognitive Style and Performance on Different Test Types.....	53
4.3.3	Comparison of the FI Students Performance Across the Groups.....	57
4.3.4	Comparison of Overall Performance By Cognitive Style.....	59
4.4	Further Analysis.....	60
4.4.1	Comparison by Groups.....	60
4.4.2	Comparison by Cognitive Style.....	62
4.4.3	Comparison by Tests.....	64
4.5	Results and Summary.....	66
5.0	CONCLUSION.....	68
5.1	Summary of the Study.....	68
5.1.1	Conclusions.....	69
5.2	Assessment of the Study.....	71
5.3	Pedagogical Implications.....	73
5.4	Implications for Further Research.....	74
	BIBLIOGRAPHY.....	76
	APPENDICIES.....	82
	APPENDIX A. GEFT Test.....	82
	APPENDIX B. Pre and Post Test.....	102

LIST OF TABLES

	page
TABLE 4.1 Overall Mean Scores and Standard Deviations of Groups by Cognitive Style and Methods of Teaching	52
TABLE 4.2 Mean Scores and Standard Deviations of the Deductive Group on Multiple Choice and Cloze Tests	54
TABLE 4.3 Mean Scores and Standard Deviations of the Inductive Group on Multiple Choice and Cloze Tests	55
TABLE 4.4 Results of Two-Way ANOVA for Deductive/Inductive and FI/FD on Multiple Choice Test	56
TABLE 4.5 Results of Two-Way ANOVA for Deductive/Inductive and FI/FD on Cloze Test.....	56
TABLE 4.6 Mean Scores and Standard Deviations of FI Students on Multiple Choice and Cloze Tests.....	58
TABLE 4.7 Mean Scores and Standard Deviations of FD Students on Multiple Choice and Cloze Tests.....	59
TABLE 4.8 Mean Scores and Standard Deviations of All Field-Independent and Field-Dependent Students.....	59
TABLE 4.9 Mean Scores and Standard Deviations of Multiple Choice Test Results According to Deductive and Inductive Groups.....	60
TABLE 4.10 Mean Scores and Standard Deviations of Cloze Test Results According to Deductive and Inductive Groups	62
TABLE 4.11 Mean Scores and Standard Deviations of Multiple Choice Test Results According to Field-Independence and Dependence	63

TABLE 4.12	Mean Scores and Standard Deviations of Cloze- Test Results According to Field-Independence and Dependence	63
TABLE 4.13	Mean Scores and Standard Deviations of FI Students on Multiple Choice and Cloze Test.....	64
TABLE 4.14	Mean Scores and Standard Deviations of FD Students on Multiple Choice and Cloze Test.....	65

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my thesis advisor Dr. James Stalker, whose invaluable efforts and guidance made this thesis possible.

I would also like to extend my gratitude to Dr. Lionel Kaufman and Dr. Eileen Walter for their comments and guidance in statistical analysis throughout this study.

I owe special thanks to Dr. Cem Alptekin who provided me with the GEFT test.

I am also grateful to the colleagues at the BUSEL testing unit for their assistance during the preparation of the tests and for their kindness and cooperation throughout my study.

My thanks are also due to my classmates in the MA TEFL program for their comments and helpful suggestions.

Finally, I wish to thank my sisters for supporting me with their understanding and patience during the writing of this thesis.

ABSTRACT

The purpose of this study was to investigate the relationship between a learner's cognitive style (field dependence-independence) and the teaching method (deductive-inductive) used. The hypothesis was that subjects identified as field independent would score significantly higher than those identified as field dependent on tests after having deductive lessons and subjects identified as field dependent would score significantly higher than those who were field independent on tests after having inductive lessons. It was further hypothesized that there would be significant differences between field dependent and field independent participants in their scores on two different types of tests, multiple-choice and cloze tests, after having deductive or inductive teaching.

A number of studies, which examined the relationship between cognitive style and second language test performance, revealed that a field independent cognitive style is significantly related to a higher level of achievement on different types of tests. In almost all studies a significant relationship was found between field independence and success on multiple-choice tests. In addition, many studies found a relationship between field independence and cloze tests. However, although many studies found the same relationship between field independence and cloze tests, in a few studies, no significant relationship was found between field

independence and success on cloze tests. Therefore, this study aimed to explore the influence of field dependent-independent cognitive styles on second language test performance, especially as it relates to performance on a discrete-point type of measure, a multiple-choice test, and an integrative type of measure, the cloze test. Thus, in an attempt to address the issue of possible cognitive style bias in second language learning, this study compares the achievement patterns of students on two measures; a multiple choice test and a cloze test.

Because many studies support the advantage of field-independence on second language test performance, this study also aimed to investigate whether a particular teaching method best suits a student with a particular cognitive style.

The data in this study indicate several controversial findings. The most important finding is that the hypothesis that cognitive style is an important factor in second language learning was not validated when the sample was taken as a whole or when it was analyzed within the groups. However, when the data were analyzed within or across the groups, by taking the type of the tests into account, a cognitive style bias for field independence was found in the multiple-choice test, but not in the cloze test and no cognitive style bias for field dependence was found in either test.

The central hypothesis of this study, which claims that field independent learners would achieve higher test scores in grammar lessons taught deductively, and field dependent learners would achieve higher test scores in lessons taught inductively, was rejected, since the findings did not indicate any interaction between the methods and the cognitive style: That is, as hypothesized, field independent learners in the deductive group performed better than field dependent learners on both tests, but field dependent learners in the inductive group did not perform better than the field independent learners in the same group. Instead, field independent learners performed better in this group as well. The findings validate the null hypothesis that claims that there is no relationship between the learners' cognitive style and the teaching methods. Furthermore, the study confirms the findings of research that field independent learners are better language learners.

CHAPTER 1

INTRODUCTION

1.1. BACKGROUND AND GOALS OF THE STUDY

1.1.1 Introduction

The fact that some learners are more successful at acquiring a second language than others has led to investigations of individual characteristics as predictors of successful L2 acquisition; thus, learners have become the main interest of second language researchers. As Moody (1972) states, a number of studies done in this field show that personality is important in second language acquisition because personality traits, in particular, cognitive style, make a difference in how people learn. The studies reveal that learners who have particular personality traits are more successful than others. The cognitive style of field independence is one of those traits which research indicates favours language learners, and its counterpart, field dependence, disfavours learners.

Although a number of research studies have investigated the relationship between the learner's cognitive style and the degree of achievement in learning a second language, very little research exists which investigates whether particular methodological approaches would be more advantageous for particular cognitive styles. The major goal of

this study, therefore, is to investigate whether or not students with different cognitive styles respond differently to different types of teaching. In particular, the purpose of the study is to determine whether a particular teaching method or strategy best answers the needs of each cognitive style (field dependence-independence), and increases the possibility of success for learners with that cognitive style.

Abraham (1985) studied the relationship between the cognitive style of field dependence-independence and teaching methods. She investigated whether less rule-oriented language teaching might be beneficial for field dependent learners and rule-oriented language teaching might be beneficial for field independent learners. The result of the experiment indicated a positive answer to the question and thereby suggested that language instruction could be individualized so as to accommodate students with different tendencies along the continuum of cognitive style known as field dependence-independence. However, Abraham's study was conducted in an ESL environment.

The study reported here was carried out in an EFL environment rather than an ESL one in order to test Abraham's hypothesis in a different environment. Confirmation of Abraham's conclusions would support individualized instruction. In any

case, the study provides insights into individual differences in learning a grammatical item in a second language and points out the complexity of the entire process, a process which still calls for careful, cumulative research which explores the relationship between discovery and transfer of learning in second language acquisition. This study also emphasizes the importance of psychology, cognitive sciences and language pedagogy in language learning and suggests further research in this field.

1.2 STATEMENT OF RESEARCH QUESTION

The purpose of this study was to determine whether field independent students achieve higher scores on tests when taught grammar lessons with a deductive approach and field dependent students achieve higher scores when taught with an inductive approach. This study also aimed to investigate whether different cognitive styles respond differently to various test types.

1.2.1 Definitions

Cognitive Style: Cognitive style refers to individual differences in perceiving, thinking and processing information (Keefe, 1979; Hansen & Stansfield, 1981).

Field dependence-independence: As Witkin, Moore, Goodenough and Cox (1977) note:

Learners differ in the strategies they use to structure and generalize information as concepts. The cognitive style "field dependence-independence" has been related empirically to these differences. A field-independent (FI) person approaches problem solving situations analytically, while a field-dependent (FD) person approaches them in a more global way. That is, a FI person is able to detect patterns and subpatterns, while a FD person is capable of perceiving the total picture in a situation.

Field independence (FI): Field independence refers to the cognitive style which enables the person to perceive individual items that may be relatively difficult to distinguish from their visual background. This ability is thought to be associated with a more analytical (left-brained) cognitive style (Naiman et al., 1978).

Field dependence (FD): Field dependence refers to the cognitive style which enables the person to perceive all parts of the organized field as a total experience (Naiman et al., 1978). This ability is thought to be associated with a holistic cognitive style.

Deductive Approach: In this study the deductive approach refers to a teaching method in which analytic type activities are used. It refers to rule-oriented language teaching in which the rules, patterns, structures of the language are given to the students explicitly. In this environment students

are asked to learn rules about the language and apply those rules to language use. Examples are given after students learn the rules in deductive teaching (Abraham, 1985).

Inductive Approach: In this study the inductive approach refers to a teaching method or style in which communicative activities are used. In inductive teaching the rules about the language are not given explicitly. The lesson is taught through examples and students formulate the rules about the language by themselves. In other words, students are given plenty of examples of how language is used to communicate from which they can generalize the rules (Abraham, 1985).

1.2.2 Statement Of Expectation

This study expected to find that there is a relationship between the learner's cognitive style (field dependence-independence) and the teaching approach or style (deductive-inductive teaching). Therefore, the study investigated whether or not inductive teaching is an appropriate approach to be employed for field dependent learners, and deductive teaching is an appropriate approach to be employed for field independent learners. Since many studies implied that field independent learners have an advantage over field dependent learners in learning a second language, it was hypothesized that less rule-

oriented language teaching (inductive) might be beneficial for field dependent learners, and they would achieve a higher rate of success in learning a second language when an alternative approach of teaching is provided.

1.3 HYPOTHESES

1.3.1 Hypothesis 1

Null Hypothesis: There is no relationship between learners' cognitive style of field dependence-independence and performance in a grammar test after being taught with either an inductive or deductive approach in an EFL environment.

Experimental Hypothesis: Field independent learners will demonstrate significantly superior test performance after using a deductive approach to learning a grammar point, while field dependent learners will demonstrate significantly superior test performance after using an inductive approach.

1.3.2 Hypothesis 2

Null Hypothesis: There is no relationship between the learners' cognitive style of field dependence-independence and their performance on two different tests of grammar, a multiple-choice and a cloze test.

Experimental Hypothesis: Field independent students in the deductive group will perform better than the field dependent students on the multiple-choice test, and the field dependent students in the inductive group will perform better than field independent students on the cloze test (See section 2.4.2 and 2.4.3).

1.3.3 Variables

The variables in this study are:

Dependent Variable: Performance on two post treatment grammar tests, one cloze, one multiple choice.

Independent Variables: a) Cognitive style, i.e., field independence versus field dependence; b) Teaching method, i.e., deductive versus inductive approach.

1.4 OVERVIEW OF METHODOLOGY

1.4.1 Subjects:

Forty subjects between the ages of 18 and 21 participated in the study. The subjects were Turkish students in the intermediate level of the Intensive English Program at Bilkent University School Of English Language (BUSEL) in Ankara, Turkey. The selection of subjects consisted of three steps. Firstly, the Progress Test at BUSEL was used to determine the proficiency level of the

students. Students who were placed at the L1 level (lower intermediate) as a result of the given Progress Test were selected. Secondly, a pre-test, containing questions about two grammar items that were later taught, was administered to all L1 level intermediate students. By applying the interval scale, the students were categorized on the basis of the scores in the pre-test and the students who got low scores on the pre-test were selected. Thirdly, the students' degree of field dependence-independence was measured by the **Group Embedded Figures Test (GEFT)**, developed by Oltman, Raskin and Witkin (1971). The GEFT is a group administered test that requires the subjects to outline a simple geometric shape within a complex design. The GEFT contains 18 complex designs in which simple geometric figures are embedded and subjects are asked to perceive and outline these simple figures within the larger complex designs in a given period of time. The more simple figures subjects locate without becoming distracted by the larger complex figures, the more they are supposed to be FI (Alptekin & Atakan, 1990). Scores on the GEFT range from 0 (highly FD) to 18 (highly FI). The subjects who had a score of 11 or above, in this study, were regarded as FI and the ones who had a score below 11 were regarded as FD. The cut off of 11 was chosen on the basis of an earlier study by Abraham (1981)

with Spanish speaking subjects. Only the high field independent and the high field dependent subjects were selected and those who were in the middle were eliminated. Thus, the final 40 subjects who participated throughout the study were determined by their performance on the pre-test and their cognitive style of field dependence-independence. That is, 20 FD (10 male, 10 female) and 20 FI (10 male, 10 female) subjects, having similar proficiency levels were selected.

1.4.2 Procedures

The subjects were divided into two groups each having an equal number of subjects (50%) who were FD and FI. The researcher taught each of the classes for eight hours after the students' regular classes in BUSEL. However, different teaching methods were employed in each group. The subjects in group A were taught two specified grammar items through the traditional deductive approach in which the rules and explanations were given explicitly, and the subjects in group B were taught the same grammar items through an inductive approach in which lots of examples but no rules were given. A post-test containing the same questions given in the pre-test was given to the subjects in both groups at the end of the eight hour course. A cloze test and a multiple-choice test were used in the pre-and post-tests to test the grammar items.

1.5 OVERVIEW OF ANALYTICAL PROCEDURES

A factorial research design was used to measure the differences between mean scores. T-test and ANOVA statistical procedures were used to analyze the data. A t-test was used to compare the mean scores of groups and subgroups gained from the post-tests. The mean scores were also compared in an ANOVA design to see if there was an interaction between the two independent variables: field dependence versus independence and the inductive versus deductive approach.

1.6 PLAN OF ORGANIZATION

Chapter 1 introduces the study, presents the research statement, variables, hypothesis, and defines the concepts.

Chapter 2 reviews the studies on the role of cognitive style in learning a second language.

Chapter 3 describes how the data were collected and the instruments used in the study.

Chapter 4 presents and analyzes the data.

Chapter 5 offers a summary of the study, conclusions and discussion of general implications.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 INTRODUCTION

This chapter provides the conceptual background for this study through a review of the professional literature focusing on the ideas and early research on the effect of personality and cognitive style on second language learning. Field dependence-independence cognitive styles which are the main concern of this study will be described in this chapter.

2.2 CONCEPTUAL BACKGROUND

During the past few decades a major shift has occurred in the view of language taken by linguists, psychologists, anthropologists and philosophers, giving impetus to a corresponding change of focus in foreign language teaching. The early seventies brought new demands for experimental support for language learning theories; and as a consequence language acquisition research today is empirically oriented. Theorists and researchers are actively investigating issues from the order of acquisition of grammatical structures to the efficacy of error correction. They are trying to track the effect of various teacher behaviours, different learner styles, classroom organization, and affective

factors on student success. Linguists and language teachers are searching for new ways to teach language. Sociologists, anthropologists, philosophers and psychologists are re-examining the nature of language and its relationship to human thought and social interaction. Cognitive psychologists are studying the workings of the human brain and psycholinguists are investigating how language is processed in the brain, and the relationship of language to general cognitive functioning (Losiewicz, 1988). In relation to these studies, new ways can be discovered to teach language to the second language learners.

2.2.1 Trends in TEFL

The explosion of teaching methodologies in the late 1970s and early 1980s increased options in the selection of TEFL methods and materials. Since then there has been a steadily growing interest in considering the task from the learner's point of view and in changing the focus of classrooms from a teacher-centred one to a learner-centred one. Therefore, since the 1970s, research concerns in the field of second language learning have shifted from the methods of teaching to learner characteristics and their possible influence on the process of acquiring a second language (Rubin & Wenden, 1987).

During the past few decades a significant amount of attention has been focused on the individual learner as a central element in the complex process of learning another language. Given this concern researchers have attempted to identify particular learner traits and cognitive processes which enhance or hinder progress in learning another language (Hansen & Stansfield, 1981).

2.3 THEORETICAL ASSUMPTIONS

While most people acquire a basic competence in their first language, second language learners display great variability in the level of proficiency they attain in the new language (Hansen & Stansfield, 1985). It has been observed that some students approach the language learning task in more successful ways than others. That is, all other things being equal, some students will be more successful than others in learning a second or foreign language. The learning strategy literature assumes that some of this success can be attributed to particular sets of cognitive and metacognitive behaviours which learners engage in. It is also assumed that successful learners will differ to some extent in the particular sets of cognitive processes and behaviours which they use to enable them to be successful. For example, given the same learning environment, the same target language, the same

native language, and the same language level, some learners will be more analytic in their approach to the learning task while others will be more intuitive; some learners will prefer to use written materials to access a foreign language while others will prefer to hear the language. It is assumed that there will be several paths to success depending on the individual's learning style (Rubin & Wenden, 1987). However, as Abraham and Vann (1987) state, no single strategy, cognitive style, or learner characteristic seems sufficient to explain success in language learning.

2.3.1 Description of Learning Style and Cognitive Style

The term **learning style** indicates preferred or habitual patterns of mental functioning and dealing with new information (Ehrman & Oxford, 1990). According to Fischer and Fischer (1979) learning style refers to a pervasive quality in the learning strategies or the learning behaviour of an individual. Keefe (1979) describes learning style as "cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (p. 4). Most of the research to date has enabled the educational theorists and researchers to identify the learner's

characteristics that account for some of the differences in how students learn. At least twenty different dimensions of learning style have been identified, including visual, auditory, kinesthetic, and tactile.

Educational theorists and researchers have also investigated the concept of **cognitive style** and identified as many as twenty different cognitive styles. The concept cognitive style is one of three major categories of student learning styles. The other two categories of student learning styles are: affective and physiological styles (Hunt, 1979). Keefe (1979) describes cognitive styles as "information processing habits representing the learner's typical mode of perceiving, thinking, problem solving and remembering" (p. 3). According to Hansen and Stansfield (1981) cognitive style is a psychological term used to describe individual differences in the way one habitually tends to perceive, organize, analyze, or recall information and experience. Reid (1987) defines cognitive style as "how the mind actually functions, how it processes information or is affected by each individual's perception" (p. 88). According to Alptekin and Atakan (1990) cognitive styles are the "specific and relatively stable ways" in which learners perceive and approach mental tasks. That

is they refer to an "individual's preferred perceptual and intellectual mode" (p. 135).

Various groups of researchers have worked with pieces of this complex cognitive profile; each group has its own taxonomy and terminology. For example, Witkin (1976), Witkin, Moore, Goodenough and Cox (1977), and Witkin, Moore, Oltman, Goodenough, Friedman, Owen and Raskin (1977) have written widely about field independent (analytic) versus field dependent (global) approaches to experiencing the environment and processing information. Kagan and Messer (1975) have discussed conceptual tempo: reflectivity (slower, more calculated guesses) versus impulsivity (quick, risk-taking guesses) in the responses of learners. Hill (1971) has investigated cognitive style mapping, an inventory process that references preferred types of media, instructional strategies, and structure of the environment. Messick et al. (1976) have listed more than twenty dimensions of cognitive style, including those of Witkin and Kagan and sensory (perceptual) modality preferences.

Each cognitive style represents a continuum of style in information processing, and each person has a place somewhere on that continuum. One such continuum is the cognitive style dimension of field dependence and independence--the focus of this

study.

2.3.2 The Cognitive Style Of Field Dependence-

Independence

The concept of learning styles come from at least three traditions: 1) the study of perception and Gestalt psychology; 2) ego psychology; and 3) the theories of Carl Jung. The experimental study of perception and the Gestalt tradition are the origins of the field dependence-independence cognitive style (Ehrman & Oxford, 1990). The field dependence-independence (FDI) cognitive style, which is one of the most widely researched learning style dimensions, has been described and researched extensively by Witkin. Witkin, Moore, Goodenough, and Cox (1977) define it as "the extent to which a person perceives part of a field as discrete from the surrounding field as a whole, rather than embedded, or...the extent to which a person perceives analytically" (p. 7). Another definition of Witkin et al. (1977) states that "the FDI dimension of cognitive style represents the "extent to which an individual relies primarily on the self or is influenced by the world outside" (p. 48).

These contrasting tendencies are believed to affect both cognitive and social behaviours and abilities. FI is associated with greater articulation and competence in cognitive analysis

and restructuring, and FD with a more global approach and greater social and interpersonal competence (Carter, 1988).

The research literature related to FDI shows that the cognitive restructuring abilities associated with FI extend into the verbal domain, at least with regard to the native language. FI people are better able to select from a complex field those cues relevant to a particular problem; in contrast, FD learners may have difficulty focusing on the relevant cues (Dickstein, 1968; Witkin & Goodenough, 1977). Witkin and Goodenough propose that FD persons develop an interpersonal orientation which not only allows them to focus on other people for information and structure but also leads to competence in understanding and dealing with others. They offer a review of the research evidence, concluding that field dependent people are strongly interested in others, sensitive to social cues, apt to display emotional openness, seen as outgoing by other people, and may possess social skills that are less evident in field independent individuals.

Witkin et al. (1979) states that field independents, on the other hand, are believed to have developed more definite boundaries between the outer world and the inner core of attributes, needs, and feelings often described as the self. There is a greater autonomy from external sources of

information, especially from such a common source as other people, when performing intellectual tasks or participating in social situations. In theory this self-reliance leads to a more impersonal orientation among field independent people. According to Naiman et al. (1978) FI persons are able to perceive individual items that may be relatively difficult to distinguish from their visual background. This ability is thought to be associated with a more analytical (left-brained) cognitive style. FD persons, on the other hand, perceive all parts of the organized field as a total experience.

Harnett (1980) describes FI learners as verbal, analytic, serialist, and sequential-successive and FD learners as imaginal, relational, holistic, and simultaneous synthetic. Harnett refers to the cognitive modes of the FI as **analytic** and the FD as **holistic**. Alptekin and Atakan's (1990) definition is as follows

Field independence (FI), on the whole, has been classified as an **analytic** cognitive style and it refers to one's tendency to perceive specific items in an embedding context. Field dependence (FD), on the other hand, has been classified as a **holistic** style and it characterizes the tendency to perceive all parts of a given context as a global experience such that the parts embedded within the context are not easily differentiated. In other words, in their extreme forms, one will not be able to "see the forest for the trees" in the case of FI, yet one will only see the forest in the case of FD.
(p. 136)

2.4 THE IMPACT OF PERSONALITY ON LANGUAGE LEARNING

Since personality traits make a difference in how people learn and what they learn, it is assumed that they have an impact on language learning. The effect of personality on language learning has been studied a number of times and some relationships between the personality and language learning have been explored (Moody, 1988). The studies showed that learners who have particular personality traits are more likely to succeed in second language learning. For example, Rossier (ctd in Moody, 1988) found a positive correlation between extraversion and oral fluency in English. Tolerance for ambiguity is another important style dimension; those who can more readily tolerate ambiguity often show better language learning performance than those with less such tolerance (Ehrman & Oxford, 1990). Field independence is among the cognitive styles which has been found to be related to success in second language learning.

2.4.1 The Effect of Field Dependence-Independence

Cognitive Style On Language Learning

The importance of the learners' cognitive style in second language learning has been revealed by many researchers. Many studies indicate that there is a relationship between the learners' cognitive style and the degree of achievement in learning a

second language. One learner characteristic that appears to be related to progress in learning a second language is the cognitive style of **field independence** (Abraham, 1985).

"FI, in particular, has been found to correlate positively and significantly with L2 learning in school settings where the target language is taught formally" (Alptekin & Atakan, 1990, p. 136). For example, in the studies carried out by Bialystok and Frohlich (1977, 1978), Carroll (1975), Hansen and Stansfield (1981), Stansfield and Hansen (1983), Naiman, Frohlich, Stern and Todesco (1978), and Tucker, Hamayan and Genessee (1976), **field independent** students have been found to do significantly better in multiple-choice achievement tests, cloze tests, and standardized paper-and-pencil tests than more **field dependent** students.

Naiman, Frohlich and Stern (1975), in their study of English-speaking Canadian students learning French as a second language (FSL) in Canada, reported that FI was a significant predictor of L2 proficiency as measured by an imitation test which required the student to repeat a sentence in French. Two other studies in the same environment found that: 1) FI predicted success on a general French achievement test (Tucker, Hamayan & Genessee, 1976). In a study of seventh grade learners, they found that field independent students received higher

scores on the Test de Rendement en Francais, Niveau 5, a standardized multiple-choice achievement test of spelling, listening comprehension, vocabulary and grammar; and 2) FI showed a significant positive correlation with achievement on French reading, listening, writing and grammar tests (Bialystok & Frohlich, 1978).

In a study of eighth, tenth, and twelfth grade Canadian learners of French, Naiman, Frohlich, Stern and Todesco (1978) found that field independence was related to success for twelfth graders on the listening section of a French achievement test and an imitation test. Results of the study conducted by Naiman et al. indicated that FI was significantly related to better performance on imitation and listening comprehension tasks, especially at more advanced stages of French study. This group also found that FI and FD students appeared to process and produce linguistic structures in different ways. Carroll (1975) also found that field independence was significantly related to foreign language aptitude as measured by the Modern Language Aptitude Test.

Hansen and Stansfield's (1981) study of college-level students in Spanish also showed field independence to be significantly correlated with scores on tests of linguistic, communicative and integrative competence. Three-hundred students in a

beginning-level Spanish course at the University of Colorado-Boulder formed the sample group for their research and the students were graded separately on their linguistic, communicative and integrative competence during a semester. In this study the students' linguistic competence was measured with written discrete-point examinations (Written Exam Grade Average) of Spanish grammatical knowledge, and on the Final Exam their communicative competence was measured by an Oral Grade Average and an Oral Skill Evaluation and their integrative competence was measured by a multiple-choice Cloze Test. The students' Final Course Grades were also used as a measure of integrative language skill. The results showed that students with a relatively greater degree of field independence, as opposed to field dependence, achieved at a higher level on all six measures of Spanish proficiency. However the most marked relationship was between field independence and high performance on the integrative measure, a multiple-choice cloze.

Likewise, Genesee and Hamayan (1980), in their study of first grade English-speaking students in a French immersion programme in Canada, found significant and positive correlations between FI and both general achievement in French and French listening comprehension skills. Abraham (1983) also found significant correlations between FI and the

use of the strategy of monitoring by ESL students on each of three tasks: fill-in-the-blank, proofreading, and composition. In the United States, Roberts (1983) also obtained significant correlations between FI and scores on traditional tests of an analytic nature. Chapelle and Roberts (1984) found FI to be a significant predictor of success on a multiple-choice grammar test given to ESL students after the study in an intensive English program. Chapelle and Roberts (1986) and Carter (1988) found further support for the correlation of FI with L2 learning in the case of college students in an ESL environment.

In a recent study in an ESL situation, field-independence was found to be one of a number of learner characteristics significantly related to achievement in French by adult immigrants, as measured by the Test de Rendement en Francais and teacher evaluations (d'Anglejan & Renaud, 1985). Finally, the most recent research in this field was conducted in an EFL situation by Alptekin and Atakan (1990). This study also shows a positive correlation between FI and L2 achievement. The GEFT scores and scores on measures of L2 achievement indicated significant and positive associations between performance on the GEFT and performance on all EFL tests and subtests which were discrete-point, achievement, cloze, grammar, reading and

listening tests.

In summary, the research studies to date agree that field independent learners perform better on multiple-choice achievement tests, cloze tests, spelling, listening comprehension, vocabulary, grammar, reading and writing tests, and field dependent learners perform worse on these tests.

2.4.2 The Effect Of FDI Cognitive Style On Cloze

Test Performance

A number of studies also investigated the relationship between cognitive style and second language test performance on the cloze test, an integrative type of measure. Hansen (1984a) and Stansfield and Hansen (1983) analyzed the relationship between field dependence-independence and cloze test performance for ESL learners, and observed that field independent students filled in the blanks on a cloze test more easily than the field-dependent students. The significant correlation between GEFT and the cloze test score showed that FI cognitive style is advantageous in solving the cloze test. Therefore, individuals with a FI cognitive style appear to have an advantage over those with a FD cognitive style when taking a cloze test.

However, some further research indicated that cognitive style has no significant influence on

cloze test performance. A study carried out by Readence, Baldwin, Bean and Discher (1980) showed no influence of field dependence-independence on cloze test solutions. Hansen's (1984b) study with six different cultures showed significant correlations between these variables but noted sizable differences among subgroups in the sample in the relationship between field independence and cloze.

2.4.3 Conflicting Research Findings

Although the results of these studies indicate that field independence plays a positive role in second language learning, some other studies indicate controversial findings mostly focusing on performance on the cloze test. Stansfield and Hansen's (1983) study with college students of Spanish, for example, showed that the correlation between the GEFT (Group Embedded Figures Test) score and the measures of Spanish proficiency were positive but rather modest. Although the correlation showed that FI cognitive style is associated with a higher level of achievement on all measures of second language proficiency, the correlation was not high (.20 to .28) with traditional measures, such as course grades and discrete-point grammar tests. Yet the correlation between FDI and cloze test scores was .43, a notable difference.

In another study, Hansen (1984b) further studied the relationship between field-independence and cloze test performance for ESL learners from six Pacific Island cultures and found that some cultures were more field independent than other cultures. She also found that while males in some cultures were significantly more field independent than females, there was no significant relationship between sex and cognitive style in other cultures. When the sample was taken as a whole, a significant relationship was found between field independence and cloze scores. The correlations between the GEFT score and the grades and language test scores were all positive. The positive correlations showed that a field independent cognitive style is associated with a higher level of achievement on language tests and with higher grades. This is consistent with the findings of Hansen and Stansfield (1981).

However, when the nine subgroups were analyzed individually, the relationship was not significant for all cultures. Within cultures, it was found that there was a significant relationship between cognitive style and cloze test score for the subgroups having lower scholastic achievement, but there was no significant relationship between cognitive style and cloze test score for subgroups having higher scholastic achievement. Since five of the nine ethnic and ability groups examined showed

no significant relationship between FDI and cloze scores, the data reported in this study speak against a general claim for cognitive style bias in cloze testing that extends across all cultural groups and ability levels.

In Day's (1984) study with ESL students correlations done on the data given indicated a significant relationship between FI and performance on a cloze test ($r = .259$, at $p < .05$) but not between FI and performance on a test of communicative competence ($r = .108$). As stated above studies offer mixed and somewhat inconsistent conclusions about the influence of field dependence-independence on second language test performance. While there is lots of evidence in the literature that FI students perform better on multiple-choice tests, there is not enough evidence to claim a similar superiority for FI students on cloze test.

2.5 THE LEARNING STYLES OF FIELD DEPENDENT AND INDEPENDENT LEARNERS

Despite mixed and sometimes conflicting evidence concerning the possible role of field dependence-independence in second or foreign language learning, proposals are being made to adapt second language instruction methods and materials to accommodate these stylistic learner differences

(Omaggio & Birckbichler, 1978). Basically these instructional ideas address the field dependent learner, with the implication that field independence is preferable for classroom success (Hansen & Stansfield, 1981). According to Hansen and Stansfield (1981) both the cognitive restructuring abilities associated with field-independence and the interpersonal and social skills linked to field-dependence enhance progress in learning another language but in different ways. FD people tend toward a "spectator" approach to learning, while FI people are more apt to take a participatory approach, making use of hypothesis testing and processes such as analyzing and structuring (Davis & Haueisen, 1976; Goodenough & Witkin, 1977).

Effective learning may take place by either approach; nevertheless, that of FI learners corresponds with many of the strategies used by "good language learners," as identified by Rubin (1975) and Stern (1975): successful learners take an active approach, are willing guessers, experiment and practice, attend to form and constantly analyze, categorize and synthesize. However, these same researchers also found that "good" language learners have a strong drive to communicate, try to use the language with others, monitor how well their speech is being received by others, and attend to social

cues to meaning. The interpersonal orientation of FD people, then, may also be advantageous for language learning. Investigators of affective variables in foreign language learning have claimed that empathy, socialization, and other FD traits are the keys to language learning success (Brown, 1977; Gayle, 1981; Guiora, Brannon & Dull, 1972).

This view is supported by research which indicates that FD individuals are better than FI individuals at learning and remembering material with social connotations (Goodenough, 1976; Witkin, 1977; Witkin & Goodenough, 1977). Brown (1977) and Bialystok & Frohlich (1978) hypothesize that FI learners may have the advantage in classroom language learning because of the formal, or structure-oriented, nature of classroom tasks, as opposed to a more "natural" or functional use of language for communication of meaning. Many classroom activities, and most testing procedures, focus on manipulating foreign language forms, while minimizing attention to the social functions and meanings. Such tasks may call forth the particular skills of FI people while ignoring or obscuring FD people's social and interpersonal abilities, which should logically also contribute to effective language use. The implication is that the supposed superiority of an FI cognitive style in classroom learning may be related to a distinction between the

usual "formal linguistic achievement" orientation of classrooms and tests and what Omaggio (ctd in Carter, 1988, p. 22) has called "real competence," that is, "functional language proficiency". Given the hypothesized relationship of FDI to cognitive and interpersonal abilities, it appears possible that such measures, as well as many current teaching practices, may favour FI learners, while possessing an implicit bias against learners with a FD cognitive style (Carter, 1988). "The cognitive style of field-independence has been shown in a number of studies to be related to success in second language classrooms in which deductive teaching dominates" (p. 689).

The research carried out by Abraham (1985) focused on this issue by examining whether less rule-oriented language teaching (inductive teaching) is beneficial to FD learners, and rule-oriented language teaching (deductive teaching) is beneficial to FI learners. Prompted by the previous studies which suggest that field independent students are more adept at learning and using rules than field dependent students Abraham wanted to discover whether a method of teaching that does not emphasize rules might be more beneficial for field-dependent students.

In the study conducted with ESL students in the high intermediate levels of the Intensive English

and Orientation Program at Iowa State University, Abraham (1985) compared two different methods, namely, an inductive and a deductive lesson in teaching the formation of participial phrases. The sixty one high intermediate students from a variety of language backgrounds were the subjects of this study. First, all the subjects were given a pre-test with no time limit and their performance on the pre-test showed that they did not fully understand how participles are formed in English. The subjects were then given the Group Embedded Figures Test (GEFT) and classified as field dependent and field independent with a cutoff score of 11. Approximately equal numbers of subjects from each group were assigned to either the deductive or the inductive lesson.

The teaching for both lessons, which were written by the investigator, was done by means of Computer Assisted Instruction (CAI). Each lesson contained a short introduction on the nature and usefulness of participial phrases, yet followed different routes in instruction. For example, the inductive lesson, which was named as the example lesson by Abraham, consisted only of a variety of sixty examples within context, whereas the deductive lesson explained the rules in a step by step tutorial and provided error feedback as well. The investigator or a research assistant was available

throughout the instruction, and the subjects worked regularly at scheduled times and proceeded at their own pace.

After the subjects finished the computer work, they were given a post-test parallel to the pre-test in terms of presentation, type of participial phrases, tasks, i.e., the students were asked to combine two sentences changing one to a participial phrase. Each item on the test was scored on a 0-3 basis. CAI work and all testing took about two and a half weeks for students to complete.

Finally, pre- and post-test scores were compared to determine whether there was an overall difference in effectiveness between the two lessons and whether there was an interaction between field dependence-independence and the type of the lesson. Positive relationships were found between FDI and the type of the teaching. In other words, the results of Abraham's study indicate that FI students perform better with deductive lessons and FD students perform better with inductive lessons.

2.5.1 Educational Implications Of Studies

Hansen and Stansfield (1981) highlighted the importance of individualized educational techniques that can promote a higher degree of language learning success and suggest that teachers should be trained to adjust their instructional strategies,

materials and testing methods to benefit all students. Chapelle and Roberts (1984) stated that it is not appropriate to assume that all learners will benefit from the same kind of L2 instruction and, therefore, it is one of the tasks of researchers to determine how instruction ought to vary from one learner to another. That is, they suggest further research investigating the approaches that can be taken in individualized forms of instruction. Abraham's (1985) study provides insights into how students along one continuum of individual differences internalize knowledge about one grammatical item in the second language and highlights the importance of individualized instruction to accommodate students who differed in their cognitive style.

The findings of Alptekin and Atakan's (1990) study indicate that FDI is an important factor in L2 learning and FI is found to be an advantageous cognitive style for tutored L2 learning. Alptekin and Atakan suggest that teaching professionals should be aware of the learner traits and learner variables that need to be taken into account when instructional strategies and teaching materials are developed.

2.6 CONCLUSION

The fact that normal humans acquire a basic competence in their first language, but show great variability in the level of proficiency in a second language has led second language researchers to investigate the relationship between personality and second language acquisition. A number of research studies in this field reveal that personality has an effect on second language learning. Furthermore, particular personality traits are shown to be related to success in second language learning. One of the personality traits which has received consideration by second language researchers is the cognitive style construct known as field dependence-independence (FDI) (Stansfield & Hansen, 1981). Researchers have examined the cognitive styles of FDI to ascertain their relationship to progress in learning another language and field-independence has been found to be related to success in second language learning (Stansfield & Hansen, 1983). Although implicit and explicit assumptions found in the literature indicate that a FI cognitive style is more effective than a FD style for classroom study of another language, mixed and sometimes conflicting findings have been found about the role of FDI in second language learning (Carter, 1988).

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

The purpose of this study was to investigate whether there is a relationship between a learner's cognitive style (field dependence-independence) and the teaching method (deductive-inductive) used. The hypothesis was that field independents would score significantly higher than field dependents on tests after having deductive lessons and field dependents would score significantly higher than field independents on tests after having inductive lessons. It was further hypothesized that there would be significant differences between field dependent and field independent participants in their scores on two different types of tests, multiple-choice and cloze tests, after having deductive or inductive teaching.

The research literature on cognitive style shows that the learners' degree of FDI can be measured. Although several measures of FDI are available, the most widely used one has been the GEFT. Hansen and Stansfield (1981, 1982), Hansen (1984a), Hansen (1984b), Hansen and Strain (1987), Abraham (1985), Alptekin and Atakan (1990), for example, used GEFT to measure field dependence-independence. Alptekin and Atakan (1990) used the

Turkish version of GEFT to measure the degree of FDI in their studies.

3. 2 SUBJECTS

Forty subjects were selected from the intermediate level of the Intensive English Program at Bilkent University School Of English Language (BUSEL). The subjects were between the ages of 18 and 21. BUSEL aids students in developing sufficient English to be able to follow the courses in their departments where the medium of instruction is English. The selection of subjects consisted of three steps.

First, the result of a **progress test**, which was prepared and administered by the Testing Unit of BUSEL, was used to determine the proficiency level of the students. Although the progress test was not given for the purpose of this study, it was used as a determiner of the level. These progress tests are given four times a year in order to place the students at the appropriate proficiency level. The progress test was administered on January 21-22, 1992 and the students who were placed at the L1 level (lower intermediate) as a result of this progress test were selected as the pool from which the population of this study was selected.

Second, a **pre-test**, (prepared by the

researcher) containing questions about two grammar items, which were later taught by the researcher, was administered to all L1 level intermediate students in the seventh week of a 16-week spring term. Students who received low scores on the pre-test, indicating that they knew little about the grammar items to be taught, were selected for the next level of screening.

The third and last screening step determined the level of field independence and field dependence. The Group Embedded Figures Test (GEFT) was administered to the students who had scored very low on the pre-test. On the basis of their performance on the GEFT, the high field dependent and the high field independent students were selected and those who were in the middle were eliminated (See section 3.3.1.1). An equal number of males and females were selected, 20 FD (10 female, 10 male) and 20 FI (10 female, 10 male) subjects.

In summary, sex, age and the level of proficiency were the variables controlled in this study.

3.3 MATERIALS

The materials used in this study were a pre- and a post-test, Group Embedded Figures Test (GEFT)

and some teaching materials designed for deductive and inductive teaching.

3.3.1 Tests

3.3.1.1 Group Embedded Figures Test (GEFT)

The GEFT, developed by Oltman, Raskin and Witkin (1971), has been long used to assess the degree of FDI in experimental subjects. In this study, the GEFT was chosen because it has proven to be a very useful measure of field dependence-independence (Melancon & Thomson, 1989). It is a valid and reliable test. The measurement characteristics of the GEFT have been evaluated and found reliable. The GEFT has been used frequently, in part because the measure has exceptional psychometric integrity even when evaluated by a sophisticated measurement theory such as generalizability theory (Thomson & Melancon, 1987). The result of Thomson and Melancon's study indicates that the GEFT provides highly reliable and valid data and the generalizability coefficients were found to be .88 -.94.

The Turkish version of the GEFT, developed by Okman-Fisek (1979), was used in this particular study. There were two major reasons for using the Turkish version. First, since all the subjects were native Turkish speakers, it was assumed that the

Turkish version would eliminate the language problem and even facilitate the understanding of instructions. Second, the reliability of the Turkish version was also measured and found reliable. The Spearman-Brown formula was used to measure the reliability and it was found to be .91 (Alptekin & Atakan, 1990). This estimate is higher than the one by Oltman et al. (1971), which was .82.

The **Group Embedded Figures Test** (See Appendix A) consists of a practice section (part 1) and two additional sections (part 2 and part 3) each consisting of nine items. All the parts of the GEFT contain complex designs in which simple geometric figures are embedded. In each item of the GEFT, the subjects are required to perceive and outline a simple geometric figure within a larger, more complex design which serves to obscure the simple shape. The subjects must overcome the organizational context, "disembedding" discrete, relevant information from the "field" (Witkin & Goodenough, 1977). That is, the subject must locate or separate the relevant information from the contextual field and restructure it to design the correct shape (Stansfield & Hansen, 1983) in a given period of time. The number of the simple figures subjects locate shows their degree of field dependence-independence. The more simple figures the subjects

find without being distracted by the complex figures, the more they are supposed to be field-independent (Alptekin & Atakan, 1990). To obtain the FDI score, section one is ignored and the total of right answers in sections 2 and 3 are added together, that is, the number of the 18 items on which the subjects correctly locate hidden target shapes (Thomson & Melancon, 1987) is the FDI score. Scores on the GEFT range from 0 (highly field dependent) to 18 (highly field independent). A score of 11 or above was regarded as FI and a score below 11 was regarded as FD in this study. The cut off of 11 was chosen on the basis of an earlier study by Abraham (1981).

3.3.1.2 Pre- and Post-Tests

The pre- and post-tests used in this study consisted of two mini-tests: 1) a discrete-point test in multiple choice form and 2) an integrative test in cloze form. These tests were chosen for this study because while the research findings indicate that FI is significantly related to better performance on multiple-choice tests, the studies show mixed and conflicting findings about the influence of FDI on cloze tests. The purpose of choosing two different types of tests, therefore, was to reinvestigate the influence of FDI on

performance in two types of tests.

The tests were prepared by the researcher under the supervision of the Testing Unit of BUSEL because the tests were to measure the achievement of the students on the teaching points, and there was no readily available test for this purpose. The correlation between these two tests was calculated with the Pearson product-moment correlation coefficient formula and found to be .96 and the Spearman-Brown formula was computed for the reliability and found to be .98.

The cloze test used a rational deletion technique and focused on specific grammar points. It contained 25 blanks and the following instruction was provided on the test:

Read the following passage and fill in the blanks with ONE suitable word.

The multiple choice test also consisted of 25 items and each item had four options. The following instruction was provided on the test:

Read the following sentences and circle the best answer.

Forty minutes were given to take the two tests.

(See Appendix B)

3.3.2 Teaching Materials

Teaching in this study was done by means of inductive and deductive lessons written by the

researcher. One group received a traditional deductive approach, while the other group received an inductive approach, equivalent to the "example lesson" in Abraham's study (see Chapter 1.2.1).

Teaching to the deductive group was done by rule explanations and the exercises were based on rule formation. That is, the students were expected to remember the usage of certain patterns and use them mechanically, for example, in combining sentences or in paraphrasing a sentence. The materials designed for this group were prepared accordingly. Writing Academic English (Oshima & Hogue, 1978), *Understanding and Using English Grammar* (Azar, 1981), and *Communicate in Writing* (Johnson, 1981) were used as the original sources of the materials. However, it should be noted that some modifications were done before the materials were actually used.

Teaching to the inductive group, on the other hand, was carried out by communicative activities in which pair and group work, games, and problem solving activities were dominant. The rule explanation was at a minimum and instead, some examples were used as an implicit way of explanation. The teaching materials were prepared by taking the instructional techniques described above into consideration.

Grammar Games (Rinvoluceri, 1984), Grammar in Context (Gethin, 1983), English Grammar in Use (Murphy, 1987), Use of English (Jones, 1985), and Communicate in Writing (Johnson, 1981) were the sources of the materials used in this group.

3.4 TREATMENT AND DATA COLLECTION PROCEDURES

The data collection procedure included two stages: 1) treatment and 2) testing.

3.4.1 Treatment

After an equal number of male and female subjects (20 FI, 20 FD) had been selected using the procedures described in section 3.2, they were assigned to two groups each having equal numbers of FD and FI subjects. That is, 10 FD (5 males and 5 females) and 10 FI (5 males and 5 females) subjects were placed in each group. The groups were matched on the basis of GEFT and pre-test scores. Then the subjects in each group were taught some grammar items, that is subordinators and conditional sentences type 3 for 8 hours.

The subordinators and the third form of the conditional sentences were chosen as the grammar items to be taught. The classification used in *Understanding and Using English Grammar* (Azar, 1981) was used as the basis for the conditional sentences

type 3 in this study. The selection of conditional sentences type 3 was made for two reasons. First, the formation of the sentences is governed by a rule and appropriate for deductive teaching. Second, since the third type (If I had....., I would have.....) is not common in conversational English, it is not likely to be "acquired" in the sense that this term is used by Krashen and Terrell (1983). The second item, subordinators (however, although, when, as, because, etc.) were also chosen for several reasons. First, students need to know these linking words for better understanding of what they read. Furthermore, they should be able to use them in their speaking. Second, since some of these words are more preferable in academic writing, students should be able to use them in their writing as well.

However, different teaching methods were used in each group. While one group was taught deductively, the other group was taught inductively. That is the subjects in the **deductive group** were taught through the traditional deductive approach where the rules for forming the third form of conditional sentences and the rules for using subordinators were given explicitly. That is, exercises were rule-based. The subjects in the **inductive group** were taught through the inductive

approach where the third form of the conditional sentences and subordinators were presented with many examples in context. Communicative activities were employed in the inductive group as exercises. Each group was taught for a total of 8 hours, 4 hours a week for 2 weeks, and the lessons were carried out in BUSEL classrooms after the students' regular class hours.

3.4.2 Testing

At the end of the 8 hour course, the subjects were given a post-test which contained the same questions given in the pre-test. The post-test consisted of two mini-tests: 1) multiple-choice test and 2) cloze test. The test was administered to all the subjects disregarding their groups and type of the lessons. The test was given in the classrooms where the lessons took place.

3.5 VARIABLES

The variables in this study are the FDI dimension of cognitive style, teaching methods, and test performance. The FDI cognitive style of subjects and the deductive-inductive teaching methods are the independent variables in this study. In particular, the cognitive style of FDI, as measured by the Group Embedded Figures Test, is the

measured variable, and the deductive-inductive teaching methods are the treatment variables. The test performance, as measured by the post-tests is the dependent variable. The scores on the two post-tests; cloze and multiple-choice tests show the test performance of the subjects.

In summary, this study investigates the independent variables (FDI and deductive-inductive) to determine their effects on the dependent variables (a multiple-choice test and a cloze test).

3.6 ANALYTICAL PROCEDURES

On the basis of the methods used in the related studies mentioned in Chapter 2, t-test and ANOVA were found to be the most appropriate statistical procedures for this study. Therefore, these statistical procedures were employed to analyze the data. A factorial research design was used to measure the difference between the mean scores of the four groups (FI deductive, FD deductive, FI inductive, FD inductive). A t-test was run to compare the mean scores. The mean scores were then compared in an ANOVA design to see if there was an interaction between the two independent variables and between the two independent variables and dependent variables: field dependence versus

independence and the inductive versus deductive teaching, and their relation with performance on the multiple-choice and the cloze tests.

CHAPTER 4

DATA ANALYSIS

4.1 INTRODUCTION

Many studies support the advantage of field independence on second language test performance, and this study aimed to investigate whether a particular teaching method best suits a student with a particular cognitive style. It was hypothesized that field independent students would achieve higher scores on both types of tests in grammar lessons taught deductively, and field dependent students would achieve higher scores in lessons taught inductively. The first part of the analysis deals with this comparison.

A number of studies, which examined the relationship between cognitive style and second language test performance, revealed that a field independent cognitive style is significantly related to a higher level of achievement on different types of tests. In almost all studies a significant relationship was found between field independence and success on multiple-choice tests. However, although many studies found the same relationship between field independence and cloze tests, in a few studies, no significant relationship was found between field independence and success on cloze tests. Therefore, this study aimed to explore the influence of field dependent independent cognitive style on second

language test performance, especially as it relates to performance on a discrete-point measure, a multiple-choice test, and an integrative type of measure, a cloze test. Thus, in an attempt to address the issue of possible cognitive style bias in second language learning, this study compares the achievement patterns of students on two measures: a multiple choice test and a cloze test. This issue was examined in the second part of the data analysis.

4.2 DATA ANALYSIS PROCEDURE

The data analysis consists of several stages. In the first stage, the overall mean scores of the FI and FD students in each group were calculated and the t-test was run to compare the mean scores in order to test the hypothesis that in the deductive group, the field independent students will achieve higher scores on both tests than the field dependent students, and in the inductive group, the field dependent students will achieve higher scores on both tests than the field independent students. The overall mean scores were the subjects' combined scores from the multiple-choice and cloze test.

In the next stage, the second hypothesis that the field independent students in the deductive group will perform better than the field dependent students on the multiple-choice test, and the field dependent students in the inductive group will perform better than field

independent students on the cloze test, was tested through the t-test and two-way analysis of variance (ANOVA).

Further statistical analysis was done to investigate the other possible results, and the groups were compared on different dimensions, cognitive style, by group and by test type.

4.3 PRESENTATION OF DATA

The analytical procedure in this section is based on the comparison of the mean scores by means of the t-test and the two-way analysis of variance (ANOVA). The data analyses will be presented in tables. The level of significance for this study was set at alpha .05.

4.3.1 Relationship Between Teaching Method and Cognitive Style

It was hypothesized that in the deductive group, the field independent students would achieve higher scores on both tests (higher overall scores) than the field dependent students, and in the inductive group, the field dependent students would achieve higher scores on both tests than the field independent students. In order to test the hypothesis the overall mean scores of FI and FD students were calculated and a t-test was run to compare the means. Table 4.1 presents the overall mean scores for both tests.

TABLE 4.1
Overall Mean Scores and Standard Deviations of Groups by
Cognitive Style and Teaching Approach
(for each M and SD, n= 8)

	FI	FD	Tobsv	Tcrit
	M= 47.46	M= 44.11		
DED.	SD= 4. 28	SD= 6.35	1.24	2.04
	M= 54.95	M= 46.20		
IND.	SD= 16.06	SD= 10.00	1.31	2.04
FI= field independent DED= deductive FD= field dependent IND= inductive				

When the groups were analyzed by methodological treatment type, it was observed that FI students in the deductive group achieved a slightly higher score (M=47.46) than FD students (M=44.11), but the difference is not statistically significant. As Table 4.1 illustrates the obtained T observed value is quite a bit lower than the T critical value, therefore, the difference cannot be accepted as significant.

In the inductive group, field independent students also achieved higher scores (M=54.95) than field dependent students (M=46.20). Although the difference between the two groups is slightly higher than in the deductive group, it is still insignificant (see Table 4.1). Thus, the experimental hypothesis that the field independent students in the deductive group would achieve higher overall scores on both tests and the field dependent students in the inductive group would achieve higher overall scores on both tests, is rejected and the null hypothesis is accepted.

4.3.2 Relationship Between Cognitive Style And Performance On Different Test Types

It was further hypothesized that the field independent students in the deductive group would perform better than the field dependent students on the multiple-choice test, and the field dependent students in the inductive group would perform better than field independent students on the cloze test.

At this stage of the analysis, the subgroups (FI and FD) in each group (deductive-inductive) were compared within themselves. That is, the performance of FI and FD students on the multiple-choice test and the cloze test was compared by methodological treatment type.

Table 4.2 presents means for the FI and FD students in the deductive group on the multiple choice and cloze tests. The data show that the FI students in the deductive group performed better ($M=53.31$) than the FD students ($M=49.13$) in the same group on the multiple choice test. Furthermore, the FI students achieved higher scores ($M=41.64$) on the cloze test than the FD students ($M=39.13$). However, when the t -test was run in order to find out whether there was a significant difference between the means, it was found that the differences were not statistically significant.

TABLE 4.2
Mean Scores and Standard Deviations of the Deductive
Group on Multiple Choice and Cloze Tests
(for each M and SD n= 8)

		Test type							
		Mult.Choice				Cloze			
C.S		Tobsv	Tcrit			Tobsv	Tcrit		
FI	M	53.31				M	41.64		
	SD	7.14				SD	7.74		
FD	M	49.13				M	39.13		
	SD	9.38	1.01	2.14		SD	11.50	0.51	2.14

C.S= cognitive style; Mult.= multiple

Tobsv= T observed value; Tcrit= T critical value

When the subgroups in the inductive group were compared, the FI students were also found to be more successful on the multiple-choice test (M=65.80) than the FD students (M=51.62). The difference was significant at $p < .05$. Furthermore, in contrast to the hypothesis, the performance of the FD students on the cloze test was found to be lower than the performance of the FI students. As Table 4.3 illustrates while field independent students achieved a mean score of 44.15, field dependent students achieved a mean score of 40.79. However, the difference was not statistically significant.

TABLE 4.3
Mean Scores and Standard Deviations of the Inductive
Group on Multiple Choice and Cloze Tests
(for each M and Sd n= 8)

Test type										
C.S		Mult.Choice		Tobsv	Tcrit	Cloze		Tobsv	Tcrit	
FI	M	65.80					M	44.15		
	SD	14.46					SD	20.15		
FD	M	51.62					M	40.79		
	SD	8.54	2.39*	2.14			SD	12.58	0.40	2.14

* p. <.05

A two-way analysis of variance (ANOVA) was performed to assess the significance of the observed difference in means between the treatments, the cognitive style, the test and the interaction between them. The results of this analysis together with the F test and p values are given in Tables 4.4 and 4.5.

Two-way analysis of variance (ANOVA) was conducted on each of the dependent variables to investigate the main effects. When the multiple-choice scores were examined, the main effects were found to be significant for both teaching method (inductive-deductive) and field dependence-independence at $p < .05$. However, the effect due to the interaction of these main effects was not found to be significant. The results are reported in Table 4.4. Furthermore, when the cloze test scores were examined the main effects were not found to be

significant at all. The results are presented in Table 4.5. Thus, the experimental hypothesis of significant superior multiple-choice test performance of the field independent students in the deductive group, and significant superior cloze test performance of the field dependent students in the inductive group was rejected.

TABLE 4.4
Results of Two-Way ANOVA for Deductive-Inductive
and FI/FD on Multiple Choice Test

Source of variation	Sum of squares	df	Mean squares	Fvalue
FI/FD	448.50	1.00	448.50	4.26*
DED/IND	673.45	1.00	673.45	6.40*
FI/FDxDDED/IND	199.00	1.00	199.00	1.89

*p < .05

DED= deductive; FI= field independent

IND= inductive; FD= field dependent

TABLE 4.5
Results of Two-Way ANOVA for Deductive-Inductive
and FI-FD on Cloze Test

Source of variation	Sum of squares	df	Mean square	Fvalue
FI/FD	33.62	1.00	33.62	0.18
DED/IND	70.81	1.00	70.81	0.37
FI/FDxDDED/IND	1.71	1.00	1.71	0.01

4.3.3 Comparison Of The FI Students' Test

Performance Across The Groups

In order to look at the other possibilities the groups were compared on different dimensions. A t-test was run in order to see the influence of teaching methods on FI and FD students' test performance in different types of test.

When the performance of the FI students on the multiple-choice test was examined, it was observed that the field independent students in the inductive group were found to be more successful than the field independent students in the deductive group. Table 4.6 presents means for the field independent students in the deductive and inductive groups on the multiple-choice and cloze test. While the FI students in the inductive group achieved a mean score of 65.80, FI students in the deductive group only achieved a mean score of 53.31. The difference between the mean scores was significant at the .05 level. Thus, it can be concluded that the performance of FI students on the multiple-choice test is affected by the methodological treatment, but in an opposite direction to that hypothesized. The hypothesis that the field independent students in the deductive group will perform better than the field dependent students on the multiple-choice test is, therefore, rejected.

TABLE 4.6
Mean Scores and Standard Deviation Of FI Students on
Multiple-Choice and Cloze Tests
(for each M and SD n= 8)

Test Type	Ded.Gr.	Ind.Gr.	Tobsv.	Tcrit
Mult.	M 53.31	M 65.80		
	SD 7.14	SD 14.46	2.19*	2.14
Cloze	M 41.64	M 44.15		
	SD 7.77	SD 20.15	0.33	2.14

*p.<.05

Mult= multiple choice test; Ded. Gr= deductive group

Cloze= cloze test; Ind.Gr= inductive group

Tobsv= T observed value; Tcrit= T critical value

When the performance of the FD students on the cloze test was compared (see Table 4.7), FD students in the inductive group were found to be more successful (M=40.79) than the FD students in the deductive group (39.13). However, the difference is too small to be statistically significant. The results of the findings also disconfirm the hypothesis that methodological treatment influences the performance of the FD students.

TABLE 4.7
Mean Scores and Standard Deviations of FD Students on
Multiple Choice and Cloze Tests (for each M and SD n= 8)

Test Type	Ded.Gr.	Ind.Gr.	Tobsv.	Tcrit
Mult.	M 49.13	M 51.62	0.56	2.14
	SD 9.38	SD 8.54		
Cloze	M 39.13	M 40.79	0.28	2.14
	SD 11.50	SD 12.58		

4.3.4 Comparison of Overall Performance By Cognitive Style

The overall performance of all the FI and FD students was also examined and the mean scores are illustrated in Table 4.8.

TABLE 4.8
Mean Scores and Standard Deviations of All Field
Independent and Field Dependent Students (for each M and SD n= 16)

FI	FD	Tobsv.	Tcrit.
M= 51.21	M= 45.16	1.68	2.04
SD= 11.99	SD= 8.16		

Disregarding the methodological groups they were in field independent students' performance was superior (M=51.21) to that of field dependent students (45.16). However, the difference is not statistically significant.

4.4 FURTHER ANALYSES

Further statistical analyses were done to investigate the effect of each dimension on each variable. The subgroups were compared on different dimensions such as by cognitive style, by treatment and by test type.

4.4.1 Comparison By Groups

When the performance of the field independent students on the multiple-choice test was analyzed according to the groups they were in, the results were surprising since they were contrary to the hypothesis of this study. The field independent students in the inductive group were found to be more successful ($M=65.80$) than the field independent students in the deductive group ($M=53.31$). The difference was significant at $p<.05$. (See Table 4.9).

TABLE 4.9
Mean Scores and Standard Deviations of Multiple
Choice Test Results According to Deductive and
Inductive Groups (for each M and SD $n=8$)

	Deductive	Inductive	Tobsv.	Tcrit.
FI	M 53.31 SD 7.14	M 65.80 SD 14.46	2.19	2.14*
FD	M 49.13 SD 19.38	M 51.62 SD 8.54	2.01	1.76

* $p<.05$

Although the result is the same for the cloze test, the difference was not found to be statistically significant. The field independent students in the inductive group performed slightly better ($M=44.15$) on the cloze test than the field independent students ($M=41.64$) in the deductive group (See Table 4.10).

When the performance of field dependent students was compared between the groups, it was found that the field dependent students in the inductive group achieved higher scores ($M=51.62$) on the multiple choice test than the field dependent students did ($M=49.13$) in the deductive group. However, the difference was not large enough to be statistically significant, $p<.10$ (See Table 4.9). When the cloze test results were analyzed, the difference was even smaller although the trend is the same. That is, the field dependent students in the inductive group performed slightly better ($M=40.79$) than the field dependent students in the deductive group ($M=39.13$) (See Table 4.10).

TABLE 4.10
Mean Scores and Standard Deviations of Cloze Test
Results According to Deductive and Inductive
Groups (for each M and SD n= 8)

	Deductive	Inductive	Tobsv.	Tcrit.
FI	M 41.64	M 44.15		
	SD 7.77	SD 20.15	0.33	2.14
FD	M 39.13	M 40.79		
	SD 11.50	SD 12.58	0.28	2.14

4.4.2 Comparison By Cognitive Style

A comparison of the scores of the field independent and dependent students on the multiple-choice and cloze tests reveals that field independent students' performance on the multiple-choice test was superior ($M=59.55$) to that of field dependent students ($M=50.38$) when the sample was taken as a whole. (see Table 4.11) The difference was found to be significant at the .05 level. That is, the evidence indicates that field independent learners do multiple choice-items more easily than field dependent learners. Thus, the hypothesis of Hansen and Stansfield (1983), that the field independent students would perform better on a multiple-choice test than field dependent students is accepted.

TABLE 4.11
Mean scores and Standard Deviations of Multiple
Choice Test Results According to Field-Independence
and Dependence (for each M and SD n= 16)

FI	FD	$T_{obsv.}$	$T_{crit.}$
M= 59.55 SD= 12.76	M= 50.38 SD= 8.76	2.37	2.04

$p < .05$

However, the hypothesis which claims that the cloze test favours field dependent students was not validated. The data indicate that the field dependent students did not perform better on the cloze test than the field independent ones. In contrast, field independent students achieved higher scores on the cloze test than the field dependent students, but the difference was not found to be statistically significant. (see Table 4.12.)

TABLE 4.12
Mean Scores and Standard Deviations of Cloze-Test
Results According to Field-Independence and Dependence
(for each M and SD n= 16)

FI	FD	$T_{obsv.}$	$T_{crit.}$
M= 2.89 SD= 14.81	M= 39.96 SD= 11.68	0.62	2.04

4.4.3 Comparison By Tests

The subgroups were then compared on the basis of their scores on multiple-choice and cloze tests in order to see how well they performed on each test. The performance of the field independent students on both tests was compared and it was found that they performed better on the multiple choice test ($M=53.31$) than they did on the cloze test (41.64). The difference was statistically significant at $p < .01$ (see Table 4.13).

The same result was found to be true in the inductive group as well. Field independent students' performance was superior on the multiple-choice ($M=65.80$) test than on the cloze test ($M= 44.15$), and the difference was found to be significant at $p < .05$. (see Table 4.13).

TABLE 4.13
Mean Scores and Standard Deviations of FI students on
Multiple Choice and Cloze Tests
(for each M and SD $n= 8$)

Test Type	Ded.Gr.	Tobsv.	Tcrit.	Ind.Gr.	Tobsv.	Tcrit.
Mult.	M 53.31			M 65.80		
	SD 7.14			SD 14.46	2.47	2.14*
Cloze	M 41.64			M 44.15		
	SD 7.77	3.13	2.14*	SD 20.15	2.47	2.97**

* $p. < .05$

** $p. < .01$

When the same comparison was done for the field dependent students, it was also found that the performance on the multiple-choice test was higher than on the cloze test. Field dependent students in the deductive group achieved higher scores on the multiple choice test ($M=49.13$) than they did on the cloze test ($M=39.13$). However, the difference was not statistically significant ($p < .10$). Field dependent students in the inductive group also achieved higher scores on the multiple-choice test ($M=51.62$) than they did on the cloze test (40.79), although the difference was slightly higher than the deductive group, the difference was still not found to be significant ($p < .10$). (see Table 4.14)

TABLE 4.14
Mean Scores and Standard Deviations of FD Students
on Multiple Choice and Cloze Tests
(for each M and SD $n=8$)

Test							
Type		Ded.Gr.	Tobsv.	Tcrit.	Ind.Gr.	Tobsv.	Tcrit.
Mult.	M	49.13			M	51.62	
	SD	9.38	1.91	2.14	SD	8.54	2.01 2.14
Cloze	M	39.13			M	40.79	
	SD	11.50			SD	12.58	

4.5 RESULTS AND SUMMARY

The central hypothesis in this study was that the field independent students would achieve higher scores on both types of tests when taught grammar lessons deductively, and field dependent students would achieve higher scores on both types of tests when taught grammar lessons inductively. The results of the study indicated that methodological treatment, in this case, deductive or inductive teaching, did not influence the test performance of the students with a particular cognitive style. Although FI students in the deductive group were found to be slightly more successful than the FD students, it cannot be postulated that their superior test performance was due to the deductive teaching. FI students' superior test performance in the inductive group also confirmed that there is no influence of teaching methods on FDI cognitive style. However, further analysis of the data revealed that FI students in the inductive group performed better than the FI students in the deductive group. Thus, it can be concluded that the inductive teaching, in general, was more beneficial than the deductive teaching for both FI and FD students. That is, allowing students to discover a rule themselves may be better than explaining it explicitly.

The second experimental hypothesis that the field independent students in the deductive group would perform better than the field dependent students on the multiple-choice test, and the field dependent students in the inductive group would perform better than field independent students on the cloze test was also rejected. The findings concerning the effect of FDI on a multiple-choice and a cloze test performance showed that the FDI cognitive style does not have much influence on a multiple-choice or cloze test.

CHAPTER 5

CONCLUSION

5.1 SUMMARY OF THE STUDY

Previous studies which investigated the relationship between the learner's cognitive style and the degree of achievement in learning a second language revealed that a field independent style is likely to be related to superior test performance and, therefore, found to be an advantageous cognitive style for second language learning. The implication of these studies was that a field dependence style disfavours the learners in second language learning. Thus, the main concern of this study was to investigate whether particular teaching methods or strategies best suit the different cognitive styles (field dependence-independence) and, therefore, would aid learners with a particular cognitive style. That is, the purpose was to investigate whether or not different cognitive styles respond differently to different types of teaching. In particular, this study analyzed the relationship between the learner's cognitive style of field dependence or independence and the teaching methods, deductive or inductive. It was hypothesized that FI learners would demonstrate significantly superior test performance in grammar lessons taught deductively, while FD learners would demonstrate superior test performance in lessons

taught inductively. As the findings of previous studies show that field independent learners achieve higher scores on different types of tests, the study also examined the achievement patterns of learners on two types of tests, discrete point (multiple choice) and integrative (cloze).

5.1.1 Conclusions

The data in this study indicate several controversial findings. The most important finding is that the hypothesis that cognitive style is an important factor in second language learning was not validated when the sample was taken as a whole or when it was analyzed within the groups. However, when the data were analyzed within or across the groups, by taking the type of the tests into account, a cognitive style bias was found in one type of test, but not in the other type. In particular, the findings concerning the effect of field dependence-independence on performance on a multiple-choice test is consistent with the findings of Tucker, Hamayan and Genesee (1976), Hansen and Stansfield (1981), and Stansfield and Hansen (1983) in particular, as well as several other studies, and most of the other hypotheses of cognitive style bias in multiple-choice test. It can be concluded that field independent learners have an advantage over field dependent learners on discrete-point tests, in this case, a

multiple choice test.

The findings concerning the effect of field dependence-independence on cloze test performance (an integrative test), however, indicate that, in contrast to the hypothesis, FD learners performed worse than FI learners on the cloze test. Although, field independent learners in the present study achieved higher scores on the cloze test than field dependent ones, the difference was too small to be significant. Therefore, a field-dependence style bias in cloze test cannot be postulated. On the contrary, the evidence indicates that field independent learners filled in the blanks on the cloze test more easily than field dependent learners. To sum up, it can be stated that cognitive style bias may be operational in the multiple choice test, but not in the cloze test.

The central hypothesis of this study, which claims that field independent learners would achieve higher test scores in grammar lessons taught deductively, and field dependent learners would achieve higher test scores in lessons taught inductively, was rejected, since the findings did not indicate any interaction between the methods and the cognitive style at all. That is, as hypothesized, field independent learners in the deductive group performed better on both tests than field dependent learners, but field dependent learners in the

inductive group did not perform better than the field independent learners in the same group. The findings validate the null hypothesis that claims that there is no relationship between the learners' cognitive style and the teaching methods. Furthermore, the study confirms the findings of research that field independent learners are better language learners.

5.2 ASSESSMENT OF THE STUDY

This study was conducted in an EFL environment, where the subjects were attending an exam-oriented program at Bilkent University. Therefore, some variables, such as doing extra rule-based study in other classes or getting explicit explanation from the regular class teacher on the relevant grammar point, might have influenced the results of the study. Since the time allowed for the study was limited to two weeks (8 hours for each group), the data might be questionable. The time was not enough to see the effect of teaching approaches. The teaching hours should have been longer so that the learners could have adapted themselves to the teacher and the method applied, particularly, the learners in the inductive group since the teaching method was not familiar to them. That is, the students were used to getting explicit explanation on the rules of English grammar. In order to compensate for these problems, there should be a longer period for the treatments

(a full term) and a focus on skills (reading, writing, speaking and listening) rather than on grammar.

Furthermore, the performance of the students could have been measured through different types of tests which are in accordance with the approach or the teaching method employed in the class. That is, the study should use functional language proficiency measures such as communicative tests or direct tests as well as multiple-choice and cloze tests to test the performance of the learners in both groups. Since it is obvious that multiple-choice tests favour field independent learners, communicative type tests or direct test should also be used to test the performance of both field dependent and independent learners. Although a cloze test is regarded as an integrative type of test in the literature, it is less integrative than expected, and it is an indirect test which requires the learners to analyze the structure of the sentence and complete the missing part. Therefore, a cloze test may not be the right measure for FD learners who are not analytic but wholistic.

Although the GEFT is the most widely used measure for FDI and has proven to be reliable, the practice effect might have influenced the results because the subjects of this study have practiced similar tests when entering secondary schools and

Bilkent University..

The study was successful in terms of setting and design. The pool that the subjects were selected from was so large that the groups were set up with the desired subjects, high FD and high FD, and an equal number of females and males. The way the deductive and inductive teaching were handled was also good, and the materials selected for the lessons were appropriate to the teaching type.

In summary, this investigation's inconclusive findings, considering the limited time of the study, suggest that a similar but longer study could have some merit. The effectiveness of inductive teaching for both field independent and field dependent students should be a focal point of such a study.

5.3 PEDAGOGICAL IMPLICATIONS

Although the results of this study are inconclusive and inconsistent, some implications can still be drawn from it. The field independent cognitive style has proved to be slightly superior as measured by a multiple-choice test and a cloze test which are common measures of formal linguistic achievement. However, the superiority of the field independent cognitive style may not have been seen if functional language proficiency measures (communicative and direct tests) were used. Another implication which emerged from the findings of this

study is that both field independent and field dependent students benefited more from an inductive teaching approach than a deductive one. Therefore, language teachers should be aware of this fact when selecting their instructional strategies, materials and testing methods.

5.4 IMPLICATIONS FOR FURTHER RESEARCH

There are several implications of this study for foreign language research and education.

First, since the study revealed that the students in the inductive group were more successful than the students in the deductive group, the reason should be investigated and the effective teaching methods and strategies should be discovered. The effectiveness of inductive teaching can be the focus of a study in this field.

Second, further research needs to be done with different kinds of tests, and the relationship between the styles of tests and FDI needs to be investigated. A further study can focus on the cloze test which is usually regarded as being communicative. Is the cloze test really a communicative type of test?

Finally, we must ask whether the apparent advantage of a field independent cognitive style for attainment of intermediate-level foreign language proficiency holds at higher proficiency levels, or

whether field independent and field dependent styles may be related in different ways at the various proficiency levels.

BIBLIOGRAPHY

- Abraham, R. G. (1981). The relationship of cognitive style to the use of grammatical rules by Spanish-speaking ESL students in editing written English. Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.
- Abraham, R. G. (1983). Relationships between use of the strategy of monitoring and cognitive style. Studies in Second Language Acquisition, 6, 17-32.
- Abraham, R. G. (1985). Field independence-dependence and the teaching of grammar. TESOL QUARTERLY, 20, 689-701.
- Abraham, R. G., & Vann, R. J. (1987). Strategies of two language learners: A case study. In Wenden, A. & Rubin, J. (Eds.), Learner strategies in language learning (pp 85-102). London: Prentice Hall International.
- Alptekin, C., & Atakan, S. (1990). Field dependence-independence and hemisphericity as variables in L2 achievement. Second Language Research, 6, 135-149.
- Azar, B. S. (1981). Understanding and using English grammar. London: Prentice-Hall, Inc.
- Bialystok, E., & Frohlich, M. (1977). Aspects of second language learning in classroom settings. Working Papers on Bilingualism, Toronto: Ontario Institute for Studies in Education.
- Bialysok, E., & Frohlich, M. (1978). Variables of classroom achievement in second language learning. Modern Language Journal, 62, 327-336.
- Brown, H. D. (1977). Cognitive and affective characteristics of good language learners. Unpublished manuscript. Los Angeles Second Language Research Forum, Los Angeles.
- Carter, E. F. (1988). The relationship of field dependent/independent cognitive style to Spanish language achievement and proficiency: A preliminary report. The Modern Language Journal, 72, 21-31.
- Chapelle, C., & Roberts, C. (1984). Field independence and ambiguity tolerance as predictors of proficiency in English as a second language. Unpublished manuscript. The 18th TESOL Convention, Houston.

- Chapelle, C., & Roberts, C. (1986). Ambiguity tolerance and field independence as predictors of proficiency in English as a second language. Language Learning, 36, 27-45.
- d'Anglejan, A., & Renaud, C. (1985). Learner characteristics and second language acquisition: A multivariate study of adult immigrants and some thoughts on methodology. Language Learning, 35, 1-19.
- Davis, J.K., & Haueisen W.C. (1976). Field independence and hypothesis testing. Perceptual and Motor Skills, 43, 763-769.
- Day, R. (1984). Student participation in the ESL classroom or some imperfections in practice. Language Learning, 34, 69-102.
- Dickstein, L. S. (1968). Field independence in concept attainment. Perceptual and Motor Skills, 27, 635-642.
- Ehrman, M., & Oxford, R. (1990). Adult languagelearning styles and strategies in an intensive training settings. The Modern Language Journal, 74, 311-327.
- Fischer, B., & Fischer, L. (1979). Styles in teaching and learning. Educational Leadership, 36, 345-254.
- Gayle, G. M. H. (1981). Personality, motivation, and second language learning. Canadian Journal of Education, 6, 55-67.
- Genesee, F., & Hamayan, E. (1980). Individual differences in second language learning. Applied Psycholinguistics, 1, 95-110.
- Gethin, H. (1983). Grammar in context. Proficiency level English. London: Collins ELT.
- Goodenough, D.R. (1976). The role of individual differences in field dependence as a factor in learning and memory. Psychological Bulletin, 33, 675-694.
- Goodenough, D.R., & Witkin, H.A. (1977). Origins of the field-dependent and field-independent cognitive styles. Princeton, NJ: Educational Testing Service.

- Guiora, A. A., Brannon, R. C. L., & Dull, C. Y. (1972). Empathy and second language learning. Language Learning, 22, 111-130.
- Hansen, J., & Stansfield, C. (1981). The relationship of field dependent-independent cognitive styles to foreign language achievement. Language Learning, 31, 349-367.
- Hansen, J., & Stansfield, C. (1982). Student teacher cognitive styles and foreign language achievement: A preliminary study. Modern Language Journal, 66, 266-273.
- Hansen, L. (1984a). The ESL noise test: Cultural differences in affect and performance. In P. Larsen, E. L. Judd, & D. S. Messerschmitt (Eds.), On TESOL '84, 55-61.
- Hansen, L. (1984b). Field dependence-independence and language testing: Evidence from six Pacific island cultures. TESOL QUARTERLY, 18, 311-324.
- Hansen, L., & Strain. (1987). Cognitive style and first language background in second language test performance. TESOL QUARTERLY, 21, 565-569.
- Harnett, D. D. (1980). The relationship of analytic and holistic cognitive styles to second language instructional methods. Unpublished doctoral dissertation. UCLA, Los Angeles.
- Hill, J. (1971). Personalized education programs utilizing cognitive style mapping. Bloomfield Hills, MI: Oakland Community College.
- Hunt, D.E. (1979). Learning style and student needs: An introduction to conceptual level. In J.W. Keefe (Ed.), Student learning styles: Diagnosing and prescribing programs (pp.27-38). Reston, VA: National Association of Secondary School Principals.
- Jones, L. (1985). Use of English. Grammar practice activities for intermediate and upper intermediate students. Cambridge: Cambridge University Press.
- Johnson, K. (1981). Communicate in writing. London: Longman Group Ltd.

- Kagan, J., & Messer, S.G. (1975). A reply to some misgivings about the matching familiar figures test as a measurement of reflection-impulsivity. Developmental Psychology, 11, 224-248.
- Keefe, J. W. (1979). Learning style: An overview. In J. W. Keefe (Ed.), Student learning styles: Diagnosing and prescribing programs. (pp.1-17). Reston, VA: National Association of Secondary School Principals.
- Krashen, S., & Terrell, T. D. (1983). The natural approach: Language acquisition in the classroom. Hayward. California: The Alemany Press.
- Losiewicz, B. L. (1988). An introduction to new ideas in language teaching: An annotated bibliography for teachers. Hispania, 71, 160-165.
- Melancon, J. G., & Thomson, B. (1989). Measurement characteristics of the Finding Embedded Figures Test. Psychology In The Schools, 26, 69-78.
- Messick, S., & Associates (Eds.) (1976). Individuality in Learning: Implications of cognitive styles and creativity for human development. San Francisco: Jossey-Bass.
- Moody, R. (1988). Personality preferences and language learning. The Modern Language Journal, 72, 389-401.
- Murphy, R. (1987). English grammar in use. A reference and practice book for intermediate students. Cambridge: Cambridge University Press.
- Naiman, N. M., Frohlich, M., & Stern, H. H. (1975). The good language learner. Toronto: The Ontario Institute for Studies in Education.
- Naiman, N. M., Frohlich, M., Stern, H. H., & Todesco, A. (1978). The good language learner. Toronto: Ontario Institute for Studies in Education.
- Okman-Fisek, G. (1979). Sakli sekiller grup testi. Istanbul: Bogazici University Press.
- Oltman, P. K., Raskin, E., & Witkin, H. A. (1971). Group Embedded Figures Test. Palo Alto, California: Consulting Psychologists Press.

- Omaggio, A., & Birckbichler, D. (1978). Diagnosing and responding to individual learner's needs. Modern Language Journal, 62, 336-344.
- Oshima, A., & Hogue, A. (1978). Writing academic English. Reading, PA: Addison-Wesley Publishing Company.
- Readence, J. E., Baldwin, R. C., Bean, T. W., & Dishner, E. K. (1980). Field dependence-independence as a variable in cloze test performance. Journal of Reading Behavior, 12, 65-67.
- Reid, J. M. (1978). The learning style preferences of ESL students. TESOL QUARTERLY, 21, 87-109.
- Rinvoluturi, M. (1984). Grammar games. Cognitive, affective and drama activities for EFL students. Cambridge: Cambridge University Press.
- Roberts, C. A. (1983). Field independence as a predictor of second language learning for adult ESL learners in the U.S. University of Illinois. Unpublished doctoral dissertation, University of Illinois, Urbana.
- Rubin, J. (1975). What the good language learner can teach us. TESOL QUARTERLY, 9, 41-51.
- Rubin, J., & Wenden, A. L. (1987). Learner strategies in language learning. London: Prentice Hall International Language Teaching.
- Stansfield, C., & Hansen, J. (1983). Field dependence-independence as a variable in second language cloze test performance. TESOL QUARTERLY, 17, 29-38.
- Stern, H. H. (1975). What can we learn from the good language learner? Canadian Modern Language Review, 31, 304-318.
- Thomson, B., & Melancon, J. G. (1987). Measurement characteristics of the Group Embedded Figures Test. Educational and Psychological Measurement, 47, 765-773.
- Tucker, G. R., Hamayan, E., & Genessee, F. (1976). Affective, cognitive, and social factors in second language acquisition. Canadian Modern Language Review, 32, 214-226.

- Witkin, H.A. (1976). Cognitive style in academic performance and in teacher-student relations. In S. Messick & Associates (Eds.), Individuality in learning (pp. 38-72). San Francisco: Jossey Bass.
- Witkin, H.A. (1977). Field dependence revisited. Research Bulletin R B 77-16. Princeton, NJ: Educational Testing Service.
- Witkin, H. A. & Goodenough, D. R. (1977). Field dependence and interpersonal behavior. Psychological Bulletin, 84, 661-689.
- Witkin, H. A., Goodenough, D. R., & Oltman, P. K. (1979). Psychological differentiation: Current status. Journal of Personality and Social Psychology, 37, 1127-1145.
- Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P.W. (1977). Field-dependent and field-independent cognitive styles and their educational implications. Review of Educational Research, 47, 1-64.

APPENDIX A

GROUP EMBEDDED FIGURES TEST

Developed by: Philip K. Oltman, Evelyn Raskin
and A. Witkin

Translated by: Guler Okman

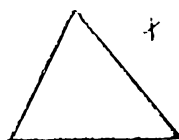
Name:.....

Female/Male

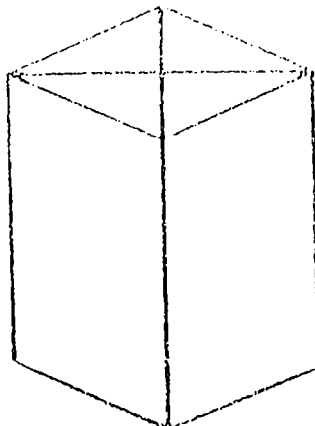
Date:.....

Date of Birth:.....

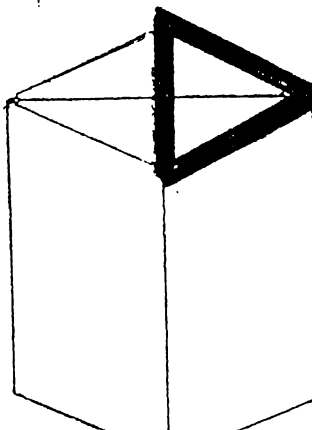
Explanation: This test measures your ability to identify a simple figure embedded in a complex one. Look at the simple figure x given below.



This figure is embedded in the following complex figure.

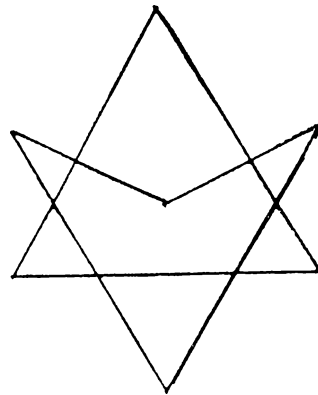
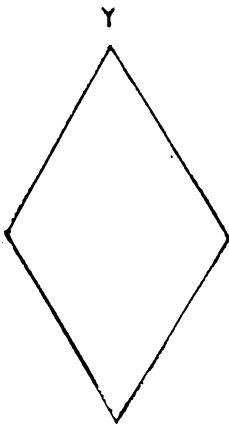


Identify the simple figure (x) embedded in the complex figure and darken it with a pencil as illustrated in the following figure. The simple figure is embedded in the complex figure in the same size, proportion and direction. The following figure illustrates the correct answer in which the simple figure is highlighted.

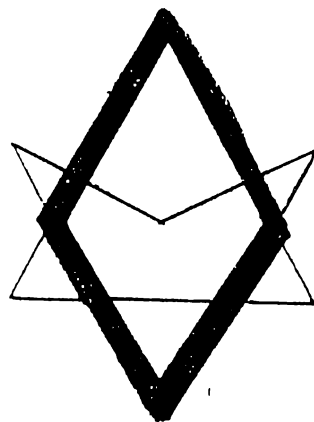


Note: The triangle on the right is the correct figure. The one on the left is wrong because it is in the opposite direction.

Now try the following example. Identify the simple figure Y in the complex design and darken it with a pen/pencil.



Look at the following figure for the correct answer.



SAKLI ŞEKİLLER
GRUP TESTİ

84

Geliştirenler: Philip K.Oltman, Evelyn Raskin ve
A.Witkin

Türkçeye uygulayan : Güler Okman

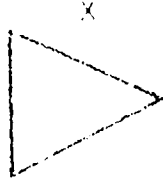
İsim :

Kız/Erkek:

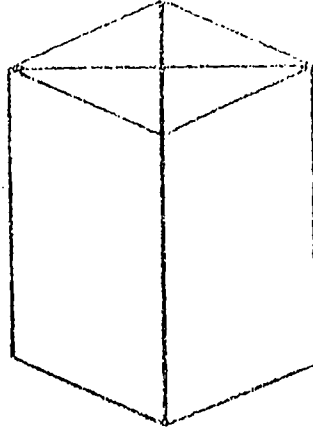
Tarih:

Doğum tarihi:

Açıklamalar: Bu test sizin karmaşık bir şekil içinde saklanmış bir basit şekli bulma yeteneğinizi ölçer. Aşağıda bir X ile işaretlediğimiz bir basit şekil var:



X adlı bu basit şekil aşağıdaki karışık şekil içinde saklıdır:

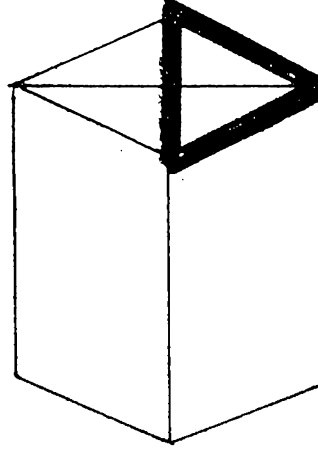


Basit Şekli karmaşık şeklin içinde bulup kalemle şeklin üzerinden çiziniz.

Basit şekil karmaşık şeklin içinde AYNI BOYDA, AYNI BOYUTLARDA VE AYNI YÖNE DÖNÜK olarak bulunmaktadır.

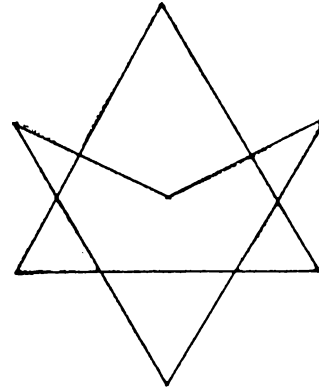
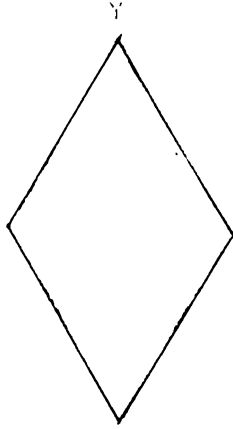
Bunu bitirince sayfayı çevirip doğru çözümü görünüz.

Aşağıdaki çözüm doğrudur ve basit şeklin çizgileri karmaşık şeklin çizgileri üzerinde belirtilmiştir.

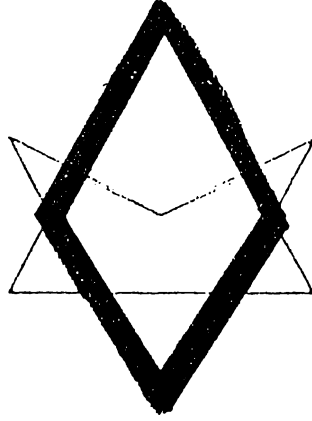


Şu noktaya dikkat edin: Sağ üstteki üçgen doğru şekildedir, Sol üstteki üçgen benzer de olsa değişik yöne dönük olduğu için yanlıştır.

Şimdi bir diğer örneği deneyin. Aşağıdaki karmaşık şekilde "Y" işaretli şekli bulup üzerinden kalemle geçin:



Doğru çözüm için bir sonraki sayfaya bakın.



Bundan sonraki sayfalarda yukarıdaki gibi problemler bulacaksınız. Her sayfada bir karmaşık şekil ve onun içinde saklı olan basit şekli belirten bir harf olacak. Bulmanız gereken basit şekli bu kitapçığın ARKA SAYFASINDA görebilirsiniz. Bulduğunuz basit şekli kalemle karmaşık şeklin üzerine çizersiniz.

Şu noktalara dikkat ediniz:

1. Basit şekillere istediğiniz kadar bakabilirsiniz.
2. YAPTIĞINIZ HER YANLIŞI SİLİNİZ,
3. Problemleri sırayla yapınız. Çok zor durumda kalmadıkça kesinlikle hiçbir problemi atlamayınız.
4. Her problem için karmaşık şeklin üzerine YANLIZ BİR BASİT ŞEKİL çizersiniz.
Birden fazla basit şekil görebilirsiniz ama bunlardan sadece birinin üzerini çizersiniz.
5. Basit şekil her sefer karmaşık şeklin içinde arka kapaktaki görünüşüyle aynı boyda, aynı boyutlarda ve aynı yöne dönük olarak bulunmaktadır.

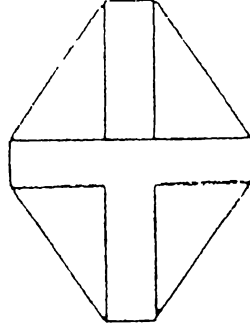
İşaret verilene dek sayfayı çevirmeyiniz.

BİRİNCİ BÖLÜM

PART I

87

1



Basit Şekil " B" yi Bulun

Identify the simple figure "B".

2



Basit Şekil "G" yi bulun

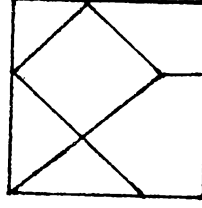
Identify the simple figure "G".

Sayfayı çevirin

Turn the page. 5

3

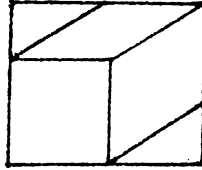
88



Basit Şekil "D" yi Bulun

Identify the simple figure "D".

4



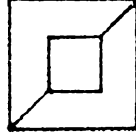
Basit Şekil "E" yi Bulun

Identify the simple figure "E".

Sayfayı çevirin

Turn the page. /

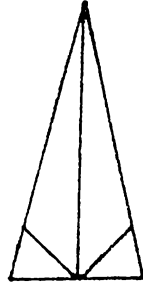
5



Basit Şekil "C" yi Bulun

Identify the simple figure "C".

6



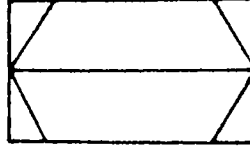
Basit Şekil "F" yi Bulun

Identify the simple figure "F".

Sayfayı Çevirin

Turn the page.

7



90

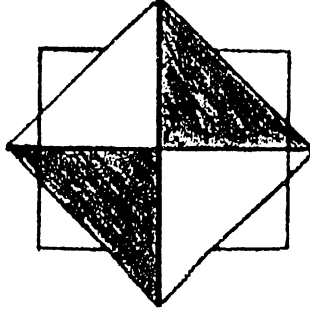
Basit Şekil "A" yı Bulun

Identify the simple figure "A".

1

LÜTFEN DURUN
Sayfayı çevirmek için işaret
bekleyin.

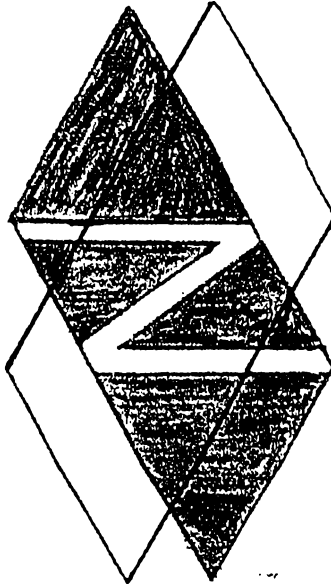
1



Basit Şekil "C" yi Bulun

Identify the simple figure "G".

2



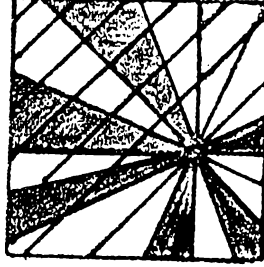
Basit Şekil "A" yı Bulun

Identify the simple figure "A".

sayfayı çevirin

Turn the page. 13

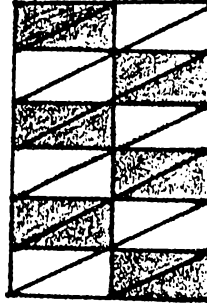
3



Basit Şekil "G" yi Bulun

Identify the simple figure "G".

4



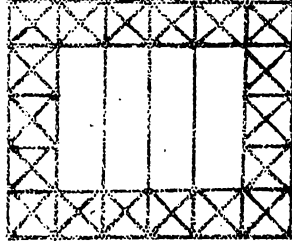
Basit Şekil "E" yi Bulun

Identify the simple figure "E".

sayfayı çevirin

Turn the page. 15

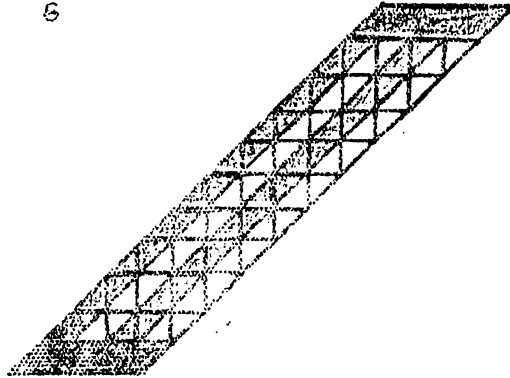
5



Basit Şekil "B" yi Bulun

Identify the simple figure "B".

6



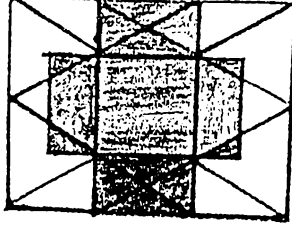
Basit Şekil "C" yi Bulun

Identify the simple figure "C".

sayfayı çevirin

Turn the page. 17

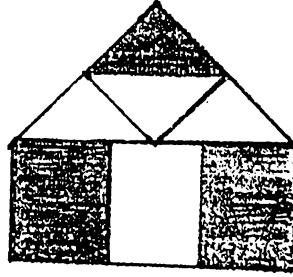
7



Basit Şekil "E" yi Bulun

Identify the simple figure "E".

8

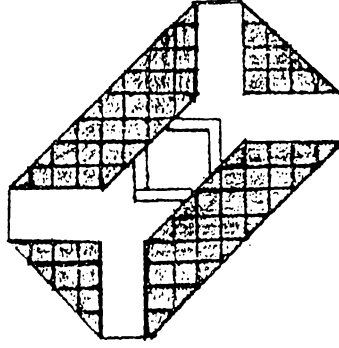


Basit Şekil "D" yi Bulun

Identify the simple figure "D".

sayfayı çevirin

Turn the page. 19

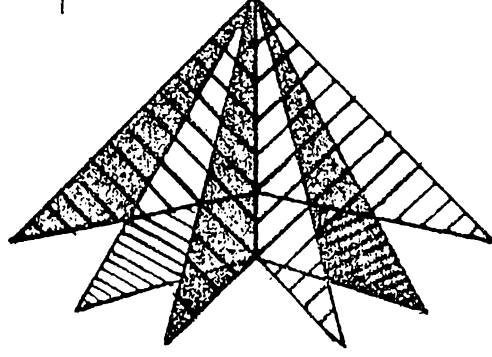


Basit Şekil "H" yi Bulun

Identify the simple figure "H".

LÜTFEN DURUN
sayfayı çevirmek için işaret
bekleyin

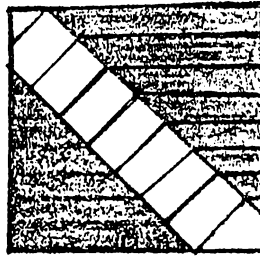
1



Basit Şekil "F" yi Bulun

Identify the simple figure "F".

2



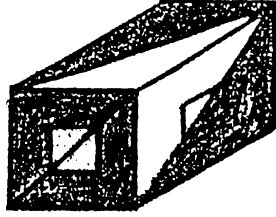
Basit Şekil "G" yi Bulun

Identify the simple figure "G".

sayfayı çevirin

Turn the page.

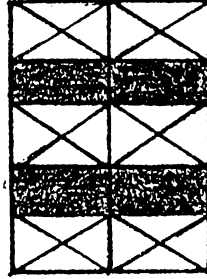
3



Basit Şekil "C" yi Bulun

Identify the simple figure "C".

4



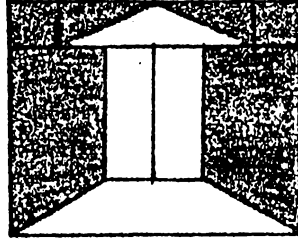
Basit Şekil "E" yi Bulun

Identify the simple "E".

sayfayı çevirin

Turn the page.

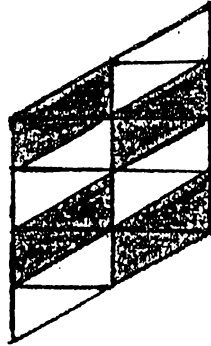
5



Basit Şekil "B" yi Bulun

Identify the simple figure "B".

6



Basit Şekil "E" yi Bulun

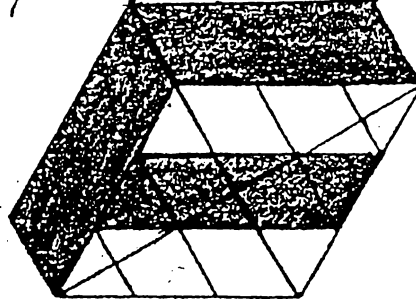
Identify the simple figure "E".

sayfayı çevirin

Turn the page.

7

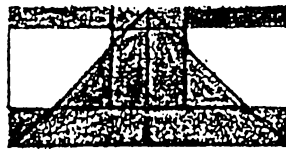
99



Basit Şekil "A" yı Bulun

Identify the simple figure "A".

8



Basit Şekil "C" yi Bulun

Identify the simple figure "C".

sayfayı çevirin

Turn the page. 29

9



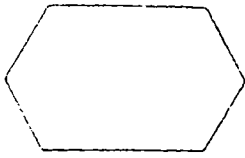
Basit Şekil "A" yı Bulun
Identify the simple figure "A".

LÜTFEN DURUN

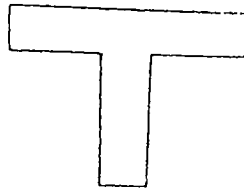
BASİT ŞEKİLLER

LIST OF THE SIMPLE FIGURES

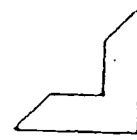
A



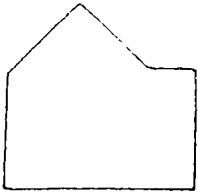
B



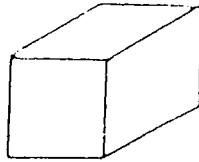
C



D



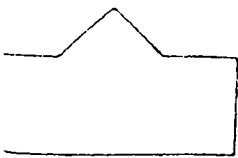
E



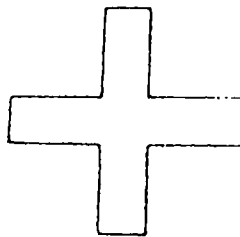
F



G



H



APPENDIX B

NAME: _____

CLASS\LEVEL: _____

TEACHER'S NAME: _____

Read the following sentences and CIRCLE the best answer.

- 1) All the waiters in this restaurant share the work _____ themselves.
a) between b) among c) with d) for
- 2) _____ Anna was upset about the accident, she still managed to carry on with her work.
a) When b) Though c) As d) Since
- 3) _____ she was ill, she couldn't finish the project on time.
a) Although b) Since c) When d) Once
- 4) There was a small room in _____ we all crowded.
a) which b) it c) that d) where
- 5) _____ he connected the plug up properly, he still got an electric shock.
a) Because b) However c) Although d) While
- 6) There was an accident on the E5 this morning and _____ there has been a severe congestion of traffic.
a) since then b) for which c) after then d) until then
- 7) The price of fruit has increased recently, _____ the price of vegetables has gone down.
a) when b) since c) otherwise d) while
- 8) Written English has only twenty-six letters, _____ Chinese has over 2000 characters.
a) although b) whereas c) so that d) since
- 9) He could not have known what was in the letter unless he _____ it himself.
a) has written b) would have written
c) had written d) would write
- 10) Wait until you get home _____ you unpack your parcel.
a) when b) after c) before d) while
- 11) The management refused to increase the workers' salary _____ the workers went on strike.
a) besides b) so c) because d) but

- 12) If you _____ enough money, you will be able to buy a new car.
a) would save b) save c) saved d) have saved
- 13) If you _____ the window, you can see the festival in the street.
a) look from b) watch out of c) look out of d) watch from
- 14) If they are not careful with their accounts, the firm _____ bankrupt.
a) will go b) goes c) went d) would go
- 15) I do not like the climate here, _____, I believe it is very healthy.
a) therefore b) in addition to c) whereas d) on the other hand
- 16) Sharks normally live in salty water. _____, they are sometimes found in fresh water.
a) so b) however c) furthermore d) while
- 17) Give her a telephone number to ring _____ she gets lost.
a) whether b) in case c) unless d) perhaps
- 18) I met an old friend in the street, _____ I was out shopping yesterday.
a) during b) whenever c) since d) as
- 19) If I had known what he was really like, I _____ him.
a) would never marry b) had never married
c) would have never married d) never married
- 20) A short time _____ we left the town, we drove up a steep hill and looked back at the view.
a) later b) before c) after d) during
- 21) He didn't like hotels much, _____, he decided to sleep in his tent.
a) since b) moreover c) furthermore d) therefore
- 22) They had a flat tyre, _____, they ran out of petrol.
a) however b) whereas c) while d) furthermore
- 23) The harder you work the _____ money you will get.
a) more b) most c) much d) well
- 24) If you _____ the necessary qualifications, you can apply for the competition.
a) had b) would have c) have d) will have
- 25) Michael read two novels _____ the flight to Singapore.
a) for b) during c) while d) through

CLOZE TEST

INSTRUCTION: Read the following passage and fill in the blanks with ONE suitable word.

When I was sixteen, I finished school and went to _____(1) in a butcher's shop. _____(2) the manager was a young man, he looked much older _____(3) me. He was very ambitious and also a bit dishonest. _____(4) customers asked for the best steak he would sell them poor-quality beef. He used to _____(5) this to young housewives so that he would say "If you _____(6) cooked it properly, it _____(7) not have been tough." Sometimes, he did not _____(8) the right change and the customers did not notice.

One day, just before Christmas, we decided _____(9) close early _____(10) we had sold all our meat, except for one small turkey. _____(11) I was trying to lock the door, a woman rushed _____(12) and said that she really _____(13) to have a six-kilo turkey. _____(14) the manager tried to sell _____(15) the only one we had left, she said it was too small. The manager said he could get another one _____(16) went to the back of the shop with the turkey. "I would have _____(17) if we had _____(18) another one" I thought, _____(19) I followed him to see _____(20) he was going to do. _____(21) he pulled and stretched the turkey to make it look bigger, he went back and said, "Here you are, madam. Here is a _____(22) one. "Yes," she said, "but not much bigger. I'll take both of them." _____(23) he didn't know what to do, he asked me to go to the back of the shop again _____(24) I didn't. _____(25) that was my last day of work in the shop.