

MATCHING LEARNING AND TEACHING STYLES IN A TURKISH EFL  
UNIVERSITY CLASSROOM AND ITS EFFECT ON FOREIGN LANGUAGE  
DEVELOPMENT

A THESIS

SUBMITTED TO 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  
HASAN ÇEKİCİ  
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## ABSTRACT

The learning style movement, which evolved from previous research on various theories in relation with individual learner differences such as personality trait, information processing, and aptitude-treatment interaction, is a new approach to teaching. According to the advocates of the learning style approach, learning style represents each person's biologically and experientially induced characteristics that either foster or inhibit achievement. Several instruments have been developed for identifying individual styles, but learners can describe their strong preferences; they are, however, unaware of those style elements that do not affect their learning.

Elements that learners strongly prefer are their strengths—meaning that it is easier for them to absorb and retain when they are taught through their strengths. Working with more than 21 elements of style, the researchers in the field have reported consistently positive results indicating that teaching through learners' strengths increase academic achievement, and improves attitudes toward school.

Perception, being one of the learning style elements, has also been investigated by the learning style researchers from different points of view. For example, research investigating perceptual modality

preferences and reading treatments supports the hypothesis that reading achievement improves significantly when students learn through their strongest modalities (Carbo, 1983). In addition, research comparing the learning styles of good and poor readers indicates that poor readers have different perceptual style preferences (Carbo, 1983; Dunn, 1984)

In this study, which was conducted with Turkish foreign language (English) students at Anadolu University, the hypothesis that there is a relationship between matching perceptual teaching/learning styles and academic achievement in grammar and reading courses was tested. The study was carried out with 60 students (ten of whom dropped later) and four English language teachers. The researcher's concern in selecting them as subjects was that the student subjects were taught by the same teachers for almost 7 months.

After identifying students' and teachers' perceptual learning/teaching styles, the student subjects were assigned either to experimental or control groups. Students whose perceptual learning styles matched their teachers' teaching styles were placed in the experimental groups, and students with unmatched learning styles were placed in control groups. Then a matched pairs t-test was performed in order to compare the gain scores of the groups, obtained by means of pre and posttests. However, the

analysis of the data did not show statistically significant relationship.

Although the findings of the study did not confirm the experimental hypothesis, the analysis of the data by means of SPSS revealed some results which were consistent with the findings of previous research. There was, for example, a significant relationship between sex and visuality. That is, female subjects were more visual than the male ones. In addition, the analysis showed a higher correlation between kinesthetic and tactile, and kinesthetic and auditory learning styles whereas it indicated a slightly negative correlation between auditory and tactile; visual and kinesthetic; and auditory and visual modalities. Apart from these relationship and correlations, a general tendency among Turkish EFL learners toward kinesthetic learning style was observed. These all may have some implications for teaching English as a foreign language to Turkish students.

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HASAN CEKIC

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*Hasan Çekic*  
Candidate for M.A. Degree

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1991  
B. 261

BILKENT UNIVERSITY  
INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES  
MA THESIS EXAMINATION RESULT FORM

July 31, 1991

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Institute of Economics and Social Sciences for the  
thesis examination of the MA TEFL student  
HASAN CEKIC

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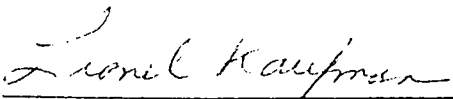
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Styles in a Turkish EFL University  
Classroom and Its Effect on Foreign  
Language Development


Thesis Advisor : Dr. Lionel Kaufman  
Bilkent University, MA TEFL Program

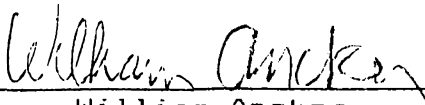
Committee Members : Dr. James C. Stalker  
Bilkent University, MA TEFL Program

Mr. William Ancker  
Bilkent University, MA TEFL Program

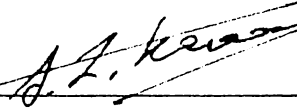
We certify that we have read this thesis and that in our combined opinion it is fully adequate, in scope and in quality as a thesis for the degree of Master of Arts.

  
\_\_\_\_\_  
Lionel Kaufman  
(Advisor)

  
\_\_\_\_\_  
James C. Stalker  
(Committee Member)

  
\_\_\_\_\_  
William Ancker  
(Committee Member)

Approved for the  
Institute of Economics and Social Sciences

  
\_\_\_\_\_  
Ali Karaosmanoglu  
Director  
Institute of Economics and Social Sciences



## TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
List of Tables.....	vi
1.0 INTRODUCTION TO THE STUDY.....	1
1.1 Introduction.....	1
1.2 Problem.....	5
1.3 Variables.....	5
1.4 Hypothesis.....	6
1.5 Definitions.....	6
1.6 Purpose.....	7
1.7 Limitations.....	8
1.8 Organization.....	8
1.9 Expectations.....	8
2.0 REVIEW OF THE LITERATURE.....	10
2.1 Introduction.....	10
2.2 Development of Learning Style Paradigms..	10
2.2.1 Personality Theory.....	11
2.2.2 Information Processing Theory and Cognitive Approach.....	12
2.2.3 Aptitude-Treatment Interaction Research.....	13
2.3 What is Learning Style.....	15
2.3.1 The Environmental Elements.....	16
2.3.1.1 Silence versus Sound.....	16
2.3.1.2 Bright versus Low Light....	16
2.3.1.3 Warm versus Cool Temperature.....	17
2.3.1.4 Formal versus Informal Design.....	17
2.3.2 The Emotional Elements.....	17
2.3.2.1 Motivation.....	17
2.3.2.2 Persistence.....	17
2.3.2.3 Responsibility.....	18
2.3.2.4 Structure versus Options...	18
2.3.3 The Sociological Elements.....	18
2.3.4 The Physical Elements.....	19
2.3.4.1 Perceptual Strength.....	19
2.3.4.2 Intake.....	19
2.3.4.3 Time of Day or Night.....	19
2.3.4.4 Mobility versus Passivity..	19
2.3.5 The Psychological Elements.....	20
2.3.5.1 Global versus Analytic.....	20
2.3.5.2 Hemispheric Preference.....	20
2.3.5.3 Impulsivity versus Reflectivity.....	20

2.4	Instrumentation.....	21
2.4.1	The Instruments.....	21
2.4.2	Some Critiques on Instrumentation..	23
2.5	Matching Instruction to Learning Styles..	24
2.5.1	The Ways of Using Learning Style Theories in Classrooms.....	24
2.5.2	Why to Base Instruction on Learning Style Theories.....	28
2.5.3	Some Critiques on the Idea of Matching.....	30
2.6	Perceptual Learning Styles.....	32
2.6.1	What are Perceptual Learning Styles.....	32
2.6.2	Learning Styles and Second Language Learning.....	34
3.0	METHODOLOGY.....	37
3.1	Introduction.....	37
3.2	Subjects.....	38
3.3	Materials.....	40
3.3.1	The Perceptual Learning Style Questionnaire.....	41
3.3.2	The Perceptual Teaching Style Questionnaire.....	42
3.3.3	The English Placement Test.....	43
3.4	Procedure.....	44
3.5	Analytical Procedure.....	45
4.0	PRESENTATION AND ANALYSIS OF THE DATA.....	48
4.1	Results and Discussions.....	48
5.0	CONCLUSION.....	59
5.1	Introduction.....	59
5.2	Conclusions and Discussion .....	60
5.3	Implications for Future Research.....	66
	BIBLIOGRAPHY.....	69
	APPENDICES.....	72
	Appendix A.....	72
	Appendix B.....	74

## LIST OF TABLES

	PAGE
4.1 Scores for Style Preferences and Achievement Obtained by Elementary Students from the Questionnaire and the Tests.....	50
4.2 Scores for Style Preferences and Achievement Obtained by Intermediate Students from the Questionnaire and the Tests.....	51
4.3 Numbers of Students in Each Class with Various Style Preferences.....	52
4.4 Scores for Perceptual Teaching Styles of the Four Teachers.....	53
4.5 Grammar Gain Scores of the Subjects in Experimental and Control Groups (Elementary- Intermediate) on the Achievement Test.....	54
4.6 Reading Gain Scores of the Subjects in Experimental and Control Groups (Elementary- Intermediate) on the Achievement Test.....	56
4.7 Mean Scores of Female and Male Subjects for Visual Learning Style.....	57
4.8 Correlational Analysis of the Perceptual Learning Styles.....	58

To my wife and children



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## CHAPTER I

### INTRODUCTION TO THE STUDY

#### 1.1 INTRODUCTION

" A particular approach to instruction might work for all of the students some of the time, and it might work for some of the students all of the time, but no instructional approach will work for all of the students all of the time."

The above quotation from Abraham Lincoln, paraphrased and presented by Deno (1990), summarizes the reasons why second language learning research concerns, parallel to research concerns in general education, have shifted from methods of teaching to learner characteristics and their possible effects on the process of learning.

Indeed, despite years of searching for the definitive teaching approach, educators have come to realize that there is, in fact, no such entity. Every method or technique has its advantages and disadvantages, and will be differentially effective depending on many factors, including individual differences among students being taught.

Realizing the fact that some learners learn better or faster, even within the same environment, and that there is no one way of effectively teaching everybody, educational researchers, for the last two decades, have shifted their focus to the learner, and examined his/her characteristics. Below are some of the

questions that ESL/EFL research on learner characteristics has investigated.

- What is the role of foreign language aptitude in second language learning? (Skehan, 1986).
- Does intelligence facilitate second language learning? (Genesee, 1976).
- What is the role of motivation in second language learning? (Gardner, 1985).
- Does anxiety affect second language learning and is there a type of anxiety specific to it? (Horwitz, 1986).
- Is there any relationship between student and teacher cognitive style and second language achievement? (Hansen & Stansfield 1982).

These are just a few issues relating to individual differences, which may affect language learning. The emphasis on individual differences has led to studies about how learners interact with different kinds of teaching, that is, student approaches that are called learning styles and strategies.

'Learning styles' is a term used to describe identifiable individual approaches to learning situations and claimed to account for some of the differences in how students learn. Keefe & Ferrell (1990) define '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. Dunn (1990), on the other hand, adding a few more dimensions, defines learning styles as a combination of environmental, emotional, sociological, physical, and psychological elements that permit individuals to receive, store, and use knowledge or abilities.

During the past decade, considerable research in the general area of 'learning style' has been done with students whose native language is English, and English speakers learning a second language in the United States. And teachers have begun to experiment with learning styles in the classrooms, persuaded that the concept helps them to both understand differences better and to provide for those differences.

Reid (1987) identifies six major style preferences generally studied. The first four are preferences for visual, auditory, kinesthetic, and tactile styles of learning, and the last two are preferences for group or individual differences. In a study with foreign students studying in the United States, he found that there are considerable differences among students in terms of style preferences, and that there is a significant relationship between style preferences and various background variables, such as culture, field of study, length of time studying English, length of time



in the United States, age, sex, and academic level (graduate-undergraduate).

Research on learning style has indicated that when new information is introduced through the strongest perceptual strength and reinforced through the second strongest perceptual strength, statistically significant increases occur in academic achievement. It has also been confirmed that successful and unsuccessful students have different perceptual learning style preferences (Dunn, 1983; Carbo, 1984).

Interest in and research on learning style has led to suggestions regarding the feasibility and potential benefits of matching student learning style to teaching styles. As a result, various approaches have been proposed. One approach presented by Smith and Renzulli (1984) is to maximize the congruence or similarity of personality characteristics (style preferences in this case) of both students and teachers. This approach is based on the principle that the more similar two people are on a given variable the more likely they are to be attracted to one another. At the very least, this attraction can be expected to result in an improved classroom climate which is believed to increase achievement.

Another approach to matching involves having students examine their own needs and goals and having

teachers alter their teaching styles to match the students' stated preferences. Studies have shown that students' achievement and attitude toward the subject matter improves significantly when students are allowed to learn in their preferred mode of instruction. Unfortunately to date, much of the research on 'learning style' has been done in general education and in settings different from that of Turkey. Therefore, this project, with its setting in Turkey and its subjects who are Turkish nationals, may contribute to the literature on perceptual learning styles and their relationship to academic achievement.

### 1.2 PROBLEM

Do the similarities between student and teacher preferences in perceptual learning/teaching styles (visual, auditory, kinesthetic, tactile), promote higher academic achievement of Turkish EFL students in reading and grammar classes?

### 1.3 VARIABLES

The independent variable is as following:

1. Similarities between student and teacher preferences in perceptual learning/teaching styles.

The dependent variable of the study is as follows:

1. Higher academic achievement of Turkish EFL students in reading and grammar classes.

#### 1.4 HYPOTHESES

The following hypotheses are tested:

Directional hypothesis 1. There is a positive relationship between higher academic achievement of adult Turkish EFL learner in reading and grammar courses, and similarities of learner and teacher preferences in perceptual learning/teaching styles.

Null hypothesis 1. There is no significant relationship between higher academic achievement of adult Turkish EFL learner in reading and grammar courses, and similarities of learner and teacher preferences in perceptual learning/teaching styles.

#### 1.5 DEFINITIONS

Learning style is the way individuals concentrate on, absorb, and retain new and difficult information or skills (Dunn, 1983).

Perceptual style preferences refer to the sensory modes used for organizing information and interacting with the environment (Doyle & Rutherford, 1984).

Perceptual teaching style refers to which sensory modes of the students the teacher addresses most in the class. These include visual, auditory, kinesthetic, and tactile modes.

According to Doyle & Rutherford (1984):

Visual learning occurs through reading, seeing information or objects, studying charts, etc.

Auditory learning occurs through hearing, listening to lectures, audiotapes, etc.

Kinesthetic learning is experiential learning, that is total physical involvement with the learning situation.

Tactile learning is "hands-on" learning, such as building models or doing laboratory experiments.

#### 1.6 PURPOSE

During the last two decades, there has been an increasing interest in individual differences and their possible effects on learning. Studies on individual differences in general, and on learning style in particular, have been done in the United States. However, since the educational system in Turkey differs from that in the United States, these findings are not always applicable.

Taking into account the increasing interest in learning a foreign language in our country, and believing that individual differences play an important role in learning, it is hoped that possible findings of this study will be beneficial to practicing EFL teachers, and will draw the attention of the researchers in the field to the concept of 'learning style'. Apart from that, the findings of the study may also have implications for curriculum design, materials development, and teacher training. It is possible, too,



that teachers will make use of the self assessment instruments introduced in the study and develop new strategies for matching their students' needs.

### **1.7 LIMITATIONS**

1. The subjects are chosen among students at prep-classes of Anadolu University, Turkey. Therefore, some applications of this study may be limited to EFL students in Turkey.

2. Not all the aspects of learning and teaching styles, such as environmental, sociological and emotional variables, will be covered in this study, only perceptual style preferences.

### **1.8 ORGANIZATION**

The study will be organized using the following format:

1. Introduction and statement of the topic.
2. Review of the relevant professional literature.
3. Explanation of the methodology for the study
4. Presentation and analysis of the data
5. Summary, discussions, implications, and conclusions.
6. Bibliography and appendices.

### **1.9 EXPECTATIONS**

In addition to testing the hypotheses set for research, this study may also provide insights which are beneficial to syllabus design, teacher training,

and student placement, and may generate other research questions, including the following:

1. Whether there is any common trend among Turkish EFL students in terms of their perceptual learning style preferences; whether the majority prefer a certain type of style or any combination of styles.

2. Whether sex difference influences the perceptual learning styles.

## CHAPTER II

### REVIEW OF LITERATURE

#### 2.1 INTRODUCTION

Although the efficiency and the quality of training were always the primary concern of education, individual differences of learners were never considered as important as they have been for the last few decades. As a result, individualized instruction and 'learning styles' analysis have become one of the major issues in education in response to the problems of differential student approaches to learning.

In this section, the literature on learning styles, will be reviewed. The focus on individual differences has led to an alternative approach to existing teaching methods, and further research in this field may have an impact on second language teaching methodology. What are then the bases of the learning style approach?

#### 2.2 DEVELOPMENT of LEARNING STYLE PARADIGMS

Researchers have developed various learning style paradigms by investigating the learning process in terms of individuals' accustomed ways of learning. Because of this, as Keefe and Ferrell (1990) indicate, the field of learning styles has long been 'multiparadigmatic'. However, they all may be said to have evolved from three precursors: (1) personality

trait research; (2) information processing theory of cognitive research; (3) research on aptitude-treatment interaction (ATI).

### 2.2.1 Personality Theory

Since personality is inseparably related to intelligence and cognitive style, it is to be expected that personality will exert an important influence on the learners aptitudes, interests, and goals. According to Chastain (1976), persistence, impulsivity, tolerance, anxiety, defensiveness, dependency, assertiveness, aggressiveness, etc. are all critical personality characteristics of individuals in the classroom.

Learning styles are intimately interwoven with the affective, temperamental, and motivational structures of the total human personality. In this view, according to Messick (1976), a core personality structure is manifested in the various levels and domains of psychological functioning (cited in Keefe & Ferrell, 1990). An example of core personality structure is the authoritarian personality. The authoritarian thinks in terms of rigid stereotypes and categories and believes in simplified explanations dogmatically, showing marked intolerance of ambiguity. An example of cognitive style is field-dependence versus field-independence (global vs. analytic). People in the former category are more

dependent on their surroundings, while those in the latter are more independent in their thinking and actions (Genesee, 1976). McCarty (1990) says, that people perceive reality differently. Some people, in new situations, respond primarily by sensing and feeling their way, while others think things through. Extroversion/introversion which, in Messick's (1976) words, is another 'core' personality structure is also discussed in various research studies as fundamental orientations to learning tasks.

Almost all of these elements discussed above have been combined into learning style conceptualizations. Learning style thus develops in ways consistent with individual personality traits. However, instruments based on personality theory seems to assess 'style' only indirectly.

### **2.2.2 Information Processing Theory and Cognitive Approach**

Departing from behaviorist tradition, information processing theorists try to identify how 'innate capacities' and experience combine to produce cognitive performance. In cognitive theory, the mind is viewed as an active agent in the thinking/learning process. Cognition is generally defined as the mental process or faculty by which knowledge is acquired. According to Chastain (1976), cognition has several

basic characteristics. "First, cognition is a process. Second, this process is mental, Third, by implication it is internal and fourth, it is ultimately under the control of the learner" (p. 131). Thus, the term 'cognitive processes' refers to the individual's internal mental operations. Cognitive processes may involve conscious attention to some point the teacher is making, conscious reorganization of materials to understand better the concepts being learned, or conscious attempts to recall previously learned information (Ellis, 1989).

Several concepts from cognitivist information processing theory have found their way into learning style conceptualizations. Keefe & Ferrell (1990), for example, report three types of learning style tendencies on the basis of Gregorc and Ward's (1977) studies; (1) an inherent natural learning style; (2) a synthetic strength, which becomes a part of the individual's functioning; and (3) an adopted artificial style, which never becomes a part of the individual's typical functioning.

### **2.2.3 Aptitude-Treatment Interaction Research**

Deno (1990), reviewing the aptitude-treatment interaction research from 1967 to 1989, states that two themes emerge from these studies. One is that there is an important relationship between learning and

individual differences. And the other is how to accommodate these differences to enhance achievement in school. Thus, aptitude-treatment interaction research is a systematic attempt to relate individual differences in aptitude, including aspects of cognitive and affective style, to instructional method. According to Snow (1989), aptitudes in general interact with instructional treatment to affect student learning (cited in Deno, 1990). Aptitude implies that individuals differ in the amount of a trait they possess. Thus, the emphasis is on the notion of variability among individuals.

Aptitude-treatment interaction researchers have investigated both cognitive and learning style traits. Though these two terms are used interchangeably in the literature by some researchers, Reid (1987) and Keefe & Ferrell (1990) have the view that learning style is the broader term and includes cognitive along with affective and psychological traits. Thus, together with personality and cognitive style research, aptitude-treatment interaction research on several cognitive and affective aspects of individuals served as the basis of the learning style paradigm.

### 2.3 WHAT IS LEARNING STYLE

In reading through the literature on learning style, one is immediately struck by the range of definitions that have been adopted to describe this construct. These definitions range from concerns about preferred sensory modalities (e.g., visual, auditory, tactile, etc.) to descriptions of personality characteristics that have implications for behavior patterns in learning situations (e.g., the need for structure versus flexibility). Others have focused attention on cognitive information processing patterns.

For the explanation of learning style, generally known as preferred or habitual patterns of dealing with information, two definitions will be mentioned. According to Keefe & Ferrell (1990), learning style is

the composite of characteristic cognitive, affective, and psychological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. It is demonstrated in that pattern of behavior and performance by which an individual approaches educational experiences. Its basis lies in the structure of neural organization and personality which both molds and is molded by human development and learning experiences of home, school and society. (p. 59)

As will be noticed, learning style is a complex of related characteristics in which the whole is greater than its parts. In this definition it represents both inherited characteristics and environmental influences.



Dunn (1983) emphasizes the information processing elements in her description of learning style, as follows:

Learning style is the way individuals concentrate on, absorb, and retain new or difficult information or skills. It is not the materials, methods, or strategies that people use to learn: those are the new resources that complement each person's style. Style comprises a combination of environmental, sociological, physical, and psychological elements that permit individuals to receive, store, and use knowledge or abilities. (p.496)

As Dunn indicates, learning style includes a combination of elements. What are then these elements?

### **2.3.1 The Environmental Elements**

#### **2.3.1.1 Silence versus Sound**

Some people insist that they can not think with noise; they need silence when engaged in cognitive activities. Others can 'block out' sounds; they concentrate in the midst of confusion and are oblivious to anything other than their tasks. Others appear to work best with noise in their environment; whenever they want to learn anything new, they automatically turn on the radio, stereo, or television because they need sound to permit concentration.

#### **2.3.1.2 Bright versus low light**

Many students find that they can concentrate only in bright light; low light makes them lethargic. Others report that the reverse is true; low light calms them

and permits them to learn easily, whereas bright light makes them nervous and fidgety.

#### **2.3.1.3 Warm versus Cool Temperatures**

Few people can learn in either extremes of warmth or cold. Temperature is relative, however, for people react differently to the same thermometer reading.

#### **2.3.1.4 Formal versus Informal Design**

Some people do their best studying seated on a floor; lounging on a bed, a chair, or carpeting; or lying prone. Others can work only in a sturdy chair at a table, as in a conventional classroom or library

### **2.3.2 The Emotional Elements**

#### **2.3.2.1 Motivation**

Highly motivated students of all ages are better able to overcome selected learning style preferences than those who are unmotivated. Poorly motivated youngsters require that tasks be divided into small segments; they also need positive feedback while learning, frequent-if not constant-supervision, and materials they can master.

#### **2.3.2.2 Persistence**

Impersistent students often need breaks while they are learning. Dunn (1983) also thinks of them as having short attention spans; however, he says, "when absorbed in an activity, they are able to persist" and adds that

persistence is the only element of learning style that appears to be related to IQ (p. 498).

#### **2.3.2.3 Responsibility**

It is reported that this element correlates with conformity. Nonconforming students do not achieve through conformity and often learn more easily when permitted options (Dunn, 1983).

#### **2.3.2.4 Structure versus Options**

Some students of all ages cannot even begin an assignment without specific directions concerning its exact focus or length, whether it should be written with pen or pencil, whether spelling counts and so on. Others need only general requirements before starting a task and establish their own guidelines.

#### **2.3.3 The Sociological Elements**

Some people do their best thinking alone; the presence of others distracts them. Others work better in pairs or in teams. Some like to learn with adults whereas others need peers. There are others who cannot concentrate with anyone present and may not have the independence skills to work alone; some of these work well with media-computer, language master, videotapes, and so on. Some can learn well in any combination-alone, with others, or with media. The latter group is described as 'learning in several ways' or varied.

#### **2.3.4 The Physical Elements**

Some researchers say that both environmental and physical elements of learning style are biological; they are genetically imposed by nature. However, they do vary at different stages of life, but the rate at which they develop or change is said to be related directly to the individuals maturation and physical condition.

##### **2.3.4.1 Perceptual Strength**

Some people learn best when they are taught through their preferred sensory modes; some people are auditory oriented whereas some others prefer visual input. There is also another group which has a combination of modes, for example visual/tactile or auditory/ visual.

##### **2.3.4.2 Intake**

Some people eat, drink, chew, smoke, or bite on objects as they concentrate; others do not.

##### **2.3.4.3 Time of Day or Night**

We all are aware of "early birds and night owls", and people with either high or low energy levels at different times. No matter when a class is in session, it is the wrong time of day for some of the population.

##### **2.3.4.4 Mobility versus Passivity**

Many children cannot sit still for long periods of time; others cannot sit even for short periods.

### **2.3.5 The Psychological Elements**

#### **2.3.5.1 Global versus Analytic**

Some youngsters learn sequentially, step by step, in a well-arranged continuum—the way math, biology and grammar are often taught. Others cannot begin to focus on the content without an initial overall 'gestalt' of the meaning and use of what will be taught. Such students require a visual image of the topic and an illustrative anecdote to involve their thinking and motivation. The first type of learning is called analytic; the second, global.

#### **2.3.5.2 Hemispheric Preference**

During the past few years it has been learned that students who tend to be left-brain preferenced learn under very different conditions from those who are right-preferenced (Dunn, 1983). Students who are left- and right-brain preferenced have different environmental and organizational needs within the classroom.

#### **2.3.5.3 Impulsivity versus Reflectivity**

Impulsive students often call out answers without considering varying possibilities, while reflective ones rarely volunteer information although they may know the answers. Verbal class participation is difficult for some and easy for others

## 2.4 INSTRUMENTATION

It is reported in the literature that various tests have been developed in order to identify learning styles. Here, we will mention only two research-based instruments which, in the United States, have been widely used by educators in investigating learning styles (Orsak, 1990; Brunner & Majewski, 1990; Perrin, 1990).

### 2.4.1 The Instruments

The first is the **Learning Style Profile (LSP)** which was developed by a task force from the National Association of Secondary School Principals (NASSP) (Keefe & Ferrell, 1990).

The Learning Style Profile consists of 126 items based on four groups of factors. It was administered to a national normative sample of 5,000 students in more than 40 schools throughout the United States between 1983 and 1986. Four groups of factors claimed to contribute to a Learning Style Profile include:

(1) Eight cognitive or information processing elements (spatial, analytic, sequential processing, memory, simultaneous processing, discrimination, verbal-spatial).

(2) Six study preferences (mobility, posture, persistence, sound, afternoon study time, lighting).

(3) Three perceptual responses (visual, emotive, auditory)

(4) Six instructional preferences (early morning time, late morning time, verbal risk, manipulative, grouping, temperature).

The second instrument is the **Learning Style Inventory (LSI)**. The Learning Style Inventory was developed at the Center for the Study of Learning and Teaching Styles, in the United States (Dunn, 1983).

Developed through content and factor analyses, the Learning Style Inventory is a comprehensive approach to the identification of an individual's learning style. The instrument analyzes the conditions under which students prefer to learn through an assessment of each of the areas of learning style (environmental, sociological, physical, and psychological factors). The reliability and validity of the instrument were verified by various researchers in the field.

As mentioned above, there are a wide variety of instruments available to help teachers identify students' learning style preferences. These measures may be useful because they enable teachers to assess a large number of students in a relatively short period of time. They may also have the advantage of providing teachers with objective data. This information can be used to supplement one's intuitive understanding of

students and can provide insights into learning style dimensions that may not have been previously considered.

#### **2.4.2 Some Critiques on Instrumentation**

Many researchers believe that self-report instruments are reliable and valid means of identifying learning styles (Neil, 1990; Dunn, 1990; Friedman, 1984; Carbo, 1983). However, there are others who are for the idea of approaching the instrumentation and measurement of learning style with caution.

Curry (1990) argues that one of the pervasive general problems of learning style theory is the weakness of reliability and validity of the measurements. According to him, style researchers use very different concepts even though they refer to the same entity, and these cause confusion. He says "users of educational and psychological tests should routinely expect any conceptualization and measurement scheme to indicate that the test meets minimum standards for use and interpretation" (p. 51). So learning style researchers have not pursued the necessary iterative pattern of hypothesis-investigation, but rather have rushed prematurely into print and marketing with very early and preliminary indications of factor loadings based on dataset. This haste, in his opinion, weakens any claim of valid interpretation from the test scores.



Like Curry, Corbett & Smith (1984) and Snider (1990) also claim that these sorts of instruments do not measure effectively and clearly what they purport to.

## **2.5 MATCHING INSTRUCTION TO LEARNING STYLES**

As a response to teachers' frustration of failing to meet the needs of the wide variety of students in the classroom, educational leaders have searched, for many years, for alternative instructional approaches or methods. One of the newly developed approaches claiming to meet the wide range of individual differences among students, as mentioned before, is the 'learning style' approach.

### **2.5.1 The Ways of Using Learning Style Theories in Classrooms**

How can learning style theories be used in classrooms? According to Guild (1990), there are broadly three different approaches to applying learning style theories in the classroom. One is focusing on the individual; know yourself and the other person you are interacting with. Guild regards "personal awareness" as an important aspect of learning style theory. In her opinion, "it is very important for educators when working with other people to understand both their own and the other's perspectives" (in Brandt, 1990, p. 10). Another aspect of learning style is application to

curriculum design and the instructional process. It is now well known that people learn in different ways, so educators can use a comprehensive model that provides for adapting instruction to the major learning differences. The third approach, she mentions, is diagnostic/prescriptive; this involves key elements of an individual's learning style, and as much as possible, matching instruction and materials to those individual differences.

Friedman (1984), on the other hand, observes more or less the same aspects of learning styles approach when trying to draw principles of application from the research in the field. The first principle he suggests is that it is possible to identify both students' and teachers' learning/teaching styles. Dunn (1990), Keefe & Ferrell (1990) and others have demonstrated the feasibility of classroom applications of learning style instruments. However, there has been less research in the area of teaching styles than there is in learning styles. Nevertheless there are instruments developed by Gregorc in 1977 and Entwistle in 1981 for identifying teachers' preferred styles for teaching (Friedman, 1984). Friedman further suggests that teachers are more likely to develop strategies which are congruent with their own learning styles rather than those of their students if they are unaware of learning/teaching style

literature. Teachers have the tendency to think that everybody can learn best in the way they have learned or are learning. From this assumption, Friedman implies that teachers must guard against over-teaching by using their own preferred learning styles. Instead they should broaden their teaching strategies to provide opportunities for students with different style preferences.

The third principle is that teachers should help students in identifying and learning through their own style preferences. Friedman finds this principle important because "it supports the premise that students are capable of guiding their own learning when given the opportunity" (p. 78). That students should be given the opportunity to learn through their preferred style in the classroom is a fourth principle, which, Friedman says, "is implicit in the assumptions underlying the learning styles movement" (p. 78). However, it is not enough for students to learn only through their preferred styles; they should also be encouraged to diversify their style preferences. "This style flex" he states, "is essential in a complex society which places increasing value on visual or auditory learning but insists that its youth be able to manipulate the computer keyboard with the same facility with which they read a newspaper or listen to a

lecture" (p. 78). Speaking to this point, Dunn (1990) and Carbo (1990) hold the view that a certain percentage of the school population is tactually or kinesthetically-oriented in their learning preferences. They also believe that traditional instruction is generally based on audio or visual modalities as primary teaching styles.

The sixth principle Friedman (1984) maintains is that teachers can develop specific learning activities which reinforce each modality or style. The degree to which teachers are able to develop teaching activities and materials related to basic styles will largely determine the success of the movement, according to many advocates of the learning style approach.

As will be noticed, Guild (in Brandt, 1990) and Friedman (1984) focus on similar things in terms of application of the learning style approach: Personal awareness about learning/teaching styles, adjusting curriculum and instructional processes to the major learning styles, matching teaching styles and materials to individual differences are important aspects of the learning style paradigm in terms of its application in the classroom.

Is it possible for teachers to respond to students multiple learning styles in a class with more than 30 students? "Yes" says Dunn (1990), "it is

neither impossible nor difficult to respond to individuals strengths; one merely needs to learn how" (p. 18). By redesigning a classroom, teachers can address 12 elements of learning style, and that does not take much time—maybe one hour once a semester for a class. Teaching both globally and analytically—every class has both types of processors—eradicates another major problem. By learning how to lecture and simultaneously respond to each student's perceptual strengths, teachers may eliminate another problem. By teaching students to study and do their homework at their best times of day and by scheduling students for their most difficult or most important core subject at their best times of day, teachers can manage that component. So according to Dunn (1990), it is possible to apply the principles of the learning styles approach in the classroom.

#### **2.5.2 Why to Base Instruction on Learning Style Theories**

Whenever recommendations are made for new ways of doing things in the classroom, the question 'why?' is always asked anew: Why is it necessary to modify instructional practices; will it enhance the effectiveness of teaching or will it simply complicate what might be otherwise smooth-running?

According to the style theorists, broad modifications—from tailoring an individual reading program to matching a learner's global approach to allowing students to sit in pairs, individually, or even on the floor—can remove barriers to learning and enhance student achievement. Students are not failing because of the curriculum. Students can learn almost any subject matter "when they are taught with methods and approaches responsive to their learning style strengths" (Dunn, 1990, p. 18). Nevertheless, those same students fail when they are taught in an instructional style dissonant with their strengths.

Many schools that have experimented with approaches to style, using one or a combination of various style models currently available, report that using the technique allows more students to succeed and erodes the argument that students who misbehave or fall behind academically in traditional classrooms have limited learning ability.

Acknowledging the broad impact of a school-based learning styles program, many advocates (Dunn, 1990; Carbo, 1990; Guild, 1990; O'Neill, 1990) say so-called 'at-risk' students—those whose personal behaviors, past educational records, or family problems increase the chance of failure—have the most to gain from style-based learning. In many schools, they say, the lack of

alternatives to lecture-and textbook-based teaching, classroom design, or grouping factors works against under-achieving students.

The students who are regarded as underachievers or dropouts of the system are most probably those whose styles are mismatched. If the students, who prefer to study in soft light, in an informal design, or sociologically, like to study with peers, are put in an environment that does not match their preferences, they are likely going to suffer from failure, states Carbo (1983). Likewise, Dunn (1990) believes that classroom design and rules restricting student movement are primary reasons students are labeled as underachievers and problem students. They are problems because they cannot sit and they cannot learn the way they are taught.

### **2.5.3 Some Critiques on the Idea of Matching**

While the notion of accommodating individual differences clearly appeals to many educators, nagging doubts hinder the widespread integration of style-based instruction according to both advocates (Dunn, 1990; Carbo, 1990; McCarthy, 1990; Keefe & Ferrell 1990) and critics (Curry, 1990, Snider, 1990; Doyle & Rutherford 1984) of the practice.

A major issue facing those who attempt to use styles theory in the classroom is to what extent

teachers can and should match instruction with a student's preferred mode of learning. While some advocates call for a formal instrument to assess a learner's style and prescribe appropriate teaching methods (Keefe & Ferrell 1990; Dunn, 1990), others maintain such instruments are unnecessary and may actually lead to students being improperly labelled as one type of learner or another (Snider, 1990). In addition, multiple arrangements in classrooms in which separate groups work simultaneously with different materials or equipment are difficult to manage, says Doyle & Rutherford (1984), because, according to them, matching programs typically call for establishing different groups to operate simultaneously, and such a requirement will create a major planning task for teachers, who often have limited time and resources for designing programs. McCarthy (1990), on the other hand, has the idea that teachers have a duty to 'stretch' outside their own style, and that planning lesson content and activities with several broad style types in mind is the best way to make use of styles theory. He believes that a teacher has a responsibility as a professional to go out of his or her style.

Other researchers like Curry (1990) argue that much of the research evidence being cited is based on doctoral dissertations containing purported gains from



style matching which are short-lived, and that large-scale studies with experimental and control groups are needed to provide a convincing argument that style-based education works. However, the practitioners of style-based instruction, like Brunner and Majewski (1990), Perrin (1990), Sykes and Jones (1990), Carbo (1990), and Dunn (1990) claim that style-based approach in education produces positive gains for students, both in the short term and over the long haul.

## **2.6 PERCEPTUAL LEARNING STYLES**

### **2.6.1 What are Perceptual Learning Styles**

As mentioned before, definitions of the term 'learning style' range from concerns about preferred sensory modalities to descriptions of personality characteristics that have implications for behavior patterns in learning situations. It refers to a pervasive quality in learning behavior of an individual, a quality that persists even though content may change, thus "applicable to all areas of education" (Brandt, 1990, p. 11). Among the 21 elements (or learning styles), Dunn (1983, 1984) reports on 'perceptual learning styles', a term that refers to the sensory modes used for organizing information and interacting with the environment. It describes the

variations among students in using one or more senses to understand and retain what has been experienced.

Research in the United States (Dunn, 1983, 1984) demonstrates that learners have four basic perceptual modalities:

1. Visual learning: Reading, studying charts; seeing information or objects.

2. Auditory learning: Listening to lectures, audiotapes; hearing

3. Kinesthetic learning: Experiential learning, manipulating materials; total physical involvement with a learning situation.

4. Tactile learning: "Hands-on" learning, such as building models or doing laboratory experiments.

Studies on perceptual learning style rely, like in many other learning styles research, primarily on self-reporting questionnaires, which reveal students' preferences for selected elements. Dunn (1983, 1984) claims that research findings of herself and her colleagues verify that most do correctly identify their learning strengths. According to her, students achieve significantly higher scores when their preferred styles are matched with methods, resources or environments, so "their preferences must be their strengths" (Dunn, 1984, p. 13).

Dunn (1983) found that young children in the United States are mostly tactile/kinesthetic and that there is a gradual development of visual and auditory strengths through the elementary grades. She says that "most of these youngsters do not become auditory learners before 5th and 6th grade", and adds that "girls become auditory earlier than boys" (p. 418). Carbo (1983), in a survey comparing perceptual learning styles across achievement levels, found that good readers prefer to learn using their visual and auditory strengths, whereas poor readers have higher preferences for learning tactually and kinesthetically. According to Dunn, 20-30% of school age children are auditory learners, 40% are visual, and the remaining 30-40% are tactile/kinesthetic, visual/tactile or some other combination.

#### **2.6.2 Learning Styles and Second Language Learning**

Research in second or foreign language learning has focused generally on cognitive styles and on conscious learning strategies. Most of the studies concern the interaction of cognitive styles and affective variables with situational demands (Ehrman & Oxford 1990; Andrade, 1990; Oxford et al., 1990; Geneese, 1976). The conscious learning strategies of nonnative speakers of English have also been investigated by some researchers in the United States

(Wenden, 1986). These studies have showed that learners vary in the strategies they use for second language learning because of differences in learning styles, affective variables, and cognitive styles.

Although there is little research on perceptual learning style in relation with second language learning, one study by Reid (1987) compared perceptual learning style preferences of ESP students with various background variables. She identifies six major style preferences; the first four are preferences for visual, auditory, kinesthetic, and tactile style of learning, and the last two are preferences for individual or group differences. The foreign students' preferences were markedly different from those of American students. She observed that the foreign students as a whole preferred kinesthetic and tactile learning styles, and most groups did not like group learning. Students at the graduate level were more likely to prefer visual and tactile learning, and undergraduate students were more likely than graduate ones to favor auditory learning. There was some interaction of chosen field of study and learning style preferred; for example, engineering and computer science students were more likely to prefer tactile learning than humanities students. The higher the students' English test scores, the more similar their preferences were to American

students' preferences. Similarly, the longer they had been in the United States the more their preferences were like those of American students. There were also clear effects for language or national origin. Korean students were the most visual, and Arabic and Chinese the most auditory. Within all the groups, however, there remained major individual differences.

Contrary to Dunn's (1983) assumption that perceptual strengths are biological, Reid's study shows that experience leads to modification of style preference. Thus, the purpose of this study will be to investigate whether individuals vary in their preferences for perceptual learning styles (visual, auditory, kinesthetic, and tactile), and whether learning is best when the learning opportunity matches the learner's preferences.

## CHAPTER III

### METHODOLOGY

#### 3.1 INTRODUCTION

During the past decade, educational research has identified factors that account for the differences in how students learn. Among these factors, learning styles, which are broadly known as preferred or habitual patterns of dealing with information, have been the focus of research in general education as well as in second language learning, in recent years.

Research on learning styles in education has revealed that there is a relation between matching instructional approaches to the style preferences of individual learners and the learners' academic achievement (Dunn, 1990; Keefe & Ferrell, 1990; McCarthy, 1990; Carbo, 1983). According to these researchers, when students are taught with approaches that match their preferences, they demonstrate statistically higher achievement—even on standardized tests. In addition, they claim that learners' style preferences are persistent even though the content (or course content) may change, and that individuals are able to identify these preferences, especially the major and negative ones, by means of self-report questionnaires.

Carbo (1983), using the Learning Style Inventory (LSI) in research on good and poor readers' perceptual

learning style preferences in the United States, found that poor readers were tactile and kinesthetic whereas good ones were auditory or visually oriented. In another research on the same topic, Reid (1987) found that there was a relationship between perceptual learning style preferences and various background variables, such as age, sex, and native language of the foreign English learners studying in the United States.

In this study, the relationship between academic achievement of Turkish EFL learners and their similarities in perceptual learning style preferences with the teaching styles of their teachers was investigated. Teachers' and learners' perceptual teaching/learning style preferences were identified by means of questionnaires, and learners' achievement in reading and grammar courses was measured by giving them a standardized test, which was used as a pre and posttest. Thereafter it was examined whether style similarities of teachers and students affected the students' academic achievement.

### 3.2 SUBJECTS

This study took place at the Anadolu university English prep-classes in Eskisehir, Turkey which offer full-time intensive language training for undergraduate students from various major fields (civil aviation, radio and television, English language teaching). Most

of the students studying in these classes came from Turkish academic high schools, except a few who graduated from vocational high schools. However, they all were taught English language for six years, four hours per week, when they were at secondary schools. After taking a placement test, the students at prep-classes were placed in different classes in accordance with their level of proficiency, and were taught grammar and language skills such as speaking, writing, and reading.

Sixty English language learners from a total of 300 students at the prep-classes of Anadolu University were chosen as the subjects of this research. The subjects were in two classes—an elementary level class of 32 students who were majoring in civil aviation and an intermediate level class of 28 students who were studying to be English teachers. In the intermediate class there were 24 females and four males, and in the elementary class all subjects were males. The average age of all the subjects was 20, ranging from 17 to 23.

When administering the pre and posttest, the subjects were not asked whether they would like to volunteer to take the tests. However, they were notified about the tests by their teachers a week before the tests were given. They were also told that the test scores would not affect their grades. Of the



sixty subjects who took the pretest, ten students did not take either the posttest or the questionnaire, and thus were excluded from the study.

Students from these two classes were selected as subjects of the study because they had been learning grammar and reading from the same teachers since the time they were administered the placement test, which was used as a pretest in this research. After a period of seven months the same placement test was given as a posttest in order to measure the subjects' achievement during this period.

As expected, the second group of the subjects consisted of four English language teachers, three females and a male. Two of them taught reading and grammar to the elementary English class and the other two taught the intermediate class during these seven months. The male grammar teacher of the elementary class had taught English for eight years whereas the female reading teacher of this class had three years of experience in language teaching. Both intermediate class teachers had taught English for eleven years.

### 3.3 MATERIALS

Materials used in this study included a Perceptual Learning Style Questionnaire, a Perceptual Teaching Style Questionnaire, and an English Placement Test. The

questionnaires were not translated from English into Turkish so that their validity would not be affected.

### **3.3.1 The Perceptual Learning Style Questionnaire:**

The questionnaire used in this research consisted of three sections: questions on the background information of the informants, the instructions, and the statements related to perceptual learning style preferences. It was originally developed by Reid (1987). The original questionnaire, which was reported to be constructed and validated for non-native English speakers, consisted of randomly arranged sets of five statements on six different learning style preferences: visual, auditory, kinesthetic, tactile, group learning, and individual learning. However, the first part of the original instrument and the last two sets of statements related to group and individual learning were excluded due to their lack of relevance to this study. The four sets of statements related to perceptual learning style remained unchanged, but questions for obtaining background information were substituted by more relevant ones.

The instrument was chosen because it was appropriate for nonnative speakers of English and efficient to administer, requiring approximately one half hour. When a pilot test of the instrument with ten students from Bilkent University prep-school in

Ankara, Turkey was carried out, it showed that the statements 7, 9 and 13 (see appendix A) were sometimes problematic due to the words 'instruction' and 'lecture'. However, it was thought that the translation of the entire questionnaire might affect its validity, so it was decided that the researcher should be present in the class when the questionnaire was administered to avoid any problems of misinterpretation.

### **3.3.2 The Perceptual Teaching Style Questionnaire:**

Like the other instrument, it consisted of four sets of five statements, each set referring to one element of perceptual teaching style preferences: visual, auditory, kinesthetic, and tactile. This questionnaire was, in fact, adapted from the first one described above. After consulting colleagues and experts in the field of language teaching, Reid's (1987) Perceptual Learning Style Preferences Questionnaire was rewritten by this researcher and adapted as a Perceptual Teaching Style Preferences Questionnaire. However, another pilot survey was carried out with this instrument before using it in this research, and it was observed that the instrument appeared to function well in differentiating various perceptual style preferences of the English teachers who participated.

Each set of statements in these two instruments was arranged randomly and referred to certain elements of perceptual style preferences. For example, the statements, "Students learn better by reading than by listening to the teacher" and "Students understand better when they read my instructions" refer to the visual learning style (see appendix A).

Both of the questionnaires were evaluated on a five point scale, from strongly agree to strongly disagree. The first took half an hour, and the second took fifteen minutes to administer.

### 3.3.3 The English Placement Test:

As mentioned before, a placement test was given before the academic year started at Anadolu University prep-classes, and students were placed in accordance with their level of proficiency. The completion of the whole test, except its listening section, took an hour. The test used in this study was a Michigan Placement Test consisting of 100 items: 20 for listening, 30 for grammar, 30 for vocabulary, and 20 for reading.

In each grammar item there is a short conversation between two people. The conversation is not complete, so the subjects are asked to choose the answers among the choices that correctly complete the conversation.

Example:

"What's your name?" "----- name is John."

- a. I            b. Me            c. My            d. Mine

Each reading comprehension item contains a sentence and a question about it. Students are asked to choose the best answer to the question, using the information in the sentence.

Example:

"John drove me to Eleanor's house."

" Who drove?

- a. I did    b. John did    c. John and I did    d. Eleanor did

The English Placement Test was chosen as one of the instruments for measuring achievement because it was already administered to the subjects seven months before the posttest. The scores obtained from this test were accessible to the researcher, and permission was given by the administrators to use the same test as a posttest. The scores in the pre and posttests were used to measure the achievement of the subjects in the reading and grammar courses.

### 3.4 PROCEDURE

The placement test which was administered and scored by prep-class teachers was first given to all the prep-class students, and took an hour to administer except the listening section that took 15 minutes.

Later, with the permission of the administrators, the test scores of reading and grammar were given to the researcher. After seven months, the same test was given as a posttest to the elementary and intermediate classes. The posttests were administered and scored by the same grammar and reading teachers.

The questionnaires were given to the subjects a day after the posttest. After informing the subjects as to the purpose of the survey, they were asked to respond on a voluntary basis to the questionnaire. Before they started to complete the questionnaire, the subjects were provided with examples of how to mark the answer sheet, and their attention was drawn to the statements which were regarded as problematic. Completion of the Learning Style Preferences Questionnaire took half an hour. The teachers also completed the Perceptual Teaching Style Preferences Questionnaire in fifteen minutes during the same session.

### 3.5 ANALYTICAL PROCEDURE

In calculating the scores for each set of statements on the questionnaire, the total scores that individual subjects had for their particular style preferences (visual, auditory, kinesthetic, tactile) were computed first, then, the mean scores were calculated by dividing these total scores by the

numbers of subjects in each group. And then, by dividing the total sum of these mean scores by the numbers of styles, the overall means were calculated. If the score of any student for one of the preferences was higher than the overall mean, that style preference was regarded as his/her strongest. However, the students whose scores for two or more styles were higher than the overall mean, were regarded as having combinations of styles. For identifying the teachers' strongest preferences in their perceptual teaching styles, the same procedures were followed. First, the means for particular styles were calculated, then, the overall means were found by dividing the total sum of means by the numbers of teachers (2). The overall means were calculated for the teachers of each class separately. And then, teachers' strongest preferences were identified by comparing the overall means to their scores for particular style preferences.

To determine whether similarities in learning/teaching styles had any impact on academic achievement of the subjects, the pretest-posttest control group design was used. Students whose strongest style preferences were similar to those of their teachers' were regarded as the experimental group. Then an equal number of students were selected randomly among the students with dissimilar style preferences to

their teachers' (unmatched subjects), and they constituted the control group of the study. A matched pairs t-test was used for the statistical analysis of the results (pre and posttest scores). This statistical technique provides a comparison of gain scores as a way to determine effects of the treatment (teaching/learning style matching).

After testing the hypothesis that there was a positive relationship between higher academic achievement of EFL learners in reading and grammar courses and learning/teaching styles, the Statistical Packages for the Social Sciences (SPSS) was used to compute t-tests and chi-square tests in order to investigate whether there was any relationship between various background variables and style preferences of the subjects. In doing this, 26 subjects (13 from elementary, 13 from intermediate class) were selected randomly, and their scores on the Perceptual Learning Style Questionnaire were compared according to certain background factors such as sex, major field, branch the subjects graduated from, their grade point averages of English at high school, and others. In addition, Pearson Product Moment Correlations were run on the items in the learning style questionnaire to measure the relationship between the various learning styles.



## CHAPTER IV.

### PRESENTATION AND ANALYSIS OF THE DATA

#### 4.1 RESULTS and DISCUSSIONS

In this study, it was hypothesized that similarities between perceptual teaching and learning style preferences would increase the academic achievement of EFL learners in grammar and reading courses. In order to measure learning and teaching styles, subjects were administered the learning and teaching style questionnaires. Students academic achievement measured by means of pretest and posttests, was then related to similarities in teaching and learning styles.

The scores of subjects in the elementary class for their preferences in perceptual learning styles are shown in table 4.1. The mean scores for each learning style indicate that kinesthetic learning is the most preferred (21.24), whereas auditory learning style is the least preferred one (16.08). Though the general tendency is toward kinesthetic learning, individual subjects differ in their preferences for particular learning styles.

As explained in chapter III, to pinpoint the strongest style preferences of each subject, their scores for particular styles were compared to the overall mean of styles—which was calculated separately for each class. If a subject's scores for more than one

style were higher than the overall mean of styles in a given class, he was considered having a combination of styles.

Table 4.1 indicates that some subjects have a preference for one style (visual, auditory, etc. only), but most of them prefer a combination of styles (kinesthetic/tactile, auditory/kinesthetic, etc.). This confirms the findings of previous studies (Reid, 1987).

Both grammar and reading teachers of this class had the strongest preference for a kinesthetic/tactile teaching style. So, 15 of the subjects having the kinesthetic/tactile learning preference matched the style of their teachers whereas 10 subjects did not.

As to their academic achievement in general, the subjects in the elementary class seem to have made significant improvement in both grammar and reading courses. Their mean in grammar increased from 22.80 to 36.16, and their mean in reading increased from 1.20 to 25.40 (see table 4.1). The low initial scores for reading are due to the fact that most of the students in this class either did not answer any of the questions, or tried to answer them by guessing the right answers. In many cases they did not make correct guesses and scored "0" on the exam. This fact shows, in a way, the subject's low level of proficiency in reading English at the beginning of the term.

TABLE 4.1

Scores for Style Preferences and Achievement Obtained by Elementary Students from the Questionnaire and the Tests

Ss.	Perceptual Style Pr.				Courses			
	V	A	K	T	Gr.1	Gr.2	Rd.1	Rd.2
1	18	16	22	22	23	36	0*	35
2	17	14	19	17	20**	40	0**	40
3	15	17	23	20	20*	33	0	10
4	15	8	20	13	6	30	5	30
5	15	21	21	14	26**	43	0**	45
6	19	13	17	16	26**	36	0**	30
7	17	12	18	22	26**	40	0**	20
8	15	16	22	19	26*	43	0*	30
9	18	18	23	24	26*	40	0*	25
10	18	19	22	19	20**	30	0**	40
11	17	17	23	23	20*	26	0*	15
12	16	12	23	24	26	46	0*	45
13	18	16	24	21	20*	26	0*	25
14	18	14	22	22	26*	50	0	15
15	17	16	24	22	23	26	0	10
16	16	20	19	14	26**	36	0**	20
17	17	18	24	22	30	40	10*	25
18	18	18	24	25	26*	46	0	20
19	10	17	19	19	23*	43	0*	40
20	16	18	16	22	26**	33	15**	10
21	22	22	18	18	26**	26	0**	0
22	16	15	21	20	26*	46	0*	40
23	18	13	23	23	10	16	0	0
24	13	13	24	21	23	43	0	40
25	15	20	20	16	20**	30	0**	25
T.	414	402	531	497	570	904	30	635
M.	16.56	16.08	21.24	19.88	22.80	36.16	1.20	25.40
SD.					5.23	8.36	1.04	11.19

Overall mean for style preferences=18.41  
 V: visual; A: auditory; K: kinesthetic; T: tactile  
 Gr.: grammar; Rd: reading; 1: pr test; 2: posttest  
 \*: subjects in experimental group; \*\*: control gr.  
 Both teachers style preference is K/T

Overall mean for the elementary class students' style preferences is 18.41. So, the students, whose scores for particular style preferences were higher than overall mean, were regarded to have those styles as their strengths. Student 3, for example, having 23 for kinesthetic and 20 for tactile learning, had the strongest preference for these two styles. He was then labeled as K/T learner. Student 6, on the other hand, was labeled a visual (V) learner because he had only one style which exceeded the overall mean. His score for visual learning is 19.

TABLE 4.2

Scores for Style Preferences and Achievement Obtained by Intermediate Students from the Questionnaire and the Tests

Ss.	Perceptual Style Pr.				Courses			
	V	A	K	T	Gr.1	Gr.2	Rd.1	Rd.2
1	25	15	19	21	30	56	25	65
2	13	22	20	17	43*	60	0	35
3	13	19	21	16	36	60	25**	70
4	17	19	22	17	73	83	75	85
5	15	21	22	16	63*	73	30	60
6	19	14	22	22	66**	76	45*	35
7	23	19	24	18	83	73	15**	50
8	13	21	22	19	53*	80	25	45
9	17	21	21	19	66*	73	25**	35
10	20	19	22	15	56**	63	40**	40
11	19	22	20	19	63*	86	35	70
12	19	17	23	22	66**	80	40*	60
13	15	24	25	19	53*	76	25	30
14	18	19	25	25	66**	76	15*	45
15	14	23	21	14	53*	66	25	55
16	15	17	23	24	23	43	25*	35
17	14	15	23	22	50**	76	50*	55
18	18	15	20	14	60	73	50**	35
19	20	18	22	19	46**	66	25	55
20	25	16	23	18	50**	76	10	55
21	23	19	24	21	70	86	25*	30
22	20	18	18	21	40	90	65	50
23	22	15	16	15	66**	70	35	55
24	18	20	17	14	60	76	20	65
25	15	20	20	18	63*	73	40**	65
T.	450	468	33	465	1398	1810	790	1300
M.	18.00	18.72	21.40	18.60	55.92	72.40	31.60	52.0
SD.					13.97	10.41	15.32	13.84

Overall mean for style preference=19.18

Gr.: grammar; Rd.: reading; 1: pretest; 2: posttest

\*: subjects in experimental group; \*\*: control gr.

Grammar teacher's style preference: A/K

Reading teacher's style preference: K/T

Scores of subjects in the intermediate class on Table 4.2 indicate that these subjects' strongest preferences are also for kinesthetic learning (21.40), but the least preferred learning style is visual (18.00). It may be concluded from these results that most Turkish EFL students have a tendency towards kinesthetic learning. Though most students in this class have also a combination of styles, the distribution of style preferences are different from the elementary class: Eight subjects in this class are

auditory/kinesthetic, 5 are kinesthetic/tactile, 4 kinesthetic/ visual, and the others have various combinations or only one style (visual, auditory, etc.). In the elementary class, as shown in table 4.3, 15 subjects are kinesthetic/tactile, 4 are kinesthetic /auditory, and the rest have various styles or combination of styles.

TABLE 4.3

Numbers of Students in Each Class with Various Style Preferences

Styles	Elementary	Intermediate
K/V/T	-	1
K/T	15	5
K/V	-	4
K/A	4	8
A/V	1	-
V/T	-	2
K	2	3
T	2	-
V	1	1
A	-	1

These results suggest there may be a relationship between major field of study and preferences in learning styles, since the elementary class students' major was civil aviation and the intermediate group's was ELT.

As marked in the table 4.4, the grammar and reading teachers of the intermediate class students have different style preferences: the former's strongest preference was auditory/kinesthetic, but the

reading teacher preferred a kinesthetic/tactile teaching style. So except for one, all of the teachers who participated in the study were kinesthetic/tactile.

TABLE 4.4

Scores for Perceptual Teaching Styles of the Four Teachers

Style	Elementary		Intermediate	
	Gram.	Read.	Gram.	Read.
K	25	25	24	25
T	25	23	19	23
V	20	20	15	20
A	15	17	25	17

As indicated before, the intermediate class students also made considerable gains in both reading and grammar courses, from pretest to posttest. Their mean score for grammar increased from 55.92 to 72.40, and mean score for reading increased from 31.60 to 52.0 (see table 4.2).

TABLE 4.5

Grammar Gain Scores of Elementary and Intermediate  
Classes on the Achievement Test

Matched Pair	Gain Scores		D	$\sum D^2$
	Exp.	Contr.		
A	13	20	-7	49
B	17	17	0	0
C	14	10	4	16
D	20	14	6	36
E	6	10	-4	16
F	20	10	10	100
G	24	7	17	289
H	20	0	20	400
I	6	10	-4	16
J	17	20	-3	9
K	10	10	0	0
L	27	26	1	1
M	7	14	-7	49
N	23	10	13	169
O	23	7	16	256
P	13	26	-13	169
Q	10	4	6	36
<b>Total</b>	<b>270</b>	<b>215</b>	<b>55</b>	<b>1611</b>
<b>Numb.</b>	<b>17</b>	<b>17</b>		
<b>Mean</b>	<b>15.88</b>	<b>12.64</b>		
<b>St.Dev.</b>	<b>6.65</b>	<b>6.46</b>		

In order to determine whether the gains made by the experimental (matched) group were significantly greater than those made by the control (unmatched) group, a matched pairs t-test was performed. Students of grammar classes in both groups (elementary, intermediate), having similar style preferences to their grammar teachers, were assigned to the experimental group, and an equal number of students

with dissimilar style preferences were assigned to the control group. Then their gain scores were compared.

Table 4.5 shows the gain scores of students in the grammar course. The seventeen students, who were matched their teachers' style preferences, were paired with seventeen unmatched students based on their pretest scores (same or within a range of 5 points). The gain scores (the difference between pretest and posttest scores) were then computed for both groups (experimental and control), and then the matched pairs t-test was performed for comparison.

Though the mean scores of gains indicates that the experimental group made more gains (15.88) than the control group (12.64), the difference was not statistically significant ( $T_0 = 1.41$ ,  $df = 16$ ). However, the result may be interpreted as a tendency in the direction of the directional hypothesis set for the study.

In the reading courses, 15 students whose learning style preferences were similar to their reading class teachers' were placed in the experimental group, while 15 other students with similar pretest scores, whose learning styles differed from those of their teachers', were assigned to the control group. Here again the mean gain scores of the experimental group were higher than those of the control group (23.33 and 21.0



respectively). Nevertheless, the results generated by the matched pairs t-test did not show any significant relationship ( $T_o=0.53$ ,  $df=14$ ).

TABLE 4.6

**Reading Gain Scores of Elementary and Intermediate Students on the Achievement Tests**

Matched pair	Gain score		D	D <sup>2</sup>
	Exp.	Contr.		
A	35	40	-5	25
B	30	45	-15	225
C	25	30	-5	25
D	15	20	-5	25
E	45	40	5	25
F	25	20	5	25
G	15	-5	10	100
H	40	0	40	1600
I	40	25	15	225
J	-10	0	-10	100
K	20	25	-5	25
L	30	35	-5	25
M	10	45	-35	1225
N	5	-15	-10	100
O	25	10	15	225
<b>Total:</b>	<b>350</b>	<b>315</b>	<b>-5</b>	<b>3975</b>
<b>Numb.</b>	<b>15</b>	<b>15</b>		
<b>Mean</b>	<b>23.33</b>	<b>21.00</b>		
<b>St.Dev.</b>	<b>14.71</b>	<b>17.96</b>		

The results showed that similarities between perceptual teaching and learning style preferences did not promote higher academic achievement of EFL students in grammar and reading courses, and thus led to the acceptance of the null-hypothesis.

However, an analysis of data using the Statistical Package for the Social Sciences (SPSS) showed some interesting relationships between different variables: An independent t-test showed a significant relationship between sex and visuality ( $p < .05$ ). Among the students taking the perceptual learning style questionnaire, the female subjects were more visually-oriented than the male subjects. Table 4.7 shows the mean scores and standard deviations of the male and female subjects for visual learning styles.

TABLE 4.7

Mean Scores of Female and Male Subjects for Visual Learning Styles

Sex	Mean	St.Deviation
Male	3.1875	1.642
Female	6.5000	4.403

Another interesting result revealed by SPSS was the degree of relationship between the four perceptual style preferences. Table 4.8 shows correlations between kinesthetic and tactile learning ( $r = .3271$ ), and kinesthetic and auditory learning ( $r = .3010$ ). That is, subjects with kinesthetic orientation also have a tendency to be tactile and auditory. These correlations, although high, were not significant for non directional (2 tailed) tests. In addition, there seemed also to be a slight negative correlation, though

not significant, between auditory and tactile (-.0274); visual and kinesthetic (-.0704); and auditory and visual learning (-.1718).

TABLE 4.8

Correlational Analysis of the Perceptual Learning Styles

	Visual	Auditory	Tactile	Kinesthetic
Visual	1.0000	-.1718	.0026	-.0704
Auditory	-.1718	1.0000	-.0274	.3010
Tactile	.0026	-.0274	1.0000	.3271
Kinest.	-.0704	.3010	.3271	1.0000

Though no statistically significant relationship between perceptual teaching/learning styles and academic achievement was found, the analysis of data indicated several correlations, either negative or positive, among different perceptual modes. In addition, a relationship between sex and visuality was found. The other results generated by this study were that both teachers and learners have different style preferences, and that university level Turkish EFL learners have a general tendency toward kinesthetic learning.

## CHAPTER V

### CONCLUSION

#### 5.1 INTRODUCTION

One of the reasons why teaching is so difficult is that we do not know enough about all the factors affecting learning. For instance, we know that learners are very different from one another, but we cannot agree on how they differ or on what these differences mean for education.

In recent years, some researchers and teachers, shifting their attention from teaching methodology to the individual differences of learners, have begun to study and experiment in the field of learning styles. The aim of these studies and experiments with learning styles is, of course, to understand the individual differences better and to deal with these differences in the classroom.

Supporters of the learning style movement like Dunn (1984), Carbo (1983), and many others argue that teaching through learners' strongest learning style preferences, regardless of the content, increases academic achievement and improves attitudes toward the courses being taught. Nevertheless the learning style paradigm is a pervasive area, consisting of five stimuli and 21 separate elements (see chapter II). So most of the research on learning styles has focused on these various elements. Carbo (1983), for example,

considering perception "one of the learning style elements of greatest importance" (p. 487), reports that good and poor readers differ in their perceptual learning style preferences, and that reading is improved when the learners are taught through their strongest perceptual mode.

Reid (1987), on the other hand, citing Hodges' (1982) study, says that almost 90% of conventional classroom instruction is geared to the auditory learner, and only 20% to 30% of any large group could remember 75% of what was presented orally. To solve this problem, some learning style theorists suggest matching teachers' and students styles, thinking that in this way students will be exposed to teaching styles that are consistent with their learning styles (Dunn, 1984). Likewise, Gonzalez & Roll (1985) draws attention to identifying individual differences and determining various approaches to achieve more interaction between teaching treatment and the learners.

## 5.2 CONCLUSIONS AND DISCUSSION

In order to test the hypothesis that similarities between learning and teaching styles promote higher academic achievement in reading and grammar classes, subjects were assigned to experimental and control groups, depending on the similarities between teaching

and learning styles and the similarities of the subjects' pretest scores, in the grammar and reading classes. In the grammar classes, there were seventeen student subjects whose perceptual style preferences were similar to their teachers' teaching styles. So they were assigned to the experimental group of the study, and seventeen other students having unmatched style preferences but similar pretest scores constituted the control group. Then a matched pairs t-test was performed in order to compare the control group's gain scores (the difference between pre and posttest scores) with the gain scores of the experimental group. The same procedure was followed to compare the subjects' gain scores in reading classes. Fifteen students whose learning style preferences matched their teachers' teaching style were paired fifteen other students with unmatched style preferences based on the similarities in their pretest scores. The two groups' gain scores were then compared by means of a matched pairs t-test.

However, the result was not as expected. Although the mean scores of experimental groups in both grammar and reading classes were higher than the mean scores of control groups, the result generated by the t-test was not statistically significant. The observed t values for both classes were lower than critical t values

( $p < .05$ ). The findings of the study failed to confirm the claims of learning style theorists that matching teaching and learning styles significantly increases academic achievement.

So the results remind us again of the complexity of variables which affect learning in general, and foreign language learning in particular. Thus, rather than focusing on only one dimension of learning, one must consider a multiplicity of interacting factors such as the compensating role of motivation, the nature of the learning task, the relationship between teacher and learner, and other situational variables (Doyle & Rutherford, 1984). Learning style preferences of students cannot be the sole basis for designing instruction. And prescription based on diagnosis by means of self-assessment instruments must be tentative, because identifying learning styles is a complex problem.

In addition to the problem of complexity of identifying learning styles, Corbet and Smith (1984) discuss the problem of reliability of such learning style instruments, after attempting to validate the Edmonds Learning Style Identification Exercises (ELSIE). Gregorc, on the other hand, lists three shortcomings of self-assessment instruments: (a) The instruments are exclusive (i.e., they focus on certain

variables; (b) the students may not self-report accurately; and (c) the students have adapted for so long that they may report on adapted preferences (1979, cited in Reid, 1987).

Apart from that, the possibility exists that the instruments may be flawed and the identification of style preferences might be inadequate in this study. Due to time limitations, the researcher was not able to make classroom observations in order to verify whether the teachers' and learners' preferences indicated in the questionnaires related to their actual strengths, and therefore had to base the study only on the self-report data of the questionnaires. Another difficulty in the research was finding appropriate classes which had been taught by the same teachers for a certain amount of time (at least one term). This limited the study to a small numbers of subjects. All these factors may have affected the results and the generalizability of the study.

However, it could be concluded that though one dimension of learning style, like sensory modes of learners, cannot dictate an instructional prescription, combinations of learning style elements may account for academic achievement. There may also be an interaction with content so that different dimensions of learning styles may be important for different subjects. In



addition, the result may be interpreted that certain learning style elements are not equally important for different subjects from different ethnic and cultural groups: Perceptual modes may be more important for American students whereas motivation or any other style element, for example, may be more important for Turkish EFL students. For all of these reasons, both teachers and students involved in identifying and using information on learning styles should proceed with caution, and not overlook other variables that may possibly affect foreign language learning.

Although the findings of this study did not confirm the experimental hypothesis, the analyses were consistent with some observations in the literature. First of all, there seemed to be a general tendency among Turkish university EFL learners toward combinations with kinesthetic learning. Though many subjects had a combination of styles, kinesthetic learning was shared by all the subjects. This confirms Reid's (1987) findings that there was a relationship between language/culture background of the individuals and their perceptual learning style preferences. In addition, analysis of the data revealed some interesting relationships between various learning styles as measured by the Perceptual Learning Style Questionnaire. Among these were positive, albeit

nonsignificant correlations between kinesthetic and tactile ( $r=.327$ ), and kinesthetic and auditory learning ( $r=.3010$ ). There was also a slight negative correlation between auditory and tactile ( $-.0274$ ); visual and kinesthetic ( $-.0704$ ); and auditory and visual learning ( $-.1718$ ).

These figures suggest that some students with kinesthetic style preference (experiential learners) need also to do 'hands-on work', whereas some other kinesthetically-oriented ones need oral input. On the other hand, for the students who prefer auditory learning, visual aids and manipulative tasks are not necessary. Likewise, visual learners do not need bodily experiences in language learning. When planning classroom activities, these should be taken into account.

In addition, the research revealed relationships between some background variables of the subjects and their style preferences. An independent t-test showed a significant relationship between sex and visuality ( $p<.05$ ). That is, Turkish female language learners at the universities seemed more visually oriented than Turkish male learners. This result also confirms Reid's (1987) findings that sex and perceptual learning style preferences are related.

In spite of the fact that we did not find any statistically significant relationship between teaching/learning style similarities and language learning, the learning style approach may still be promising for teachers and students in general, and language education in particular. Students may benefit particularly from a discussion of learning styles, self-assessment instruments, and experience with alternative styles that will help them function better in classrooms. In addition, the understanding and use of different teaching styles by the instructor, as well as the awareness of individual learning styles by the student, may determine effectiveness of teaching and learning interaction in the classroom. The EFL teachers' awareness of individual differences may enhance their understanding of learning, and provide them with alternative approaches to teaching. Smith & Renzulli (1984) echo this theme when they say: "A teacher who can purposefully exhibit a wide range of teaching styles is potentially able to accomplish more than a teacher whose repertoires are relatively limited" (p. 49).

## 5.2 IMPLICATIONS FOR FUTURE RESEARCH

Many aspects of learning styles of EFL learners need further research and analysis. Future research projects may attempt to replicate this study. However,

it is suggested that the researchers verify the results of self-report instruments with classroom observations or tests to determine whether the subjects behave in actual situations as they indicate in the questionnaire. Rather than concentrating on only one element of learning style, future researchers may focus on combinations of elements to see how these interact with learning. That is, only one element of learning style, like perception, may not be so important for improvement of language learning. But the addition of new dimensions to perceptual modes may reveal new relationships. For example, students' motivation or classroom arrangements together with perceptual strength, may play a much more important role in language learning. The questions concerning modification and expansion of learning styles by foreign language learners must also be answered: Do language learners, for example, adjust their learning styles in order to adapt to the teaching styles of their teachers? Do students from one field of study adjust more easily than students from other fields?

The relationship between teaching and learning styles also needs to be studied from different points of view, for example, are there any differences in the teaching/learning style interactions at different stages of language learning? Are beginning or

advanced level language students affected more positively by style similarities? Is there an interaction between adaptability and perceptual learning styles? Do students who have low accommodative ability suffer more from mismatch than students who can accommodate to the teacher's style? Is there a correlation between strongest style preference and adaptability, i.e., strongest styles may correlate strongly with low adaptability.

Research in the field of learning styles should proceed toward integrating the complex construct of learning. Foreign/second language researchers should focus on the long-term goal of creating an integrated student profile-social, psychological, perceptual, and environmental. They should then provide new and reliable assessment procedures that will increase student's independence in learning languages.

## BIBLIOGRAPHY

- Andrade, C. (1990). Integrating the arts in the foreign/second language curriculum: fusing the affective and cognitive. Foreign Language Annals, 23, 315-316.
- Brant, R. (1990). On the learning styles: a conversation with Pat Guild. Educational Leadership, 48, 10-12.
- Brunner, C. E., Majewski, W. S. (1990). Mildly handicapped students can succeed with learning styles. Educational Leadership, 48, 21-23.
- Carbo, M. (1990). Igniting the literacy revolution through reading styles. Educational Leadership, 48, 26-29.
- Carbo, M. (1984). Research in learning style and reading: implications for instruction. Theory into Practice, 23, 72-76.
- Carbo, M. (1983). Research in reading and learning style: implications for exceptional children. Exceptional Children, 49, 486-494.
- Chastain, R. (1976). Developing Second Language Skills (2nd ed.). Chicago: Rand McNally.
- Corbett, S., Smith, F. W. (1984). Identifying student learning styles: proceed with caution. The Modern Language Journal, 68, 212-221.
- Curry, L. (1990). A critique of the research on learning styles. Educational Leadership, 48, 50-56.
- Deno, L. S. (1990). Individual differences and individual difference: the essential difference of special education. The Journal of Special Education 24, 160-173.
- Doyle, W., Rutherford, B. (1984). Classroom research on matching learning and teaching styles. Theory into Practice, 23, 20-25.
- Dunn, R. (1990). Rita Dunn answers questions on learning styles. Educational Leadership, 48, 10-12.

- Dunn, R. (1984). Learning style: state of the science. Theory into Practice, 23, 10-19.
- Dunn, R. (1983). Learning style and its relation to exceptionality at both ends of the spectrum. Exceptional Children, 49, 496-506.
- Ehrman, M., Oxford, R. (1990). Adult language learning styles and strategies in an intensive training setting. The Modern Language Journal, 74, 311-317.
- Ellis, R. (1989). Understanding Second Language Acquisition. Hong Kong: Oxford University Press.
- Friedman, A. R. (1984). Learning/teaching styles: applying the principles. Theory into Practice, 23, 77-81.
- Gardner, R. C. (1985). Social Psychology and Second Language Learning: The Role of Attitudes and Motivation. London: Edward Arnold.
- Genesee, F. (1976). The role of intelligence in second language learning. Language Learning, 26, 267-280.
- Gonzales, R. R., Roll, S. (1985). Relationship between acculturation, cognitive style, and intelligence. Journal of Cross-Cultural Psychology, 16, 190-205.
- Hansen, J., & Stansfield, C. (1982). Students-teacher cognitive styles and foreign language achievement: A preliminary study. Modern Language Journal, 66, 263-273.
- Horwitz, E. K. (1986). Preliminary evidence for the reliability and validity of a foreign language anxiety scale. TESOL Quarterly, 20, 559-562
- Keefe, J. W., Ferrell, B. G. (1990). Developing a defensible learning style paradigm. Educational Leadership, 48, 57-62.
- McCarthy, B. (1990). Using 4 MAT system to bring learning styles to schools. Educational Leadership, 48, 31-46.
- O'Neil, J. (1990). Making sense of style. Educational Leadership, 48, 4-9.

- Orsak, I. (1990). Learning styles versus the Rip van Winkle syndrome. Educational Leadership, 48, 19-21.
- Oxford, R., Crookall, D. & Cohen, A. (1990). Strategy training for language learners: six situational case studies on a training model. Foreign Language Annals, 23, 197-215.
- Perrin, J. (1990). The learning styles project for potential dropouts. Educational Leadership, 48, 23-24.
- Reid, M. J. (1987). The learning style preferences of ESL students. TESOL Quarterly, 21, 87-107.
- Skehan, P. (1986). The role of foreign language aptitude in a model of school learning. Language Testing, 3, 188-221.
- Smith, H. L., Renzulli, S. J. (1984). Learning style preferences: a practical approach for classroom teachers. Theory into Practice, 23, 44-50.
- Snider, V.E. (1990). What we know about learning styles from research in special education. Educational Leadership, 48, 53.
- Sykes, S., Jones, B. (1990). Partners in language styles at a private school. Educational Leadership, 48, 24-26.
- Wenden, A. (1986). Helping language learners think about learning. ELT Journal, 40, 3-12.



## APPENDIX A

## PERCEPTUAL LEARNING STYLE QUESTIONNAIRE

Name.....Age.....Date.....

Male..... Female..... Major Field.....

Are you from a  
village (0-1000), ..... small town (1000-25000),.....  
or City (25000 and above)? .....

What was your favorite school subject when you were at  
high school?

Mathematics..... Turkish language and literature.....  
History..... Geography..... English.....  
Other.....

What was the second language you learned at secondary  
school?

English.....German.....French.....  
Other(s).....

Which branch of high school did you graduate from?

Humanities..... Mathematics.....  
Sciences.....

What was your grade point average of English at high  
school?.....

What was your English language score at the University  
Entrance Exam? .....

Do you have any other purposes for your studying  
English except for your major study ?

.....  
.....  
.....

**Directions:**

People learn in many different ways, for example, some people learn primarily with their eyes (visual learners) or with their ears (auditory learners); some people prefer to learn by experience and/or by "hands-on" tasks (kinesthetic or tactile learners).

This questionnaire has been designed to help you identify the way(s) you learn best-the ways you prefer to learn.

Read each statement below. Please respond to the statements AS THEY APPLY TO YOUR STUDY OF ENGLISH. Decide whether you agree or disagree with each statement. For example, if you strongly agree, mark on your answer sheet:

-----

strongly agree	agree	undefined	disagree	strongly disagree
(X)	( )	( )	( )	( )

Please respond to each statement quickly, without too much thought. Try not to change your responses after you choose them. Please use a pen to mark your choices.

#### QUESTIONNAIRE STATEMENTS

1. When the teacher tells me the instructions, I understand better.
2. I prefer to learn by doing something in class.
3. I learn better by reading what the teacher writes on the board.
4. When someone tells me how to do something in class, I learn it better.
5. When I do things in class, I learn better.
6. I remember things I have heard in class better than things I have read.
7. When I read instructions, I remember them better.
8. I learn more when I can make a model of something.
9. I understand better when I read instructions.
10. I learn more when I make something for a class project.
11. I enjoy learning in class by doing experiments.
12. I learn better when I make drawings as I study.
13. I learn better in class when the teacher gives a lecture.
14. I learn better in class when I listen to someone.
15. When I build something, I remember what I have learned better.
16. I learn better by reading than by listening to someone.
17. I enjoy making something for a class project.
18. I learn best in class when I can participate in related activities.
19. I understand things better in class when I participate in role playing.
20. I learn more by reading textbooks than by listening to lectures.

## APPENDIX B

## PERCEPTUAL TEACHING STYLE QUESTIONNAIRE

Name.....

Teaching Experience(years).....

Date.....

Directions:

Students learn in many different ways, for example, some people learn primarily with their eyes (visual learners) or with their ears (auditory learners); some people prefer to learn by experience and/or by "hands-on" tasks (kinesthetic or tactile learners).

Likewise, teachers teach in many different ways, some of them appeal to their students' eyes or ears; some others prefer to have the students involved in various tasks that require experience and experiment.

This questionnaire has been designed to help you identify the ways you prefer to teach.

Read each statement on the following pages. Please respond to the statements **AS THEY APPLY TO YOUR WAYS of TEACHING ENGLISH**. Decide whether you agree or disagree with each statement. For example, if you strongly agree, mark on your answer sheet:

-----

strongly agree	agree	undefined	disagree	strongly disagree
-------------------	-------	-----------	----------	----------------------

-----

(X)        ( )                ( )                ( )                ( )

Please respond to each statement quickly, without too much thought. Try not to change your responses after you choose them. Please use a pen to mark your choices.

## QUESTIONNAIRE STATEMENTS

- 1- Students learn well when they listen to my lectures.
- 2- Students learn things better in class when they participate in role playing.
- 3- When students build something, they remember better what they have learned
- 4- Students learn better by doing something in class.
- 5- Students learn better by reading than by listening to the teacher.
- 6- Students learn more when they make a model of something.
- 7- Students learn more by reading textbooks than they do by listening to the lectures.
- 8- Students learn better when they make drawings as they study.
- 9- If I give instructions in written form, students remember better.
- 10- Students understand better when they read my instructions.
- 11- If I give instructions, students understand better.
- 12- Students learn more when they make something for a class project.
- 13- When they do things in class, they learn better.
- 14- They learn best in class when they can participate in related activities.
- 15- Students learn better in class when they listen to me.
- 16- Students benefit by making something for a class project.
- 17- Students learn more in class when they do experiments.
- 18- Students remember things they have heard in class better than things they have read or seen.
- 19- Students learn better by reading what I write on the board.
- 20- When I tell how to do something in class, students learn it better.