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**THE EFFECTIVENESS OF MULTIPLE INTELLIGENCES ACTIVITIES ON  
VOCABULARY LEARNING IN ELEMENTARY CLASSES**

**MA THESIS**

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## ABSTRACT

This study sought to reveal the efficacy of the teaching activities based on the Multiple Intelligence Theory on the pupils' vocabulary learning and retention.

In this study; thirty words, including 'parts of the body', 'house', and 'members of the family', were chosen to be taught to the control and the experimental groups consisting of the fourth graders in two classes, 4-A and 4-B, which were kept intact. While doing so the foreign language syllabus was followed without making any changes.

The study took place in the Manisa Saruhanbey Primary School. As mentioned above two classes were selected for the research. There were thirty students in each class. The 4-A class was determined as the control group and the 4-B class as the experimental group. The quasi-experimental research design was used to test the effectiveness of the MI activities on the retention of vocabulary items, since the research was carried out with the two fourth year classes that were kept intact.

In order to answer the research question, the pretest-immediate post test-delayed post test design was used. Prior to the onset of the research, a pretest was administered to the subjects. The results of the pre-test revealed the fact that the subjects were not familiar with the selected lexical items as they all scored 0 (zero).

The pre-test was administered to the subjects in both groups before the beginning of the research and the immediate post test was administered during the last five minutes of the lesson each week to check their learning. The same test was given again after a month as a delayed post test in order to find out the effectiveness of the MIT activities on the retention of the items in the long term memory.

The findings revealed that there was a significant difference between the two groups in achievement tests in favor of the experimental group. In other words the activities related to the MIT have a positive influence on the pupils' vocabulary learning and retention in the experimental group.

## ÖZET

Bu araştırma, Çoklu Zekâ kuramına dayalı etkinliklerin sözcük öğretiminde kullanılmasının öğrencilerin sözcükleri öğrenmeleri ve hafızada tutmaları üzerinde etkililiğini ortaya çıkarmayı amaçlamıştır.

Bu çalışmada, 4A ve 4B sınıflı öğrencilerinden oluşan deney ve kontrol gruplarına öğretilmek üzere ‘vücudun bölümleri’, ‘ev’ ve ‘aile bireyleri’ ile ilgili 30 sözcük seçilmiştir. Bu çalışma yapılırken, mevcut sınıflar üzerinde ve yabancı dil müfredatında hiçbir değişiklik yapılmamıştır.

Araştırma, Manisa Saruhanbey İlköğretim Okulunda yapılmıştır. Yukarıda belirtildiği gibi araştırma için iki sınıf seçilmiştir. Her iki sınıfta 30’ar öğrenci araştırmanın deneklerini oluşturmuştur. 4-A sınıfının kontrol grubu, 4-B sınıfının ise deney grubu olarak seçimi kurayla yapılmıştır. Sözcük öğreniminde çoklu zeka etkinliğinin saptanması amacıyla yapılan bu çalışmada, hiçbir değişiklik yapılmadan bırakılan sınıflarda yapıldığından yarı deneysel araştırma deseni kullanılmıştır.

Araştırma sorusuna yanıt aramak amacıyla çalışmada ön-test/son-test 1/son-test 2 araştırma deseni<sup>1</sup> kullanılmıştır. Araştırma öncesinde deneklere ön test uygulanmıştır. Ön-test sonuçlarına göre, deneklerin hiçbir soruyu doğru yanıtlayamamaları, araştırma için seçilen sözcükleri bilmediklerini ortaya çıkarmıştır.

*Ön-test* iki gruptaki deneklere çalışmanın başında, *son-test 1*, sözcük öğrenmedeki başarılarını ölçmek üzere haftalık uygulama bitiminde, dersin son beş dakikasında verilmiştir. Aynı test (*son-test 2*), çoklu zeka etkinliklerinin sözcüklerin uzun-sürelili hafızada tutulması üzerindeki etkisini ortaya çıkarmak amacıyla bir ay sonra uygulanmıştır.

Bulgular, iki grubun başarı testlerinde deney grubu lehine anlamlı bir fark olduğunu ortaya çıkarmıştır. Bir başka deyişle, çoklu zekaya dayalı etkinliklerin

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<sup>1</sup> Son-test 1, sözcüklerin öğretiminden hemen sonra; son-test 2 ise sözcüklerin öğretiminden bir ay sonra uygulanmıştır.(Appendix-1-2-3)

deney grubundaki öğrencilerin sözcük öğrenmelerinde ve uzun süreli akılda tutmalarında olumlu etkisini ortaya çıkarmıştır.

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**ABBREVIATIONS**

MIT	:	Multiple Intelligence Theory
MI	:	Multiple Intelligences
STM	:	Short Term Memory
LM	:	Long Term Memory

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0. INTRODUCTION**

In this chapter, the aim is first to present a brief discussion of some basic literature concerning the traditional approach to the study of intelligence and the Multiple Intelligences Theory, and then to state the purpose of the study, and research questions. This chapter also embodies the assumptions and limitations of the study in addition to the organization of the thesis.

#### **1.1. BACKGROUND OF THE STUDY**

In 1904, at the beginning of the 20<sup>th</sup> century, the French psychologist and the first important person of the traditional view of intelligence, Alfred Binet and his friends developed a means of determining which primary school students were 'at risk' for failure in Paris. These students attracted their attention and as a result, they spent effort to constitute the first intelligence tests. After several years, the tests they prepared began to be used in the United States and they became widespread everywhere in the world, and it was claimed that there was something called 'intelligence' that could be measured and reduced to a single number or 'IQ' (intelligence quotient) score (Armstrong, 2000: 1).

According to the claim made by Binet intelligence is a general ability which helps individuals to act in his life and it can be measured reliably with standardized tests. The results of the tests label the students and help the educators to predict their school achievement, and those tests measure primarily verbal, logical- mathematical, and some spatial intelligence (Gardner, 1999).

Intelligence has been defined by many researchers for many years. One of these researchers Calvin (1998) claims that there is no universal definition and every

body may have different comments about intelligence since it is an open-ended term (cited in Sezginer, 2000:12).

In 1980s, Howard Gardner, a psychologist and Professor at Harvard University's Graduate School of Education, explains the seven intelligences in 'Frames of Mind' (1983) in his book for the first time. He states that there are at least seven intelligences and suggests a new definition and a new approach to the educational notion and assessment, since different people have different lives and different professions. The theory of multiple intelligences suggests that there are a number of distinct forms of intelligence that each individual possesses in varying degrees.<sup>2</sup>

Gardner states that, 'intelligence, is the ability to solve problems, or to create products, that are valued within one or more cultural settings' (Gardner, 1983:60). He expresses that all human beings possess all intelligences in varying amounts, each person has a different intellectual composition, teachers can improve education by addressing the multiple intelligences of the students, these intelligences are located in different areas of the brain and can either work independently or together, and these intelligences may define the human species. He also emphasizes the cultural context of multiple intelligences. Each culture tends to emphasize particular intelligences such as logical-mathematical, verbal-linguistic, interpersonal, visual-spatial, etc.

Lazear (2000) explains that people have the ability to develop their intelligences and he adds that every person can learn to be more intelligent if s/he discovers how to activate his/her abilities and learn more about his/her level of

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<sup>2</sup> More recently he added 'naturalistic' and 'existential' intelligences to this list. The study will be based on the seven types of intelligence. The naturalistic and existential intelligence types will not be taken into consideration as our study is limited to the teaching of some basic vocabulary items.

capacity. This is also supported by several researchers that an individual can change, improve and develop his intelligence which he is born with.

Gardner (1983) claims that individuals can enhance their educational alternatives and opportunities easily if their intellectual profiles are identified at an early age. Individuals have the chance to improve each type of intelligence to a reasonable level of competency and all types of intelligence can exist together in the same person in complex ways.

In an interview with Ronnie Durie (1997), Gardner states how teachers should capitalize on the variations of intelligences in individuals. He suggests that teachers should pay attention to the differences among kids and try to use that knowledge to personalize instruction and assessment. He says teachers should not label kids as ‘spatial, but not linguistic’ or, for that matter, ‘linguistic, but not spatial.’ Gardner suggests that the intelligences are categories that help us to discover difference in forms of mental representation; they are not good characterizations of what people are (are not) like.

Gardner (1993) thinks that, ‘intelligence is a biological and psychological potential’. And this potential rearranges the effects of individual’s experiences, visions, culture and motivation. He mentions there are many kinds of intelligences which are the important characteristics of a person’s capabilities and also include visual/ spatial, bodily/ kinesthetic, musical interpersonal and intrapersonal intelligences. Gardner’s Multiple Intelligence Theory calls into question the traditional concept of intelligence. He believes that intelligence requires the ability to ‘solve problems or fashion products’ that are effect in a particular cultural setting or community. MI theory is built with the biological origins of each problem solving skill.

Some people wonder why Gardner calls these categories, especially musical, spatial, and bodily- kinesthetic as intelligences, not ‘talents’ or ‘aptitudes’. Gardner (1983) says that people always use these terms and say, ‘He is not very intelligent,

but has a wonderful aptitude for music.’ Thus, he uses ‘intelligence’ to stress and describe these categories. In an interview Gardner states:

‘I’m deliberately being somewhat provocative. If I’d said that there are seven kinds of competencies, people would say ‘yeah, yeah.’ But by calling them ‘intelligences’, I’m saying what we’ve tended to put on a pedestal one variety called intelligence, and there’s actually a plurality of them, and some are things we’ve never thought about as being ‘intelligence’ at all.’ (Weinreich- Haste, 1985: 48 cited in Armstrong, 2000: 3).

Armstrong (1994) points out that the terms like ‘strong intelligence’ and ‘weak intelligence’ should not be used to describe individual differences among a person’s intelligences, because a person’s ‘weak’ intelligence may actually become her strongest intelligence, once given the chance to develop it. He claims that the development of intelligences depends on three main factors:

- \* Biological endowment, including hereditary or genetic factors and insults or injuries to the brain before, during, and after birth.
- \* Personal life history, including, experiences with parents, teachers, peers, friends, and others who either awaken intelligences or keep them from developing.
- \* Cultural and historical background, including the time and place in which you were born and raised and state of cultural or historical developments in different domains (Armstrong, 1994: 57-58).

Armstrong (1989) expresses that children who are good with ‘words’ and ‘logic are best students for teachers; teachers do not much recognize children who are good at dancing, art, music, social relations, intuition, drama, nature and other areas of self expression. However, the result of Armstrong's research is that many children with abilities in these neglected intelligences are tend to be labeled as "learning disabled" or ADHD (attention deficit hyperactivity disorder.) if they aren't able to perform adequately on assigned worksheets and pop quizzes.

Howard Gardner first identified and introduced the seven different kinds of intelligence in *Frames of Mind* (1983). They can be summarized as follows:

- **Linguistic** intelligence: sensitivity to the meaning and order of words.



- **Logical-mathematical** intelligence: ability in mathematics and other complex logical systems.
- **Musical** intelligence: the ability to understand and create music. Musicians, composers and dancers show a heightened musical intelligence.
- **Spatial** intelligence: the ability to "think in pictures," to perceive the visual world accurately, and recreate it in the mind or on paper. Spatial intelligence is highly developed in artists, architects, designers and sculptors.
- **Bodily-kinesthetic** intelligence: the ability to use one's body in a skilled way, for self-expression or toward a goal. Mimes, dancers, basketball players, and actors are among those who display bodily-kinesthetic intelligence.
- **Interpersonal** intelligence: an ability to perceive and understand other individuals - their moods, desires, and motivations. Political and religious leaders, skilled parents and teachers, and therapists use this intelligence.
- **Intrapersonal** intelligence: an understanding of one's own emotions. Some novelists and or counselors use their own experience to guide other.

At all levels of education, all these types of intelligences should be taken into consideration while educating learners.

## 1.2. PURPOSE OF THE STUDY

The purpose of this study is to focus on the use of Multiple Intelligences (MI) activities after the presentation of language items. Therefore, this study revolves around involving activities in language teaching in general, vocabulary learning in particular, rather than employing traditional methods<sup>3</sup> of teaching. In other words, the study examines the significance of the way of teaching rather than the decision as to what to teach.

In order to test the effects of MI activities on vocabulary learning and retention in elementary classes, the following research question has been designed:

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<sup>3</sup> The term, 'traditional method' is used to indicate the usual way of teaching vocabulary in ELT classes. In a procedure based on the traditional method, the focus is generally on the form.

***Research Question: Are the Multiple Intelligence activities effective on the learning and the retention of the vocabulary items?***

This study aims to seek answers to the following sub-research questions:

**Sub-research Question 1:** Are there any differences between the immediate post test results of the control group and those of the experimental group?

**Sub-research Question 2:** Are there any differences between the delayed post test results of the control group and those of the experimental group?

**Sub-research Question 3:** Are there any differences between the immediate post test results and the delayed post test results of the experimental group?

**Sub-research Question 4:** Are there any differences between the immediate post test results and the delayed post test results of the control group?

**Sub-research Question 5:** Are there any differences between the girls and the boys in the control group with respect to the results of the immediate post test?

**Sub-research Question 6:** Are there any differences between the girls and the boys in the control group with respect to the results of the delayed post test?

**Sub-research Question 7:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the immediate post test?

**Sub-research Question 8:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the delayed post test?

### **1.3. SIGNIFICANCE OF THE STUDY**

MIT gained prominence recently in education in Turkey. Even if the teachers are curious about MIT activities and their effects, they do not willingly use them in the classroom.

This study aims to find out the effects of the MIT activities and the results which will hopefully be a useful reference to many language teachers especially working with this age group and give ideas how the MIT classes differ from traditional classes.

The importance of this study emerged from the fact that there was no research on teaching vocabulary via multiple intelligences.

In addition, the notification of Ministry of Education about teaching all courses by means of multiple intelligences revealed that there was a grave lack of use of multiple intelligences in the field of language teaching in Turkey.

Therefore, this study aims to find out the effectiveness of multiple intelligences activities on the retention of the vocabulary items and to provide possible answers as to how they affect pupils' learning abilities in English and by answering the given question.

The results of the study can also be a useful contribution to the research carried out in this field and help those who are interested in MI activities and their effects on language teaching in schools.

#### **1.4. ASSUMPTIONS OF THE STUDY**

This study is carried out with a number of assumptions. It is assumed that participants that are in the same age group nearly have the same cognitive and physical abilities; and the fact that they are coming from different social classes is not considered very important.

It is also assumed that the findings of this study will reflect the effects of MIT activities. All participants are assumed to be conscious in matching the lexical items in the tests.

Finally, it is assumed that all of the participants were motivated to learn English and to expend their vocabulary knowledge.

### **1.5. LIMITATIONS OF THE STUDY**

This study is limited to the fourth graders of two classes of the Manisa Saruhanbey Primary School which has been carried out in the 2004-2005 school year. The school has been chosen since the teacher works there. The efficacy of the MI activities should also be tested in other schools, cities or countries.

### **1.6. ORGANIZATION OF THE STUDY**

This study includes six chapters. Chapter One presents an introduction, background of the study, the purpose of the study and the research questions. Furthermore, this chapter presents the significance, assumptions and limitations of the study and the organization of the whole study. In Chapter Two, the Multiple Intelligence Theory and the strategies in teaching and the studies on MIT are reviewed. Teaching Vocabulary and Memory are explained in Chapter Three briefly. Chapter Four is the methodology chapter in which the methodology followed in the study described. In Chapter Five, the findings and discussion are stated. Conclusion and suggestions are given in Chapter Six.

### **1.7. SUMMARY OF THE CHAPTER**

This chapter briefly discusses some basic literature on MIT. The purpose of the study is pointed out and followed by the research questions. The assumptions and limitations of the study are discussed in separate sections. Finally, the organization of the thesis is submitted.

In the second chapter, intelligences and the strategies will be discussed.

## **CHAPTER TWO**

### **INTELLIGENCES AND MULTIPLE INTELLIGENCE THEORY (MIT)**

#### **2.0. INTRODUCTION**

This chapter aims to summarize the multiple intelligences and also presents the strategies and the studies on MIT.

#### **2.1. MULTIPLE INTELLIGENCES AND THE STRATEGIES**

##### **2.1.1. VERBAL-LINGUISTIC INTELLIGENCE**

Verbal-Linguistic Intelligence involves the development and the use of both the linguistic and the communicative competence. It includes verbal skills and sounds, meanings and rhythms of words (Armstrong, 1994). It is the capacity that makes people use lexical and grammatical items effectively and express themselves both in speech and writing as well as understanding what they hear and see (Gardner, 1993). It involves all language skills; ‘speaking, writing, reading, listening and understanding’ (Lazear, 2000). It allows people to understand the meanings of the words and the syntactic structures of sentences and to apply ‘metalinguistic’ skills to reflect on the use of the language. This ability is most shared competence and seen in ‘poets, novelists, journalists, and effective public speakers’ (Campbell, 1994).

Gardner (1983) does not consider linguistic intelligence as an auditory-oral form or intelligence as he claims that deaf people develop a gestural system for communication. By linguistic intelligence, he means the linguistic competence that can be manifested in different forms which enable human beings to communicate. He expresses his claim as follows:

...yet I have taken care not to term this capacity as an auditory-oral form of intelligence. There are two reasons. First of all, the fact that deaf individuals can acquire natural language-and can also devise or master gestural systems-serves as decisive proof that linguistic intelligence is not simply a form of auditory intelligence. Second, there is another form of intelligence, with a history of equal longevity, and

autonomy of equal persuasiveness, which is also tied to the auditory-oral tract (Gardner, 1983:98).

Yavuz and Aydınoglu (2004) summarize the linguistic intelligence considering its place in ELT as follows:

Linguistic intelligence relates to the ability to use language effectively; it involves the selection of lexical items, the production of well-formed sentences and their arrangement in discourse for the expression of ideas and feelings. This ability also helps to acquire various languages easily. It is believed that linguistic intelligence is high in lawyers, editors, authors, poets, interpreters and orators. A learner with strong linguistic intelligence, who is good at memorizing language items, learns best by hearing, saying, reading and writing language expressions.

Elaborating what is meant by the linguistic intelligence, Lazear (2000:31-32) describes an inventory of the core capacities comprising the following:

**1-**The capacity to understand the order and meaning of words is the very complex process of grasping word meanings in a given context and knowing how to shift both meaning and context by rearranging words.

**2-**Explaining, teaching, and learning mean being able to give accurate verbal or written instructions to another and being able to follow such instructions given to you. This capacity involves not thoroughly understanding what you are trying to explain or teach, but also understanding what another will hear and understand in your instructions.

**3-**Linguistically based humor deals with such things as plays on words (puns) and the plays with words (the story with the surprise ending, riddles, jokes that usually involve various 'twists' of the language or misunderstood words and phrases, limericks, double-meanings, and so on). Also involved is understanding of the setting in which something is funny. The socio-cultural context of humor is important to understand; something that is funny in one situation may be an insult another.

**4-**It involves the development of great sensitivity to the subtle meanings of the language and the sounds and rhythms of speech, as well as an understanding of the linguistic context of the listener. It involves an understanding of emphasis in speaking to underscore the most important parts of your communication. It is the ability to use the spoken and written word to influence and motivate people.

**5-**The capacity of memory and recall is the ability to access verbally stored information from the brain's short-term and long-term memory, which involves a wide variety of techniques specific to an individual.

**6-**Possibly one of the most interesting and profound aspects of this intelligence is its capacity to engage 'metalinguistic' analysis. This unique ability is the use of language to investigate language.

As can be inferred from the aforementioned quotation, linguistic intelligence involves the ability to acquire language by learning the speech sounds, storing and retrieving lexical items, learning to apply the (Universal Grammar) principles and parameters to the language being acquired, building up macro-language skills such as listening, speaking, reading, writing and to use language as a means of communication and interaction by developing communicative competence.

This intelligence is the easiest to develop as great attention has been given to it in schools (Armstrong, 1994). Education requires the use of this intelligence and as a result, learners have more chance to develop linguistic competence.

There have been several attempts to apply the MI theory to the foreign language teaching. As a result of these attempts, a foreign language teaching method based on the principles of MI has been designed. Berman (1998), who is concerned with the use of MI in language teaching, proposes general activities for linguistic students in ELT classes. These activities can be applied at any level or can be capitalized on for the development of additional activities by the ELT teachers. They can also be adapted for use in class to meet the needs of the language learners. The sample activities proposed by Berman (1998) are listed below:

- Group discussions
- Completing worksheets
- Giving presentations
- Listening to lectures
- Reading

- Wordbuilding games
- Storytelling (Berman, 1998: 4)

Berman (1998) assumes that storytelling is the ideal means of providing the students with the chance to develop this intelligence, since storytelling is an oral tradition and has contributed to the creation of the great epics, chants, songs, poems, fables, myths, and fairy and folk tales that have been passed on from one generation to the next.

Armstrong (1994) also gives emphasis to storytelling and states that it has been in cultures all over the world for thousands of years and seen as an entertainment during some special times in the classrooms. It should be used as a vital tool and important strategy in education. He also suggests 'Brainstorming, Tape Recordings, Journal Writing, and Publishing' strategies which allow students to share and show their thoughts, feelings, comments, and ideas with writing or speaking activities.

Among all the above activities, storytelling, which has been used to pass information from one generation to the next, is given special emphasis as it is considered to be the ideal means of providing the learners with the chance to improve this intelligence.

For the development of this intelligence, diverse strategies and classroom activities have been suggested. It is worth mentioning Campbell's ten linguistic strategies for use in education (1994:41):

1. For five minutes, students do "quick writes" reacting to lesson information.
2. Students tell stories of how they apply ideas from any discipline to their lives outside of school.
3. To practice accuracy in communication, pairs of students listen to each other giving directions for an assignment.
4. To learn vocabulary for any topic, students create crossword puzzles.
5. Students debate diverse perspectives of any issue.



6. Student describe in writing the" most meaningful content they have studied.

7. In small groups, students give impromptu, one minute presentations to each "other on topics of the teacher's choice drawn from current lessons.

8. When reading classroom material, students review each page by creating keywords or phrases for the content of that page.

9. Student's create mini-talk show programs where they pose as junior experts on classroom topics.

10. Using a word that represents a major concept, such as interdependence, students write a phrase with each letter of the word to explain its meaning.

### **2.1.2. LOGICAL-MATHEMATICAL INTELLIGENCE**

Logical-Mathematical Intelligence is the intelligence to use numbers effectively (Gardner, 1993). It is the ability that makes people calculate measure, use logic, and solve math and science problems and affect the social sciences and humanities. It is seen in 'scientists, mathematicians, accountants, and detectives' in general (Campbell, 1994). It includes sensitivity to logic patterns and relationships, statements and prepositions, functions. 'Categorization, classification, inference, generalization, calculation, and hypothesis' testing are the process of logical-mathematical intelligence (Armstrong, 1994). This intelligence allows people to develop the capacity to recognize familiar objects in pictures and to pick them out of pictures containing many other objects that are unfamiliar and visualize and imagine these objects when they are not actually physically present. When people acquire the language, they also obtain abstract verbal symbols that stand for concepts developed as a result of one's experience with the real world. The development of these symbols serves to improve logical- mathematical intelligence (Lazear, 2000).

Yavuz and Aydinoğlu (2004) summarize the logical- mathematical intelligences in ELT as follows:

Logical-mathematical intelligence relates to the ability to use numbers and logic effectively. It helps to measure and calculate, to find solutions to problems, to understand 'cause and effect' relationships to make predictions. Mathematicians, scientists, doctors, programmers, engineers and detectives score higher in this

intelligence. A learner with strong logical-mathematical intelligence is good at inductive and deductive reasoning. S/he learns best by classifying, working out relationships, and problem solving, etc.

To clarify the characteristics of this intelligence, it is beneficial to have a look at the inventory of the core capacities that comprise the logical intelligence suggested by Lazear (2000:27-28).

**1-**Abstract pattern recognition is the capacity to discern patterns in the environment around you.

**2-**The capacity of inductive is the logical thought process that moves from the part to an understanding of the whole.

**3-**The capacity of deductive reasoning is the logical thought process that moves from the whole to an understanding of the parts.

**4-**Developing your capacities to discern relationships and connections will help you sort through and make sense out of the increasingly complex data that bombard you everyday.

**5-**The capacity performing complex calculations is the area most of us have traditionally and probably associated exclusively with logical-mathematical intelligence.

**6-**Scientific reasoning is a capacity that is no way limited to pure scientific pursuits! The basic scientific method is the process of observing, judging, weighing up, deciding, and acting.

It was the concern of applied linguists to adapt the MI activities to the foreign language education. To exemplify this, the following activities for use in ELT classes are given (Berman (1998:4) :

- Logic puzzles
- Logical-sequential presentations
- Problem solving
- Guided discovery (Berman, 1998: 4)

Armstrong (1994) mentions that ‘Calculations and Quantifications, Classifications and Categorizations, Socratic Questioning, Heuristics, Science Thinking’ strategies make students think and talk about subjects both inside and outside the math and science areas. Their perspectives and critical thinking skills are enriched with these activities.

Diverse strategies and classroom activities can be capitalized on for the development of this intelligence. Campbell lists ten logical-mathematical strategies as follows (1994:43):

1. When given a problem, students plan strategies for ways to solve the problem before attempting its resolution..
2. Students are asked to discern patterns or relationships in lesson contents.
3. When offering solutions to any problem, students must provide logical rationale to support their answers.
4. Students create or identify categories for sorting diverse data.
5. To extend classroom learning, students conduct surveys and analyze data on topics that they or the teacher have selected.
6. Working in pairs, students make up story problems involving lesson content.
7. Students engage in discussions which include higher level thinking skills, such as comparing and contrasting, providing cause and effect answers, analyzing, hypothesizing, and synthesizing information.
8. As an independent or small group project, students employ the scientific method to answer a question they have about a classroom topic.
9. Students study units focused on math and science themes such as probability, symmetry, randomness, and chaos.
10. Students use a variety of organizers to enhance logical thinking, such as outline charts, Venn Diagrams, flow charts, and mindmaps.

### **2.1.3. BODILY- KINESTHETIC INTELLIGENCE**

Bodily- Kinesthetic Intelligence is the intelligence to use body to express ideas and feelings with great skill (Gardner, 1993). It is the ability that makes people produce and transform things by means of their hands, this intelligence includes specific physical skills; ‘coordination, balance, dexterity, strength, flexibility, and speed’ (Armstrong, 1994). People with the bodily-kinesthetic intelligence use physical skills to express themselves. It is generally used by ‘dancers, athletes, surgeons, jugglers, and craftspeople’ (Campbell, 1994). This intelligence takes place in most parts and situations of the life. It enables people to act in their lives; learning to operate within the language system, dialing a number with their hands, crossing streets with their feet etc. Bodily- Kinesthetic Intelligence related to physical

movement involves such things as ‘drama, mime, dance, gesture, facial expressions, role-play, body language, posture, physical exercise, and physical games’ (Lazear, 2000).

Yavuz and Aydinoğlu (2004) summarize this intelligence and its implications for ELT as follows:

Bodily-kinesthetic intelligence relates to the ability to use the body effectively. People with the dominance of this intelligence are also characterized by their dexterous use of their hands and fingers. Craftspeople, sportspeople, surgeons and dancers are said to have this type of intelligence. A learner with strong bodily-kinesthetic intelligence, who is good at physical activities, learners best if s/he is provided with opportunities for physical challenges. The Total Physical Response techniques can be catered for this type of intelligence.

Lazear (2000:23-24) describes an inventory of the core capacities that comprise the bodily-kinesthetic intelligence as follows:

**1-**Remember when you were a kid and you would practice rubbing your stomach and patting your head at the same time, then switch to rubbing your head and patting your stomach? This skill is sometimes called multitasking and is the capacity to learn to control voluntary body movements.

**2-**Some of our body movements were at one time carefully and methodically learned and practiced but are today second nature to us, such as walking, riding a bike, driving a car, and so on. Learning to control these pre-programmed body movements is one of the capacities of strengthening your bodily-kinesthetic intelligence.

**3-** Expanding awareness through the body is the capacity of learning to listen to and trust the body. In many ways the body is like a complex radar station that gives us invaluable feedback about what is happening in the external world; for example.

**4-**This capacity is establishing a strong mind-body connection.

**5-**Such people as Marcel Marsceau and Red Skelton perfected this capacity, called mimetic abilities, which includes capacity to mime, to role-play, and to act dramatically.

**6-**The final bodily-kinesthetic capacity is improved body functioning. With bodily-kinesthetic intelligence, almost more than any of the other intelligences, practice makes perfect (or at least improvement).

Campbell (1994:44) states strategies for bodily-kinesthetic intelligence as follows:

1. Students role play any process such as photosynthesis, making a bill into a law, solving a quadratic equation, or the earth's orbit around the sun.

2. Working together, with small blocks, toothpicks, legos, or popsicle sticks, students build models of molecular chains, famous bridges, or towns in history or literature.

3. Teachers can provide quick exercise breaks with simple calisthenics, Tai Chi or yoga stretches, an active game of Simon Says, or even a jog around the playground..

4. In small groups, students can create large floor games that cover important concepts being studied.

5. Student can enact simulations, such as groups representing countries with different resources to trade, or pioneers addressing the challenges of the frontier. .

6. Teachers can create "scavenger hunts" as one way for students to gather information on particular topics.

7. Regardless of the content, teachers may provide manipulatives for students to use to solve math problems, create patterns for art work, build replicas of cells or systems, or make storyboards for language and writing experiences.

8. To extend classroom learning into the community, students go on field trips.

9. Students learn physical skills like juggling, dancing, balancing, rope jumping, climbing, hula-hooping, bowling, throwing, catching, or working with tools of various kinds.

10. Students pantomime what they have learned from a day's lesson.

Berman (1998) points out that the activities are the ideal way of getting students out of their seats. When the students move around the classroom, they provide effective ways of practicing and using the target language. The repetition of movements is also thought to be useful, since kinesthetic students learn through movements. He identifies four activities which are designed for those students who learn through kinesthetic ways. It is easy to apply these kinesthetic activities in ELT classes.

- Circle dancing
- Brain gym
- Relaxation exercises
- Craftwork (Berman, 1998:4)

Armstrong (1994) describes some strategies such as ‘Body Answers, the Teacher Theatre, Kinesthetic Concepts, Hands-on Thinking, Body Maps’ carried out for those students who have bodily- kinesthetic intelligence. These strategies can be varied in many activities which make students respond to instruction by using their bodies, and bring out the performer in students and translate their knowledge from linguistic or logical systems into pure body language.

#### **2.1.4. VISUAL- SPATIAL INTELLIGENCE**

Visual- Spatial Intelligence is discovering the visual-spatial world accurately and learning to speak with visual symbols. People, who have highly visual-spatial intelligence think in pictures, see and create images or designs with shape, color, and size (Gardner, 1993). It is the ability to perform transformations in visual view or symbols. This intelligence involves ‘sensitivity to color, line, shape, form’, and the ‘relations that exist between these elements’ and includes the capacity ‘to visualize, to graphically represent visual or spatial ideas, and to orient oneself’ appropriately in a spatial situation (Armstrong, 1994). It enriches students’ ‘mental imagery, spatial reasoning, images manipulation, graphic and artistic skills, and an active imagery. Painters, architects, sculptures, sailors, and pilots mostly use this intelligence in their lives (Campbell, 1994). The visual-spatial intelligence is the first intelligence which the brain uses, since it naturally thinks in images and pictures before attaching the words (Lazear, 2000).

Yavuz and Aydınoğlu (2004) summarize the visual-spatial intelligence in ELT as follows:

Visual-spatial intelligence relates to the ability to perceive and create forms, shapes, designs and colors. This heightens the ability to form mental images. Painters, sculptures, architects, decorators, sailors and pilots possess high visual-spatial intelligence. A learner with strong spatial intelligence learns best by visualizing concepts, using the mind’s eye, and working with pictures and diagrams.

To exemplify this ability, Lazear (2000:21-22) describes an inventory of the core capacities that comprise the visual-spatial intelligence as follows:

1- Remember when you were a kid and you would lie on your back and look up at the clouds and find animals, faces, objects, and different scenes? This capacity is called active imagination.

2- Forming mental images are the capacity to picture things inside your head. You use this capacity when you are trying to remember where you parked your car, where you last used your glasses when you can't find them, or when you are reading a novel and you create mental images of what is on the written page.

3- How good are you at following directions for getting from one place to another? Some people are never lost! Others are never found! The capacity for finding your way in space is one of the spatial skills of visual-spatial intelligence.

4- Graphic representation is the capacity to create visual illustrations to enhance communication of an idea, concept, emotion, process, or intuition. This capacity includes such things as photography, sculpture, drawing, painting, videos, and collages.

5- Another spatial capacity is recognizing relationships between objects in space. How good are you at parallel parking a car? Can you "sink" a basketball into the hoop more times than not? When playing chess or checkers, can you see the whole board and plan your next move in light of this?

6- When you are looking at an 'optical illusion' such as the classic two faces that are also a vase, or the old woman who is also a beautiful socialite, can you mentally make these images shift back and forth? This capacity is called mental manipulation of images.

7- The capacity of accurate perception from various angles is the very complex, often taken-for-granted, ability to recognize similarities and differences between objects from very different vantage points.

Berman (1998) compiles five activities for use in ELT classes for those students who use their spatial intelligence.

- Charts
- Minds maps
- Visualizations
- Diagrams
- Videos (Berman, 1998:4)

Armstrong (1994) maintains five strategies designed to activate the spatial intelligence. 'Visualization, Color Cues, Picture Metaphors, Idea Sketching and Graphic Symbols' require students to create graphic symbols that represent the

concepts to be learned and to transform their knowledge or thoughts in images and pictures. These kinds of strategies enhance students' visual thinking.

The following are the strategies (Campbell, 1994:46) that can be exploited in order to enhance visual-spatial intelligence:

1. Students might experiment with imagery to mentally rehearse performing well on a test, speaking in front of the class, or successfully resolving a conflict.
2. Students create a pictorial representation of what they have learned from a unit of study such as a chart, drawing, or mindmap.
3. Working independently or with a partner, students create a visual collage to display facts, concepts, and questions they have about a recent unit of study.
4. With access to computer graphics and page-layout programs, students illustrate their lessons.
5. Students diagram the structures of interconnecting systems such as body systems, economic systems, political systems, school systems, or food chains. .
6. To communicate their understanding of a topic, students create flow charts, bar graphs, or pie charts.
7. Working in small groups, students create videotape or photograph projects.
8. To work with three-dimensional activities, students design costumes or sets for literature or social studies, tools or experiments for science, and manipulatives or new classroom or building designs for math.
9. Students create mobiles or design bulletin boards.
10. To demonstrate their understanding of a topic, students use color, shape, or rebus-type images in their papers.

### **2.1.5. MUSICAL INTELLIGENCE**

Musical Intelligence is the ability which provides people expressing and transforming their feelings, thoughts, and knowledge in musical forms (Gardner, 1993). It enables students to 'recognize, create, reproduce, and reflect' on music. 'Composers, conductors, musicians, vocalists, and sensitive listeners' exhibit musical intelligence (Campbell, 1994). Musical intelligence consists of 'sensitivity to rhythm, pitch or melody, and timbre or tone color of a musical piece' (Armstrong, 1994). Lazear (2000) uses the term 'auditory-vibrational intelligence' to illustrate the musical intelligence. He believes that it is really dealing with the whole areas of



sound, vibration, tones, and beats, and so on. He claims that from the neurological perspective, it is the first intelligence to develop.

Yavuz and Aydınoğlu (2004) explain how to make use of the musical intelligence in ELT as follows:

Musical intelligence relates to the ability to hear and produce pitch, rhythm, tone and melody. People with musical intelligence distinguish themselves as musicians, composers and singers. A learner with strong musical intelligence is good at picking up sounds, noticing stressed syllables and identifying diverse intonation patterns. S/he can learn a language more easily in an environment where there is music and where songs are utilized.

Lazear (2000:34-35) explains the characteristics of the musical intelligence as follows:

**1-**The evocative power of music and rhythm is very profound. Certain kinds of music and rhythm can calm us, energize us, and make us feel anxious, and so on. Developing an appreciation for the structure of music and rhythm and its affective qualities is one of the ways to strengthen your musical-rhythmic intelligence.

**2-**We have certain schemas or frames for hearing music in our minds. We make conscious and unconscious connections with various kinds of music and rhythm.

**3-**Sensitivity to sounds deals with "turning up" our hearing capacities and learning to process the wide variety of auditory stimuli that have an impact on us every day of our lives.

**4-**Recognition, creation, and reproduction of melody, rhythm, and sound comprise the capacity to repeat accurately or mimic a tonal or rhythmic pattern produced by another person.

**5-**The capacity for utilizing various characteristic qualities of tones and rhythm as a way to enhance and deepen communication is a powerful aspect of this intelligence.

The following are three examples of the MI activities designed to develop the musical intelligence for use in an ELT class:

- Songs
- Jazz Chants
- Background music (Berman, 1998:4)

Campbell (1994:48) suggests the following ten strategies that can be made use of for the development of musical intelligence.

1. Teachers play background music to relax students or to focus their attention at various times during the day.
2. To review information, students compose curriculum songs: replacing the words to well-known songs with content information.
3. Students make their own rhythm instruments to use with curriculum songs or recitations of arithmetic facts, spelling words, or sets of roles or facts.
4. Students select a song and explain how its lyrics relate to a lesson's content.
5. For students with access to musical software, rhythmic accompaniment can be added to multimedia reports and presentations.
6. Students select appropriate background music for book reports or other oral presentations.
7. To demonstrate patterns in mathematics, nature, and the visual arts, students use musical selections that are patterned and repetitive.
8. To become knowledgeable in any subject area, students listen to and analyze pre-recorded songs about the content areas.
9. Students analyze music to understand concepts such as relationships of parts to wholes, fractions, repeating patterns, timing, and harmony.
10. Students use musical vocabulary as metaphors such as crescendo for the climax of a short story; two-pan harmony for interpersonal relations; or cadence for physical exercise.

#### **2.1.6. INTERPERSONAL INTELLIGENCE**

Interpersonal Intelligence is the capacity to detect and respond appropriately to the moods, motivations and desires of others (Gardner, 1993). This intelligence includes 'sensitivity to facial expressions, voice, and gestures'. It is the 'capacity for discriminating among many different kinds of interpersonal cues, and the ability to respond effectively those cues in some pragmatic way' (Armstrong, 1994:2). There is nothing wrong with competition or individualism if they are thought in a wise and reasonable situation however, the interpersonal capacities are completely different from them (Lazear, 2000). Students with highly interpersonal intelligence enjoy working with others and enter into their inner world and understand their viewpoints (Lazear, 2000). Teachers, social workers, actors, and politicians mostly use this intelligence (Campbell, 1994).

Yavuz and Aydınoğlu (2004) summarize the interpersonal intelligence in ELT as follows:

Interpersonal intelligence relates to the ability to interact and cooperate with other people effectively. It sharpens the sense to understand how the others feel, what they intend to do. Leaders, politicians, teachers, and actors exhibit a high level of interpersonal intelligence. A learner with strong interpersonal intelligence learns best in an environment where pair work and group work activities are capitalized on and where language is used for real exchanges.

Lazear (2000:36-37) describes the characteristics of interpersonal intelligence as follows:

**1-**The capacity of effective verbal and nonverbal communication with others goes way beyond the simple meanings of the words we use. Think about times when someone's body language or the tone and rhythm of voice were out of synch with what they were saying.

**2-** The capacity to accurately read others' moods, temperaments, motivations, and feelings is a key to effective and meaningful interpersonal encounters.

**3-** The capacity of working cooperatively in a group deals with learning how to do your part and allowing others to do theirs for the sake of the group goal.

**4-** In everyday communication, we often miss what another is saying because our own internal mind chatter gets in the way. Listening to another's perspective is the capacity to listen fully and deeply to another, and to shut off temporarily the inner mental commentary, planning our comments or rebuttal, or thinking about a witty response to what is being said.

**5-**Passing into the life of another is the capacity to empathize with another's perspective, feelings, values, and beliefs, especially when they are somewhat foreign to our own. This capacity does not necessarily mean agreeing with the other's perspective. But it does mean understanding and appreciating the other perspective.

**6-** Recall times when you were part of a group effort and the final product was greater than the mere sum of the individual contributions of the various members of the group. This is called synergy (from the Greek syn and ergos), which means a "spontaneous working together." The capacity to create and maintain synergy in a group is one of the capacities of interpersonal intelligence.

Berman (1998) gives four sample activities based on the interpersonal intelligence to be used in an ELT class:

- Group Work

- Brainstorming
- Pairwork
- Peer Teaching (Berman, 1998:4)

Berman (1998) claims that pair and group work provide opportunities for communication and co-operation. On the other hand, teachers should not force students to work in pairs or groups because their aptitudes and opinions are important in these kinds of activities.

Armstrong (1994) proposes five strategies that awaken students' interpersonal intelligence such as 'Peer Sharing, People Sculptures, Cooperative Groups, Board Games', and 'Simulations' that serve to develop a good rapport between students and provide collaborate learning.

Campbell (1994:50) suggests ten interpersonal strategies as follows:

1. Working in cooperative groups, students teach each other parts of a lesson. Each student is responsible for teaching only one part, while everyone learns the whole lesson collaboratively.
2. To develop the ability to resolve disputes and negotiate conflicts, students practice conflict resolution techniques with either simulated or actual problems
3. Students practice critiquing one another's work to learn how to give and receive feedback.
4. To build collaborative skills and to share each others areas of expertise, students work on group projects together, each assuming a role according to his or her- strengths.
5. Students engage in school or community service activities to develop values such as empathy, respect, altruism, and sharing.
6. To understand others and appreciate differences, students study diverse cultures, including customs, beliefs and values.
7. Use the "Think-Pair-Share" technique to engage students in reflecting upon a class topic and then discussing their thoughts with a partner.
8. To understand differing points of view, students assume various positions and debate a complex issue.
9. Students interview persons with special talents to learn about their areas of specialty as well as how to interview others effectively.
10. To learn from the expertise of others, students work as apprentices with community experts.

### 2.1.7. INTRAPERSONAL INTELLIGENCE

Intrapersonal Intelligence is the capacity to be self-aware and understand their inner world, feelings, values, beliefs, and thinking process (Gardner, 1993). This ability helps people understand who they are in the world. Psychologists, spiritual leaders, philosophers, and playwrights use this intelligence (Campbell, 1994). It is the ‘least valued’ and ‘least understood’ of these intelligences, because societies mostly support the verbal-linguistic and logical-mathematical intelligences (Lazear, 2000). Intrapersonal intelligence consists of ‘having an accurate picture of oneself’ and ‘self-discipline, self- understanding and self-esteem’ (Armstrong, 1994).

Yavuz and Aydınoğlu (2004) summarize the intrapersonal intelligence in ELT as follows:

Intrapersonal intelligence relates to the ability to know and control oneself and his/ her talents and limits. Philosophers, psychologists, and playwrights are said to utilize this intelligence. Learners with strong intrapersonal intelligence learn best if they work on their own. They are good at developing their learning styles and doing individualized projects.

Lazear (2000:38-39) states an inventory of the core capacities that comprise intrapersonal intelligence:

**1-**The capacity to concentrate is being able to bring the mind to a single point of focus and hold it there. Think about times when you really got caught up in a novel and were able to block out everything else going on around you.

**2-**Mindfulness is the exact opposite of mindlessness, but it is another capacity that falls under intrapersonal intelligence. So much of our lives are spent on automatic pilot, but this capacity is about training yourself to stop, pay attention, and appreciate the minute details of even the most mundane experiences.

**3-**Metacognition is the activity of thinking about thinking. Do you have inner conversations with yourself? Think about when you have a problem to solve: do you sometimes talk yourself through it? When you go to the store, do you talk to yourself about things you need to remember to pick up? Do you ever analyze your thinking with the hopes of improving it? Good news! This is not early senility setting in. it is metacognition!

**4-**Think about the mood swings of a normal day. Do you know what things tend to bring you a high and what brings you low? Developing your capacities of awareness and expression of various feelings helps you "get a grip" on this dynamic and take charge of your feelings rather than let them run you.

**5-**Transpersonal sense of the self is the capacity to identify and appreciate the self that goes beyond the self as an isolated, solitary entity unto itself. Yes, we are all individuals, but that is not the whole story! We are also part of other people and they are part of us, and we are part of the universe and it is part of us!

**6-**There are levels within levels within levels to our thinking/reasoning processes. Higher-order thinking and reasoning comprise the capacity to move your thinking consciously from "the facts ma'am, nothing but the facts" to an awareness of your thinking process itself to the higher-order ability to integrate learning and use it in everyday life.

Berman (1998) offers five activities that address to intrapersonal intelligence for use in an ELT class.

- Project Work
- Learner Diaries
- Reflective Learning Activities
- Self Study
- Personal Goal Settings (Berman, 1998:4)

Armstrong (1994) offers five strategies for intrapersonal intelligence. 'One-Minute Reflection Periods, Personal Connections, Choice Time, Feeling-Toned Moments, Goal Settings' can help students recognize their intrapersonal intelligence. According to him, teachers need to build in frequent opportunities during the day for the students to experience themselves as autonomous beings with unique life histories and a deep sense of individuality.

Campbell (1994:51) suggests ten intrapersonal strategies to be used by students:

1. At the beginning of a course, school year or semester, students establish personal short- and long-term learning goals.
2. Students maintain portfolios to evaluate their own learning.

3. Using schedules, timelines, and planning strategies, students choose and direct some of their own learning activities to gain autonomous learning skills.

4. Students keep daily learning logs where they express their emotional reactions to lessons as well as share any insights they have into the content.

5. Students explain why certain units of study are valuable for them both inside and outside of school.

6. Students select a particular value such as kindness or determination and incorporate that value into their behavior for a week at a time.

7. To enhance self-esteem, students practice giving and receiving compliments from one another,

8. At least once per quarter, students pursue an independent project of their choice spanning 2-3 weeks.

9. Students write autobiographies to explain how class content has enhanced their understanding of themselves.

10. Students use teacher feedback and self-assessment inventories to reflect on their individual learning, thinking, and problem-solving strategies.

## **2.2. THE STUDIES ON MIT**

In this part, some studies about MIT will be mentioned.

One of the studies about MIT is Demirel's (1998) which dealt with the effect of the multiple intelligences theory on a foreign language teaching. It was applied as an experiment on sixty two students in the Prep Class in Ankara University. The aim of the study was to determine the students' reactions to a lesson plan that stimulates MIT. For this reason, the students were separated into two groups, one of them was the experimental, and the other one was the control group. And the lesson plan was prepared according to MIT applied on the experimental group.

At the beginning, each group was given a pre-test, and they got the similar test-results. But after the application, there was a positive change in favor of the experimental group. Furthermore, the students in this group stated that, this was a very enjoyable and easier way of learning.

Another is the study of Coşkungönüllü (1998) which was prepared as her MA thesis in ODTU. It was done to explore whether MIT had an effect on Maths learning process and the students' attitudes towards the lesson.

During three months, it has been applied by Coşkungönüllü on the fifth graders in the Primary School of Ankara TED College in 1997-1998 school year. Finally, related to Maths learning process, a significant difference between the plan, prepared according to MIT, and the traditional one was found out and there was no difference in the students' attitudes towards Maths.

To find out the effects of a teaching process based on MIT in social sciences, Demirel and his friends (1998) studied on the fourth graders studying in The Ankara Private Tevfik Fikret Primary School. The fourth graders underwent a program developed in line with MIT.

The purpose of this study was to learn the attitudes of the students towards the lesson and the viewpoints of the teachers and the learners, and to explore if there was a difference between the learning process of the students in the experimental group and the control group.

At the end of the study, it was found out that the application of the lesson plan, prepared according to MIT, affected the students' opinions in a positive way. However, in the Social Science class, a significant difference, which was in favor of the experimental group, occurred between the attitudes of the students in the experimental group and the students in the control group. Finally, the students in both groups were given a t-test; and in favor of the experimental group, there was a significant difference with respect to their knowledge and understanding level. However, the same difference was not seen in the total learning process.

Tarman (1999), in his study, tried to find out how MIT could be useful in curriculum development process. At the end of the study which was applied with the descriptive method, it was shown that it was not necessary to have traditional



examinations in MIT, teaching process was student-centered, the evaluation helped to learn the potential of student, and it provided useful feedback.

The study of Demirel and Şahin (1999) focused on how a Turkish lesson based on MIT, comparing with the traditional method, affected the learning process and the attitudes of the students to the lesson. It was applied on the fourth graders in different classes in the Beytepe Primary School. The result was positive in the total learning process in favor of the experimental group and the students stated that the activities were very enjoyable and entertaining.

Başbay (2000), in his MA Thesis in the Hacettepe University, studied on the education programs and classroom activities, prepared according to MIT. He examined if the Curriculum of Primary Education, including the classroom activities, had the properties of MIT. It was carried out in the private, the Tevfik Fikret Primary School, the Erken Başarı College, and in Primary School Education Department of Hacettepe University.

In conclusion; the lessons in the Curriculum of Primary Education were generally studied in relation to linguistic/verbal and logical/mathematical intelligences, the activities in some of the lessons were in compliance with MIT. Both the general aims and the activities in the Curriculum of Primary School included MIT. The teachers in the Tevfik Fikret Primary School applied MIT with no special training MIT was applied systematically and consciously in the activities in the Erken Başarı College.

Yeşildere (2003) in her study, taught the subject called ‘integer’ with the teaching method based on MIT to the experimental group and the same subject matter with the traditional teaching method to the control group with the aim to examine various effects of these two methods. After one and a half months later, the statistics proved that the teaching method based on MIT was more effective on the students’ achievement, and there was a significant difference between the experimental and the control group.

İflazoğlu (2003), carried out her experimental study on the fifth graders in the science lesson in two primary schools in Seyhan in Adana by using the two-way control method to see the effects of the co-operative learning based on MIT in order to evaluate the students' academic successes, learning levels and attitudes.

The study was carried out in the spring term in the 2002-2003 school year. It was administered to the 187 students. The research study involved two experimental and three control groups and it lasted nine weeks. The co-operative method in compliance with MIT was made use of with the first experimental group whereas the pure cooperative learning techniques were applied to the second experimental group. On the other hand, the teacher-centered traditional method was used with the control groups. The experimental and the control groups were given the "Science course Achievement Test" and the "Science course Attitude Scale" as the pre-tests and the post-tests.

Consequently, there was no significant difference between the two experimental groups with respect to the results of the achievement and attitude tests. In favor of the experimental groups, there were significant differences between the experimental groups and the second and the third control groups. Besides, there was not a difference between the experimental groups and the first control group as the researcher taught. While there was no difference between the two experimental groups in terms of the achievement test, there was a significant difference between the first experimental group and the control groups, between the second experimental group and the control groups (the second and the third). These differences were in favor of the experimental groups. According to the findings which were obtained from the Science Course Attitude Scale, there was a significant difference between the experimental groups and the second control group, but there was no difference between the experimental groups and the other control groups from the perspective of the positive attitudes related to the science course. In addition there was no difference between the experimental and the control groups from the perspective of negative attitudes.

Ay (2003) conducted a case study to find out whether there was a relationship between the students' reading comprehension strategies and their dominant intelligences

This study was based on the qualitative research method and seven different intelligences mentioned in MIT. It was done to determine the strategies used for reading comprehension by the students whose dominant intelligences were different and applied on seven students. The data of the research were collected with the help of 'Thinking Aloud Techniques' together with 'Observation and Inquiry Techniques'.

The study revealed that the successful readers used similar reading strategies although their dominant intelligences were different.

Çırakoğlu (2003) aimed to examine the effects of the MI approach on the students' achievement. To this aim, MIT was used to teach the primary school pupils the 'sound unit' in their science course.

This study was restricted to the spring term of 2001 – 2002 school year, the fifth graders in the TED Aliğa Private Primary School, the cognition and behavioral performance of these pupils related to the 'sound unit' of the science course.

The subjects of the research study were selected from the fifth graders in the Aliğa TED College. The 29 pupils in 5/B were selected as an experimental group and 28 pupils in 5/A as a control group. This study revealed that MIT had an effect on the achievement of the fifth graders. As a result it can be stated that the application of MIT in Primary Education Curriculum may enhance the achievement of the pupils.

Ayaydın (2002), in his study, intended to see the results of the application of MIT as well as other recent methods of teaching to the art education.

The study was characterized as a descriptive study based on the qualitative observation. The researcher made use of more than one method. The qualitative research technique was used to see the results of MIT and the MIT applications; and

the interview technique was also capitalized on. During the application, the findings were obtained by means of a questionnaire and observation. The research study was designed in a way that the sampling in the universe would be homogeneous socially and culturally, and it could represent the general characteristics of the educational system.

Although the research process was followed as it was designed, from time to time it became necessary to make some modifications. In spite of the fact that the findings were in compliance with the hypotheses, some unexpected results were encountered.

The findings showed that the teaching method based on MIT added variety to the art education and made it richer, more entertaining and more effective than the traditional method.

Bayhan (2003), in his study, tried to determine the levels of the six-year old pupils' readiness for reading and writing and then to find out how much the reading-writing activities based on MIT would influence the levels of the pupils' readiness for school.

It was found out that the education given according to distinct types of intelligence is more effective on the pupils' readiness for the skills of reading-writing. In addition to this the reading-writing instruction based on MIT had a positive effect on the pupils' levels of readiness for school.

The study indicated that there was a significant difference between the pre-test and the post-test results of the experimental group, but not between the pre-test and the post-test results of the control group. In addition, it was also found out that the difference between the post-tests of the experimental and the control groups was significant.

The findings obtained in the study showed that the MIT instruction influenced positively the pupils' levels of readiness for school.

Batman (2002), in his study related to “Introduction to the Teaching Profession” course, tried to find out if the teaching method based on MIT activities had an effect on achievement, retention, and the attitude. In addition to these, the opinions of the students in the experimental and the control groups in the study were determined.

The study was applied to the MA students of the secondary teacher training of the “Education Department in the Northern Cyprus Turkish Republic. The traditional teaching method was used in the control group, and the teaching method capitalized on the MIT activities was used in the experimental group.

The findings can be summarized as follows:

1. There was no significant difference between the achievement levels the experimental group and the control groups
2. There was no significant difference between the experimental and control groups from the perspective of ‘retention’.
3. There was no significant difference between the experimental and control groups from the perspective of ‘attitude’.
4. The opinions of the students towards the course, ‘Introduction to Teaching Profession’ in the control and in the experimental groups were studied.

According to the opinions obtained from the participants in the study, the students in the experimental group stated that the teaching method which made use of the MIT activities was very effective on their achievements, and they also pointed out that this method should be used in the other courses. They said the activities were the most beneficial part of the study. They stated that their attitudes were positive towards learning and they added that they were eager to use the MI activities in future.

The students in the control group pointed out either that the traditional method had no effect on their achievement or that they were indecisive. They did not want this method to be used in other courses. They expressed different opinions about the most efficient part of the study. They stated that their attitudes towards

learning were moderate. In addition, they were unwilling to use the traditional method.

Özdemir (2002), in her study, aimed to find out if the MIT method used for teaching the fourth graders in the science course the unit ‘the diversity of living things’ had a positive effect on their retention, achievement and attitudes. In addition, it was also researched if there were any changes on the intelligences of the students by using “TEELE MI Inventory”.

Her experimental study was carried out on the fourth graders in the second term in the Beytepe Primary School for four weeks in the 2001 – 2002 school year.

Thirty-five students were selected for each group from two classes using the random sampling method. The traditional method was applied to teach the students in the control group, whereas the lesson plans based on MIT were used with the students in the experimental group.

It was discovered that the use of the MIT lesson plans had a significant effect on the fourth graders’ achievement and their retention of the science subject matter, but had no significant effect on their attitudes towards the lesson. The logical-mathematical and interpersonal intelligences of the fourth graders were found out to be dominant in comparison with the other intelligence types. It was also observed there were changes in the intelligence types that students used in the study.

Güneş (2002) conducted a study to explore the attitudes of the seventh graders towards the subject ‘buoyancy’ which was studied in compliance with the principles of MIT, and to see if the learning process was affected.

The sampling of this study consisted of the seventy-five seventh graders of three different classes taught by the same teacher in a private school in Ankara. For this study, the classroom and the lab activities related to the subject ‘buoyancy’ were prepared in a way that diverse types of intelligence could be used. All the students were taught in the same way by the same teacher. This study was carried out to find answers to the following questions: ‘How do the MIT teaching methods change the

attitudes of the students towards the science course?’ and ‘How do the MIT activities affect the students’ achievements?’ In order to answer these questions, the video-recordings were examined and the findings were compared with the written documents. The results were also supported by the numerical data. It was evident that the teaching methods based on MIT had positive effects on the attitudes of the students towards the science course and on their achievement. The statistical results showed that the use of the MI method was effective.

Obuz (2001), in her study, researched the effect of Multiple Intelligence activities on the learning process in Life Science Lessons. The aim of this investigation was to find out the differences between two classes with regard to the thoughts of the teachers and the students, the learning process and the students’ achievement. The study based on two units was administered to the third graders in the Private Tevfik Fikret Primary School in the 2000-2001 fall term. The effects of the MIT activities on the learning process, the attitudes of the teachers and the students were investigated with the use of qualitative research techniques. To this end an achievement test was administered to see the effects of the MIT on the achievement of the students. The results of the study revealed that the students in the experimental group taught according to the MIT participated actively in the lessons and showed great interest to the activities and materials. The lesson plan included drawing, describing pictures by body language, completing a story, writing a story, writing a poem, preparing a radio program, organizing a quiz and a panel discussion, preparing a newspaper and a wall-chart. The teachers pointed out that the lessons with MIT activities were more active, effective, explorative and enjoyable for students. They also argued that they needed a well prepared and detailed plan for an effective lesson. On the other hand, there was no significant difference between the experimental group of MIT activities and the control group of traditional method with respect to the achievement test results.

Bümen (2001) carried out an experimental research study to find out the effects of the MIT activities supported by the review strategies. The purpose of the research was to investigate the efficacy of the MI activities on the learners’

achievement, attitudes towards the lesson and retention of learned material in ‘the Democracy’ and ‘Human Rights’ units of the Citizenship and Human Rights course. According to the results of research, the multiple intelligences activities supported by the review strategies were found out to be effective in improving cognitive learning and in the development of positive attitudes towards the Citizenship and Human Right lesson. The findings of the research were similar to the results of the other studies.

In her study Akamca (2003) researched the effects of the multiple intelligences theory on pupils’ achievement, attitudes and retention in the science course in a primary school. This experimental research was carried out on the fifth graders in the Buca Meşkure Şanlı Primary School for five weeks in the second term of the 2002-2003 school year. Two classes were selected from the fifth graders using the random sampling method. The lesson plans prepared according to the multiple intelligences theory were used with the experimental group whereas the traditional method was used with the control group. As a consequence, it was found that multiple intelligences theory had significant effects on the retention of the subject matter by the fifth graders and their achievement in the science course, but had no significant effects on their attitudes towards the lesson.

The purpose of Kaya’s (2002) study was to compare MIT with the traditional method and research the effects of the MIT activities on the seventh graders’ comprehension of the ‘atom and atomic construction’ in the Science course, their achievement, retention, attitudes and to determine the feasibility of multiple intelligences theory in the curriculum of the primary school Science lesson. The results of the statistical analyses revealed that MIT activities were found to be significantly effective with regard to the in the pupils’ retention, achievement, their attitudes towards the science. The effectiveness of MIT was supported by the classroom observation.

Yılmaz (2002) researched the effects of the MI teaching on the pupils’ achievement and their views related to the ‘Nation’ and ‘People’ unit in the Social Science course. The research was administered to the 16 students in 5/A in the



Kaşgarlı Mahmut Primary School. At the beginning of the study a pre- test was given to the pupils and the same test was given again after the unit was taught. An interview form prepared by the researcher was used in order to learn the students' opinions about the application. All the lesson plans were prepared in line with the eight intelligence types. The research findings revealed that visual and musical intelligences were found to be dominant. However, the pupils were seen to enjoy and recall diverse activities and to be in favor of the use of this method in the other courses. In addition, it revealed that there was a significant difference between pre-test and post-test results in favor of the MIT.

İşisağ (2000), in his study, aimed to give information about MIT developed by Dr. Howard Gardner and show its contribution to education especially to foreign language examinations. Different types of activities and lesson plans were suggested at the end of the research.

Elibol (2000), in her study, carried out his research on 411 subjects in nursery schools in the center of Ankara. The aim of the research was to find out which seven intelligences were stronger in the subjects. The researcher also tried to determine relations among the intelligence types.

Seber (2001) aimed to develop a usable, valid and reliable scale for determining learners' strength and weaknesses in the fields of multiple intelligences. The study involved 380 students and 13 teachers of these subjects, 122 students and 6 teachers said that they had upper socioeconomic characteristics; 139 students and 3 teachers said that they had medium socioeconomic characteristics; 119 students and 4 teachers said that they under socioeconomic characteristics. The findings obtained as a result of the data analyses showed that that the researcher developed a usable, valid and reliable scale consisting of totally 64 items (eight items for each intelligence type) for use in the evaluation of the subjects' weaknesses and strengths with respect to the eight intelligence types.

Baran (2000), in the research, aimed to study the relationship between the 19 Mayıs University students' intelligence fields and anxiety levels. The multiple

intelligence test to evaluate the students' multiple intelligences developed by Gardner, were used in the study. The randomly selected samples of the research were composed of 233 students, studying in different classes at different departments in the 19 Mayıs University. According to the results of the research, it was found out that there were significant differences between the students' multiple intelligences, and their learning styles with respect to their department, gender, the education levels of their mothers and fathers. It was found that there were significant differences between the subjects' visual, musical mathematical, logical intelligences, intrapersonal and interpersonal intelligences with respect to their departments. It was seen that there was no significant difference between multiple intelligences and their mothers' jobs, and their monthly incomes. It was found out there was an important relation between the learners' intelligence types and their behavior and attitudes.

Yıldız (2001) aimed to develop sample games and used them with the pupils. She investigated the role of games and playing games together with class materials in education from the perspective of MI. The Gazi University Foundation Private Primary school was selected for the experiment to collect data. In this study the aim was to investigate the effects of the learning styles and multiple intelligences on learning.

In Çakır's study (2003), the aim was to develop MI activities appropriate for the sixth graders in Turkish primary schools. The study was based on the data collected from the sixth graders in the Kırıkkale Şehitler Primary School by means of the questionnaire prepared by the researcher. The purpose of collecting data was to reveal what sorts of intelligences the subjects in the experimental group had. These findings on the types of intelligences had an important role in the preparation of the education activities. The rationale behind the research was to design appropriate activities based on MIT for use to teach English to the sixth graders.

Tamer (2002) was concerned with the comparison of the artificial intelligence with the computer-assisted learning. It was found out that the education quality improved with the use of co-operative learning and multiple intelligences theory.

Burma's study (2003) tried to find out that how the appropriate environments could be formed according to the multiple intelligences theory with respect to lesson planning, teaching, and classroom activities, learning strategies under the light of literature review.

Allen's study (1997) was to explore the effects of MIT in the learning process of the superior students. He saw that MIT was more useful for the students who were socially and economically better than the others. In order to find out the learning strategies used by the successful students in their learning process, some open and closed-ended questions were asked.

In the study, the students were asked to answer some questions about music, singing, art, drawing pictures, memorizing, competitions, individual and group studies. The results were in favor of MIT.

Armstrong (1996), in his study; realized that the students, having different kinds of intelligences, were named as "learning handicapped, careless, hyperactivity disorder" according to their exam results or homework. The teachers liked the students who used the correct words and who were logical. However, they hardly remembered those who were good at dance, music, social relationships, drama, and expressing themselves.

Campbell (1990) developed the learning centers for each intelligence in MIT. The students studied actively in these learning centers for a year. It was seen that they participated in the lessons more willingly, could do something independently, and developed their leadership skills. At the end of the year, the teachers stated that the students could easily remember the subjects which had been studied at the beginning of the term.

As a result, there are many different studies about the effects of MIT on both the students' successes and attitudes. By the help of MIT; the opinions about classrooms, students, education processes, materials and evaluation began to change.

The first primary school was Indianapolis 8 where multiple intelligence theory was practiced at primary level. According to the main principal of this school, it was necessary for each student to have the opportunity of joining activities which could help him/her to develop his own intelligences. Under the light of this principle, the students were given the chance to join the computer, music and physical activities in addition to their standard courses. Three important aspects of the principle are stated below:

- 1) In order to study at a skill or a doctrine which he enjoys doing, each student joins a course similar to apprentice course and called 'pod' which involves students from different age groups and a teacher having skill or doctrine in that field.
- 2) During the 'pod' studies, the subjects regularly contact with each other. Once a week, a specialist visits the school and displays an occupation or a skill for students. This specialist is generally a guardian and a topic similar to those in the school syllabus is chosen.
- 3) In pilot school, project studies are conducted with the aim to help the students to develop themselves. No matter whenever is in a year, students intensify three different subjects given at approximately 10-week periods (Olson, 1988:18-19, Winn, 1990 cited in Tarman, 1999:35).

Telee (1996), a lecturer in the California University, administered his questionnaire to 4000 students. The questionnaire was designed to determine which intelligence types were dominant at each level of their education. Some of the results are as follows:

- It is stated that students can't learn in the same way at each level.
- Verbal/linguistic intelligence is mostly used from nursery to third class, at later stages, its use is decreased.
- It is found out that logical/mathematical intelligence is quite strong between the first and fourth classes.
- Visual/spatial and bodily/kinesthetic intelligences are more actively used during the primary education (Telee, 1996:22-23 cited in Çırakoğlu, 2003:73).

According to most of the studies carried out on the MIT in our country, it could be said that the MI teaching techniques and activities had positive effects on the learners as they voluntarily did the activities and enjoyed themselves. The subjects in the experimental groups pointed out that their learning improved. According to the MI research studies, the use of the MIT techniques in education had positive effects on the learners' achievements. However, according to some studies, they did not have any contributions to their achievements.

### **2.3. SUMMARY OF THE CHAPTER**

As it has been explained, human is a 'bio- cultural endowment'. Scientists carried out various studies on mental activities, actions, mind, and intelligence under the light of Gardner's MIT. Several studies were concerned with human's brain. The traditional intelligence tests are reshaped under the influence of MIT.

## **CHAPTER THREE**

### **TEACHING VOCABULARY AND MEMORY**

#### **3.0. INTRODUCTION**

This chapter aims to summarize teaching vocabulary and memory.

#### **3.1. TEACHING VOCABULARY**

Traditionally, the teaching of vocabulary above elementary levels was considered to be less important; limited to new vocabulary items presented in reading or sometimes listening texts. This indirect teaching of vocabulary resulted from the view that vocabulary learning would be enhanced through the practice of other language skills.

For many years, the language teaching methods used by language teachers gave little attention to helping students learn vocabulary. Pronunciation and grammar were emphasized, but there was little or no attention on vocabulary. (Allen, 1983)

Vocabulary was neglected in syllabuses for teachers during much of the twentieth century, especially during the period 1940-1970. During the years before that time, vocabulary teaching had been given too much attention in language classrooms. It was believed that vocabulary teaching was the only way to language learning. It was believed by most of people that all they needed was a large number of words. They thought that they could learn a language by learning a certain number of words. Apart from knowing the meanings of the vocabulary items, it was realized that it was necessary to know how they could combine together into sentences and the meaning of a sentence was not only the sum of the meanings of individual words. As a result, they understood that knowing only the words was not enough to use the language. For this reason, more attention began to be given to grammar in language teaching for a few decades. Teachers followed new discoveries in the teaching of grammar more than the ways to help students learn words. There is another reason

for giving little emphasis to teaching words and their meanings. According to some methodologists, the meanings of words could not be adequately taught, so it was better not to teach them. In 1950s, it was understood that vocabulary learning was not a simple matter. (Allen, 1983)

Allen (1983:3) gives the summary of the following reasons why vocabulary teaching was neglected:

- 1- Many who prepared teachers felt that grammar should be emphasized more than vocabulary, because vocabulary was already being given too much time in language classrooms.
- 2- Specialists in methodology feared students would make mistakes in sentence construction if too many words were learned before the basic grammar had been mastered. Consequently, teachers were led to believe it was best not to teach much vocabulary.
- 3- Some who gave advice to teachers seemed to be saying that word meanings can be learned only through experience, that they cannot be adequately taught in a classroom. As a result, little attention was directed to techniques for vocabulary teaching.

Nowadays it is widely accepted that vocabulary teaching should be part of the syllabus and taught in a well-planned and regular method.

Even the teachers who think that too much time is wasted on teaching vocabulary see that if grammar learning is not supported by vocabulary learning, learners cannot use the language communicatively. In addition to this, the students fail to learn how to form sentences in those classes where too little time is spent on grammar teaching. This means that knowing the general meaning of a word is not sufficient. Knowing a word involves knowing its pronunciation, spelling, collocations, grammar and meaning.

Advanced students can generally communicate well, since they have learnt all the basic vocabulary items as well as the essential structures of the language. However, they need to enlarge their vocabulary if they aim to express themselves more clearly and more effectively.

Some authors, led by Lewis (1993) argue that vocabulary should be at the centre of language teaching, because ‘language consists of grammaticalised lexis, not lexicalized grammar’. There are several aspects of lexis that need to be taken into account when teaching vocabulary. The properties of vocabulary items that are considered to be of great importance by Gairns and Redman are listed below (1986, cited in Moras, 2001):

- **Boundaries** between conceptual meanings: knowing not only what lexis refers to, but also where the boundaries are that separate it from words of related meaning (e.g. cup, mug, and bowl).
- **Polysemy**: distinguishing between the various meaning of a single word form with several but closely related meanings (head: of a person, of a pin, of an organisation).
- **Homonymy**: distinguishing between the various meaning of a single word form which has several meanings which are NOT closely related (e.g. a file: used to put papers in or a tool).
- **Homophony**: understanding words that have the same pronunciation but different spellings and meanings (e.g. flour, flower).
- **Synonymy**: distinguishing between the different shades of meaning that synonymous words have (e.g. extend, increase, expand).
- **Affective** meaning: distinguishing between the attitudinal and emotional factors (denotation and connotation), which depend on the speakers attitude or the situation. Socio-cultural associations of lexical items is another important factor.
- **Style, register, dialect**: Being able to distinguish between different levels of formality, the effect of different contexts and topics, as well as differences in geographical variation.
- **Translation**: awareness of certain differences and similarities between the native and the foreign language (e.g. false cognates).
- **Chunks** of language: multi-word verbs, idioms, strong and weak collocations, lexical phrases.
- **Grammar** of vocabulary: learning the rules that enable students to build up different forms of the word or even different words from that word (e.g. sleep, slept, sleeping; able, unable; disability).
- **Pronunciation**: ability to recognize and reproduce items in speech.

According to Allen (1983:7-8), during the first stage of language learning, the vocabulary lessons usually contain words for persons and things in the classroom. While teaching the meanings of such things, learners have the chance to see; even touch them when they hear the foreign names for them. In this way the meanings of vocabulary items can be easily and clearly conveyed. When students can touch



something, in addition to hearing and seeing the word that names it, there is a stronger chance that the word will be learnt. Even if there are practical reasons why each learner cannot touch the object, just seeing it while its name is heard can be of great help as those two senses (sight and hearing) work together to attract the learner's attention.

Celce-Murcia and Roseweig, who suggest a vocabulary teaching procedure which can be applied to teaching any word, claim that a teacher can present five or six words in about 20 minutes (1979:247-8 cited in Akar, 1994).

Akar follows the vocabulary teaching procedure developed by Celce-Murcia and Roseweig (1979:247-8 cited in Akar, 1994) and believes that the vocabulary teaching techniques presented below are suitable especially for elementary and early intermediate learners:

**Step 1: lead-in:** A context is established to teach the word that can be done by asking a question or simply making a statement.

**Step 2: convey meaning:** The meaning of a word can be explained through various methods such as 'definition', 'active demonstration', 'visual aids', 'synonyms' or 'antonyms', or 'translation'. After the word has been learnt, it should be used in a sentence which will further convey the meaning.

**Step 3: repetition:** The word should be repeated alone until there is no difficulty with its pronunciation.

**Step 4: verification:** The verification is necessary in order to understand whether or not the students have learnt the word. It can be done by asking a question (yes/no questions), since they are not yet required to use the word.

**Step 5: use:** Some open-ended questions (wh- questions) can be asked to the students which should explore the use of the word in context and allow the students to practice using it.

**Step 6: model sentence:** A model sentence with the target word should be written down on the board or dictated to the students and it should be constructed well in order for the students to understand the meaning of the word from the context of the sentence when they read the model sentence later.

In language teaching, vocabulary teaching is expected to cover more and detailed goals than simply putting a number of words on the vocabulary list. The teachers should use techniques that can help realize the global concept of what it means to know a lexical item. Besides, the teachers should give the learners the opportunities to use the learned items and also help them to use effective storage systems.

Whatever techniques are used for teaching vocabulary, it is important to know that vocabulary storage and recall require diverse learning activities that address to various intelligence types, since the aim is to enable the learners to retain essential vocabulary items in long term memory and use them when the occasion arises. Our belief is that the use of multiple intelligence activities will serve this purpose. In the following part we aim at dealing with memory types as vocabulary learning involves using memory effectively.

### **3.2 MEMORY**

In this part, we aim to give brief information about memory since our study is concerned with the retention of vocabulary items taught to the learners in the classroom.

Memory serves to store and recall information. The study of memory is of great importance since all learning depends on the use of memory. There are diverse approaches to the classification of memory. In one approach memory is divided as short-term memory and long-term memory. Memory is also divided as visual memory and auditory memory with respect to the senses by means of which information is received. Visual memory is a person's ability to remember what s/he has seen, while auditory memory is a person's ability to remember what s/he has

heard. From a different perspective, memory is divided as working memory, permanent memory, holding memory, semantic memory. There is a common tendency to deal with memory as long-term memory and short-term memory.

Short-term memory is known to keep information only over a short period of time. For instance, trying to recall a telephone number that was heard a few seconds earlier, one uses short-term memory. If further effort is not spent for the retention of the information, or the other requirements are not met, the phone number is bound to be forgotten immediately ([http://en.wikipedia.org/wiki/short\\_term\\_memory](http://en.wikipedia.org/wiki/short_term_memory)).

Long-term memory is claimed to last from a minute or to weeks or even years. From long-term memory, one can recall general information about life that is learnt on previous occasions ([http://en.wikipedia.org/wiki/long\\_term\\_memory](http://en.wikipedia.org/wiki/long_term_memory)).

Stevick (1996) states that long-term memory refers to one physical part of our memory equipment; short-term memory refers to what another part of memory which allows people to do with new data coming in through the senses; working memory refers to a capability for consciously handling data from both external and internal sources.

Stevick (1996) separates long-term memory into two parts as 'holding-memory' and 'permanent memory.' Some things that are available for longer than 20 seconds are in fact available years and even decades later. He says that this is 'permanent memory'. Sometimes information still clearly available in memory after 20 seconds or even after 20 minutes-is gone a day or two later. He calls it 'holding memory'.

Akar (1994) states short-term memory (STM) keeps information only over brief periods. Some scientists believe this period lasts 6-7 seconds, and some believe it lasts 20-30 seconds. Storing very much in STM is limited in capacity.

According to Akar (1994), in long-term memory one can remember original information after minutes, weeks, and years. Besides the enlarging time, accommodated information increases. On the other hand, recalling the information in

the long term requires working hard and repetition. When repetition is not adequate, processing and systematic organization may be applied.

The working memory involves the simultaneous storage and processing of information, and requires the maintenance of some information during the processing of that or other information (Stevick 1996). In 1976, he used a metaphor to call the working memory as 'the worktable'. The 'worktable' is often confused with the short-term memory, since each concept has been derived from the observed limitations of mental functioning, and from the same limitations. Stevick (1996) claims that short-term memory comes mainly out of experiments with 'span' memory, in which subjects try to remember 'strings of words, syllabus', or 'digits'. Working memory, on the other hand, comes from the study of more complex processing. He gives more emphasis to working memory as he thinks that today's scientists give more importance to 'working memory' than short-term memory.

He states that there are three differences between short-term memory and working memory:

- 1- Short-term memory is a stage through which information passes on its way to long-term memory. The worktable is really not a stage, but a state- a biological describable state.
- 2- With the short-term memory, we are mainly interested in what passes through it. With the worktable, we are mainly concerned with what happens on it.
- 3- The very name 'short-term memory' focuses on limited duration- on the 20 seconds or less that new material, freshly arrived from the eyes or the ears or elsewhere, can remain freely and directly available for processing. With the Worktable, we are more interested in its limited capacity, that is, in the fact that only a relatively small amount of information can be in the Worktable state at any one time.

In language teaching, the aim should be to help language learners to retain and retrieve new language items. Our belief is using multiple intelligence activities

will enhance the storage and retrieval of these items as these activities address to different senses and different intelligence types.

### **3.3. SUMMARY OF THE CHAPTER**

In chapter 3, teaching vocabulary and memory has been explained briefly. The next chapter will state the methodology of the study.

## **CHAPTER FOUR**

### **METHODOLOGY**

#### **4.0. INTRODUCTION**

In this chapter the objectives, the methodological procedures, the subjects, and the settings of the pilot and the main study are described.

#### **4.1. THE RESEARCH DESIGN AND THE OBJECTIVES**

The research studies on the process of education, teaching and learning make it inevitable to use different research methods; as such studies are extremely complex and multifaceted.

When the groups are chosen from clustered classrooms, the study becomes quasi-experimental as the subjects are not selected randomly (Ekmekçi, 1997). An experimental study generally involves the random selection of participants for the research. When it is not possible to meet the conditions of true experiments; in other words, when it becomes inevitable to base the study on the clustered classrooms, the research becomes quasi-experimental. In quasi-experimental research, the experimental and control groups might involve intact groups. Our study, which is quasi-experimental, mostly makes use of the quantitative approach.

Research can be quantitative or qualitative. Quantitative research designs can be either descriptive (subjects measured once) or experimental (subjects measured before and after a treatment). Both quantitative and qualitative approaches can be used in order to have more generative, rich and valuable results (Nachmias and Nachmias, 1972).

In fact having a system or following a process is a defining principle of research. Broadly speaking, quantitative research is thought to be objective whereas qualitative research often involves a subjective element. It is thought that in gaining, analyzing and interpreting quantitative data, the researcher can remain detached and

objective. Often this is not possible with qualitative research where the researcher may actually be involved in the situation of the research. Quantitative research is inclined to be deductive. In other words it tests theory.

This is in contrast to most qualitative research which tends to be inductive. In other words it generates theory. Quantitative designs of research tend to produce results that can be generalized. Lastly, the most obvious difference between quantitative research and qualitative research is that quantitative research uses data that are structured in the form of numbers or that can be immediately transported into numbers (Burns and Grove cited in Cormack 1991 - [www.fortunecity.com](http://www.fortunecity.com)).

As Hitchcock and Hughes (1995:26) state, the qualitative approach emphasizes ‘the qualification of actions, ideas, values and meanings through the eyes of participants rather than quantification through the eyes of an outside observer.’ On the other hand, quantitative approach counts and measures the data rather than interpreting it. According to Seliger and Shohamy (1989) a qualitative research utilizes different means such as observations, tapes, questionnaires, interviews, case histories, field notes, and so on in order to collect data.

In this study immediate post test and the delayed post test results were evaluated by the quantitative approach and the observations of the students by the teacher were interpreted by the qualitative approach. The 4-A and 4-B classes were chosen for our study. As the subjects were not selected randomly, the quasi-experimental research design was used to test the efficacy of the MI activities on the retention of vocabulary items. To this aim, the pretest-immediate post test-delayed post test design was capitalized on to answer our research question.

The main objective of this study is to consider the effects of MIT activities on vocabulary learning in elementary classes. The specific research questions which the investigation sought to answer are as follows:

### **Research Questions**

*Are the Multiple Intelligence activities effective on the learning and the retention of the vocabulary items?*

The following sub-research questions were designed to help answer the major research question.

**Sub-research Question 1:** Are there any differences between the immediate post test results of the control group and those of the experimental group?

**Sub-research Question 2:** Are there any differences between the delayed post test results of the control group and those of the experimental group?

**Sub-research Question 3:** Are there any differences between the immediate post test results and the delayed post test results of the experimental group?

**Sub-research Question 4:** Are there any differences between the immediate post test results and the delayed post test results of the control group?

**Sub-research Question 5:** Are there any differences between the girls and the boys in the control group with respect to the results of the immediate post test?

**Sub-research Question 6:** Are there any differences between the girls and the boys in the control group with respect to the results of the delayed post test?

**Sub-research Question 7:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the immediate post test?

**Sub-research Question 8:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the delayed post test?



## **4.2. PILOT STUDY**

As the predecessor of the main study, the pilot study was conducted so as to determine appropriate and efficient activities for the teaching of vocabulary items; to decide whether the chosen activities were functional or not. In short the aim of the pilot study was to design an accurate and sufficient number of activities by bettering or eliminating the inappropriate ones; and to form the experimental and control groups more accurately after having a better understanding of students' profiles.

## **4.3. SUBJECTS AND THE SETTING OF THE STUDY**

The study was conducted at the Saruhanbey Primary School in Manisa in the 2004-2005 academic year.

The subjects of the pilot study were the fourth graders of the Saruhanbey Primary School. All of the students were native speakers of Turkish and were at the beginning level of English as a foreign language.

Two groups participated in both the pilot and the main study. One of the groups (4A) was the control group; the other (4B) was the experimental group. There were 30 ten-year-old pupils in both 4A and in 4B; 60 in all. The girls and boys were not equally distributed in two classes as there were 18 girls and 12 boys in the experimental group (4B) but 15 girls and 15 boys in the control group (4A). None of them had prior knowledge of the target vocabulary to be taught in the class. Hence, in the pilot study, the students were not asked to answer any pre-test questions, as the fourth year was the initial stage to start learning English, and they had not been taught the vocabulary items used in the study before. However, the pre-test was administered to the participants in the main study in order to check the reliability. The same length of time was allocated for the teaching of vocabulary items to both groups.

The information about the participants is presented in the following table:

Control Group (4A)			Experimental Group (4B)		
girls	boys	total	girls	boys	total
15	15	30	18	12	30

#### 4.3.1. MATERIALS AND THE PROCEDURE

##### 1<sup>st</sup> week- 80 minutes (*Parts of the Body*)

Prior to the beginning of the study, the vocabulary test including the parts of the body was given to both classes as a pre-test in the first five minutes of the first lesson so as to find out whether they were familiar with any of the items in the test. It contained the vocabulary items, ‘*body, arm, hand, foot, leg, mouth, nose, ear, eye, hair.*’ After administering the pre-test to both groups, the lexical items selected for the research were taught during the first two hours; the other language items had to be presented during the successive two hours of the week in order not to fall behind the school curriculum. At the end of the lesson, which was allocated for our research, an immediate post test was given to the subjects in order to check how much they had learned. The lessons were 40 minutes and both groups had two successive hours on the same day. The pre-test was administered during the first 5 minutes of the first lesson and the immediate post test was administered during the last five minutes of the following lesson. Thus, the teaching of vocabulary items took 70 minutes in total. The same amount of time was given both to the experimental and the control group.

The lesson was given to the control group in 4/A by the teacher of English, i.e. the writer of the thesis, using the teacher’s and the student’s book.

The following procedure for the teaching of lexical items and the activities suggested in the course book were used with the control group (Yavuz, 1999):

**The procedure for use with the control group (4-A/ 80 minutes):**

- 1- Pre-test ( 5 minutes)
- 2- Warm-up / motivation ( 3 minutes)
- 3- Stating the objective ( 2 minutes)
- 4- Review of necessary background material ( 5 minutes)
- 5- Introduction of new vocabulary items ( 25 minutes)
  - a- attention pointer
  - b- say the word twice
  - c- learners repeat the word several times
  - d- write the word on the board and underline it
  - e- say sentences including the word
  - f- learners repeat the sentences
  - g- write sample sentences including the new word on the board (underline the new word)
  - h- give meaning and explanation where necessary
  - i- learners copy the sentences from the board
- 6- learners practice the use of word by means of drills (use any of the different types of drills which are appropriate) ( 30 minutes)
- 7- summary ( 3 minutes)
- 8- homework ( 2 minutes)
- 9- Immediate-post test (5 minutes)

The same unit was taught to the experimental group in 4B by the same teacher in compliance with the MI approach and the MI activities.

We made use of Yavuz's article (1999) to design the procedure for the teaching of vocabulary items in compliance with MIT by considering the properties of the following procedure (Richards and Rodgers, 2001).

## MULTIPLE INTELLIGENCES

### *Introduction*

### *Presentation*

#### *1-Awaken the intelligence*

Feeling/bodily-kinesthetic

They might touch-taste the things

Sensory bases of experience

#### *2-Amplify the intelligence*

(Sensory amplification) VAKOG: in terms of five physical senses.

Completing a worksheet: information about language expression

Description

#### *3-Teach with or/for the intelligence*

Group work/completing a worksheet

Activity

#### *4-Application*

We designed the following procedure for the teaching of the selected vocabulary items, which would awaken the multiple intelligences and make the learners spend effort to get the meanings of the lexical items.

**The procedure for use in the experimental group (4-B/ 80 minutes):**

**1-Pre-test (5 minutes)**

**2-Lead in:** After motivation pupils are made aware of the statement of the aim. (2 minutes)

**3-Instruct:** The pupils are told what to do. (3 minutes)

**4-Activity: (65 minutes)**

- a- Listen and do (guessing): The teacher produces a word and asks the pupils to show the picture to which the uttered word refers to and then put it under the written word. If the pupil cannot guess the right word, another pupil is called on to guess the word. This goes on until a pupil chooses the right one. The same thing is done with the other lexical items. This is a challenging activity as it requires the pupils to spend effort after meaning
- b- Listen, do and say (teacher-pupil): This time several pupils are asked to show pictures that are denoted by the uttered words and to repeat them.
- c- Listen, do and say (pupil to pupil): A pupil chosen by the teacher says, 'Show me and say the ....' Another pupil shows the picture in question and repeats the word. This activity goes on until pupils master the new lexical items. Later on this can be conducted as a pair work activity.
- d- Listen and write: This activity focuses on the spelling of each new word. Teacher says a word and asks the pupils to write it under the appropriate picture in their worksheets.
- e- Multiple intelligence activities: several activities that aim to address to various intelligences are used.
- f- Homework: Some multiple activities can be given in the form of homework or a project.

**5- Immediate-post test (5 minutes)**

Here is a sample presentation of the vocabulary items denoting parts of the body.

The board was divided into two parts. The words to be taught were put right hand side of the board and the flashcards containing the pictures of the parts of the

body were stuck on the left hand side haphazardly. (Herein, the aim was to awaken the spatial, bodily- kinesthetic, linguistic, and logical intelligences of the experimental group.)

Here are some examples of the imperative sentences used by the teacher in the experimental group:

Show me the body      Show me the ear

Show me the hair      Show me the arm

Show me the eye      Show me the hand

Show me the nose      Show me the leg

Show me the mouth      Show me the foot

The teacher varies activities to enable the learners to retain new vocabulary items by awakening logical, bodily-kinesthetic, musical, spatial, intrapersonal, interpersonal and linguistic intelligences as follows:

- 1- The teacher says a word standing for a part of the body and asks the learners to show the relevant part. For example, the teacher says 'head' and learners show their heads.
- 2- S/he shows the parts of the body and asks them to call out their names.
- 3- S/he shows the parts of the body of a doll and asks them what their names are.
- 4- The teacher says a word and learners draw a picture represented by that word. For example the teacher says 'hand'; learners draw the picture of a hand.
- 5- The learners are asked to substitute the new lexical items that they have just learned for the words of a song they know as follows:

### **The hello song (Original song)**

Hello, hello, hello what's your name?

Hello, hello, hello

My name is Lisa, my name is Lisa

Hello Lisa, hello Lisa hello ( Graham, 2003).

### **The modified version of the same song by the learners**

Hello, hello, hello what's your name?

Hello, hello, hello

My name is hair, my name is hair

Hello hair, hello hair hello.

**6-** Learners carry out the commands given by the teacher as follows:

**7-** Teacher says, 'Raise your hands' and learners raise their hands. They do the same with the following commands:

**a-** Touch your nose, arm, ear, etc.

**b-** Clap your hands

**8-** The teacher asks the pupils to do puzzles, drawings and some matching questions prepared in the worksheets by the teacher.

**9-** The teacher puts some visual aids on the wall such as a wall-chart and flash cards containing new words and related pictures. They are kept on the wall during a week to enable the learners to see them for a period of time and store them in their memory.

**10-** Learners do pair work activities in the worksheets prepared by the teacher that enable them to communicate with each other.

The teacher used the aforementioned procedures and activities for the presentation of the new words. She taught the lexical items related to ‘parts of the body’ during the first week; those related to ‘house’ during the second week, and those related to ‘family’ during the third week.

The immediate post test was given during the last five minutes in order to check how much they learned. The same test was given again after a month as a delayed post test in order to find out the effectiveness of the MIT activities on the retention of the items in the long term memory. A part from these she asked the learners to write their feelings and thoughts about the procedure and activities after the class hour.

#### **4.3.2. DATA AND ANALYSIS**

The data collected from the immediate post test and delayed post tests were analyzed quantitatively. For the analysis of the data, the Mann Whitney U Test<sup>4</sup> was applied for the comparison of two groups and the Wilcoxon Rank Test was applied to find the differences between genders in the same group on the SPSS (Statistical Package for the Social Sciences for Windows) program in order to find answers to the research questions (Nachmias and Nachmias, 1972). The results of the pre-test administered to the control and experimental groups were not analyzed since the subjects gave no answers.

#### **4.4. SUMMARY OF THE CHAPTER**

In this chapter, the methodology and the experimental design was described. And also the procedure used during the study was given.

The following chapter is concerned with the findings and discussions.

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<sup>4</sup> The Mann Whitney U test is applied when the aim is to test null hypothesis that two samples have been drawn from the same population against the alternative research hypothesis that the populations differ each other.



## CHAPTER FIVE

### FINDINGS AND DISCUSSION

#### 5.0. INTRODUCTION

In this chapter, the results of the achievement tests are presented and evaluated and the findings are reported.

In this research, in order to analyze the research data, the correlation between the variables was examined and the non-parametric tests were used<sup>5</sup>. The Wilcoxon Mann Whitney U Test <sup>6</sup> was applied to find out whether there are any significant differences between the two groups with respect to the immediate post test and delayed post test results as the aim was to test if the Multiple Intelligence activities were effective on the learning and the retention of the vocabulary items.

In this investigation, three vocabulary tests in total were used; the first related to the 'body', the second to the 'house' and the third to the 'kinship' and they were administered to both the control and experimental groups. In order to investigate whether there was a significant difference between the pupils in the control and the experimental groups in the sample, these two tests were administered as immediate and delayed posts after the vocabulary items of the study were taught to the subjects. Each test was administered three times. They were first administered as a pre-test before the beginning of the experimental study in order to check the knowledge of the pupils in both groups. The first of these tests, which was related to the 'body', was administered as an immediate post test in the last five minutes of the lesson to check how much they learned and a month later it was administered again as a delayed post test to check the retention of vocabulary items. The same procedure was followed for the second and third tests to test the knowledge of the vocabulary items related to the 'house' and 'kinship' successively.

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<sup>5</sup> Such tests are capitalized on when the number of the candidates is 30 or less than 30.

<sup>6</sup> In the comparison of two independent samples, the *Wilcoxon Mann-Whitney test* does not assume that the difference between the samples is normally distributed whereas its parametric counterpart, the *two sample t-test* does.

The aim of the first test administration was to find out whether the subjects were familiar with the lexical items that were selected for use in this study. It was found out that the learners were not familiar with these lexical items since the Pre-Test results were 0. This provided us with evidence that the pupils had not learned the words before. The data obtained in this study were evaluated by means of the SPSS non-parametric z-test.

### **5.1. RESEARCH QUESTIONS AND FINDINGS**

As stated in Chapter One, this study addresses the research questions, the findings of which are presented in this chapter in the following order.

#### **Research Questions**

Are the Multiple Intelligence activities effective on the learning and the retention of the vocabulary items?

The following sub-research questions were designed to help answer the major research question.

**Sub-research Question 1:** Are there any differences between the immediate post test results of the control group and those of the experimental group?

**Sub-research Question 2:** Are there any differences between the delayed post test results of the control group and those of the experimental group?

**Sub-research Question 3:** Are there any differences between the immediate post test results and the delayed post test results of the experimental group?

**Sub-research Question 4:** Are there any differences between the immediate post test results and the delayed post test results of the control group?

**Sub-research Question 5:** Are there any differences between the girls and the boys in the control group with respect to the results of the immediate post test?

**Sub-research Question 6:** Are there any differences between the girls and the boys in the control group with respect to the results of the delayed post test?

**Sub-research Question 7:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the immediate post test?

**Sub-research Question 8:** Are there any differences between the girls and the boys in the experimental group with respect to the results of the delayed post test?

**5.1.1. RESEARCH QUESTION 1: Are there any differences between the immediate post test results of the control group and those of the experimental group?**

The following three tables present the independent z-test results for the two groups of the immediate post tests; body, house and family member. The tables show the significant differences ( $p < .05$ ). To determine whether there was a significant difference between the control and the experimental groups, Mann Whitney U test was applied.

*Table 1 shows whether there is a significant difference between the immediate post test results of the parts of the body vocabulary achievement test of the experimental group and the control group.*

**Table 1**  
**Parts of the body - Immediate post test (B I)**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Control Group</b>	30	7.96	2.00	3.02	.002	p < 0.05*
<b>Experimental Group</b>	30	9.43	.85			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance  $p < 0.05$

The immediate post test results of the vocabulary achievement test on *the parts of the body* reveal that there is a significant difference between the pupils in the experimental group and those in the control group.

As can be seen in Table 1, the mean of the immediate post test on the vocabulary items related to the parts of the body in the experimental group is 9.43 and 7.96 in the control group. The standard deviation of the experimental group test results is .85 and that of the control group is 2.00.

The mean value shows that the pupils in the experimental group have a much higher mean score when compared with those of the control group, and the z-test result shows that there is a significant difference between the two groups at the  $p < .005$  significance level, and this indicates the pupils in the experimental group scored higher than those in the control group.

*Table 2 shows whether there is a significant difference between the immediate post test results of the house vocabulary achievement test of the experimental group and the control group.*

**Table 2**  
**House -Immediate post test (HI)**

	N	M	sd	z	p	Level of Significance
<b>Control Group</b>	30	8.06	2.47	3.00	.003	$p < 0.05^*$
<b>Experimental Group</b>	30	9.56	1.07			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance  $p < 0.05$

The immediate post test results of the vocabulary achievement test related to *house* reveal that there is a significant difference between the pupils that were taught in compliance with multiple intelligences teaching strategies and activities and those who got their training in compliance with the traditional procedure and the activities suggested in the teachers' book.

As is shown in Table 2, according to the achievement test as the immediate post test containing the vocabulary items related to 'house', the mean of the results of the experimental group is 9.56 and that of the control group is 8.06. The standard deviation of the experimental group test results is 1.07 and that of the control group is 2.47.

The above table shows that the MI activities in the experimental group enabled the pupils to enhance their learning in comparison with the traditional practice activities in the teacher's book that were used with the control group.

*Table 3 indicates the results of the immediate post (achievement) test on the kinship vocabulary administered to the experimental and the control groups.*

**Table 3**  
**Family members – Immediate post test (FI)**

	N	M	sd	z	p	Level of Significance
<b>Control Group</b>	30	6.60	3.39	2.23	.025	p< 0.05*
<b>Experimental Group</b>	30	8.73	1.72			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance p<0.05

As can be seen in Table 3, the immediate post test results of the kinship vocabulary reveal that there is a significant difference between the two groups.

The immediate post test mean of the kinship vocabulary achievement test of the experimental group is 8.73 and that of the control group is 6.60. The standard deviation of the experimental group test results is 1.72 and that of the control group test results is 3.39.

In this table, it is seen the pupils in the experimental group learned the vocabulary more successfully with the help of the Multiple Intelligences activities.

### **5.1.2. RESEARCH QUESTION 2: Are there any differences between the delayed post test results of the control group and those of the experimental group?**

Tables 4, 5 and 6 show the results and the significance of the delayed post tests of the group.

*Table 4* shows whether there is a significant difference between the delayed post test results of the parts of the body vocabulary achievement test of the experimental group and the control group.

**Table 4**  
**Parts of the body – Delayed Post test (B II)**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Control Group</b>	30	5.40	3.52	4.85	.000	p< 0.05*
<b>Experimental Group</b>	30	9.53	.86			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance p<0.05

To see the retention of the vocabulary items by the experimental and the control groups in the long-term memory, the same test was administered to both groups one month after the administration of the immediate post test. The results of the test reveal that there is a significant difference between the groups.

As can be seen in Table 4, the mean of the vocabulary delayed post test of the experimental group is 9.53 and that of the control group is 5.40. The standard deviation of the test results of the experimental group is .86 and that of the control group is 3.52.

This table shows that the pupils in the control group were not as successful as those in the experimental group as most of them forgot the vocabulary items related to the *body* to an important extent after a month. On the other hand, the pupils in the experimental group were more successful as they recollected all the vocabulary items they got right in the previous test. In addition to this, the pupils in the experimental group got better results in the delayed post test than those in the immediate post test.

*Table 5* indicates the results of the delayed post (achievement) test on the house vocabulary administered to the experimental and the control groups.

**Table 5**  
**House – Delayed Post Test (HII)**

	N	M	sd	z	p	Level of Significance
<b>Control Group</b>	30	6.76	3.15	3.66	.000	p< 0.05*
<b>Experimental Group</b>	30	9.43	1.22			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance p<0.05

The same test was administered to both groups one month after the administration of the immediate post test in order to find out whether there was a significant difference in the retention of lexical items in the long-term memory by the experimental and the control groups. These results show that there is a significant difference between the two groups.

As is shown in Table 5, the delayed post test mean of the vocabulary achievement test of the experimental group is 9.43 and that of the control group is 6.76. The standard deviation of the experimental group test results is 1.22 and that of the control group test results is 3.15.

The delayed post test results show that the Multiple Intelligences activities helped the pupils to keep the vocabulary in their mind more easily.

*Table 6 shows whether there is a significant difference between the delayed post test results of the kinship vocabulary achievement test of the experimental group and the control group.*

**Table 6**  
**Family members – Delayed Post Test (FII)**

	N	M	sd	z	p	Level of Significance
<b>Control Group</b>	30	5.33	3.34	2.92	.003	p< 0.05*
<b>Experimental Group</b>	30	7.86	1.73			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance p<0.05

The same kinship vocabulary test was administered again one month after the administration of the immediate post test in order to see the retention of the vocabulary items of the experimental and the control group.

The delayed post test mean of the vocabulary achievement test of the experimental group is 7.86 and that of the control group is 5.33. The standard deviation of the experimental group test results is 1.73 and that of the control group test results 3.34.

As is seen in Table 6, the test results reveal that there is a significant difference between the control and experimental groups.

To sum up the findings of the analyses of the delayed post test, it can be stated that the Multiple Intelligences activities enhance the retention in the experimental group.

### **5.1.3. RESEARCH QUESTION 3: Are there any differences between the immediate post test results and the delayed post test results of the experimental group?**

Tables 7, 9 and 11 present the results of the immediate post and the delayed post test results for the experimental group.

Tables 8, 10, and 12 present the pupils of the experimental group who scored the same in both the immediate and delayed post tests and those who increased their scores and those who got lower results in the delayed post test in comparison with the immediate post test.

*Table 7 shows whether there is a significant difference between the immediate post test and the delayed post test results of the achievement test of the experimental group.*



**Table 7**  
**Vocabulary (body) Test - Experimental Group**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Body- Immediate post test</b>	30	9.43	.858	.577	.564	p>0.05*
<b>Body- Delayed post test</b>	30	9.53	.860			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance p<0.05

The immediate post test mean of the vocabulary (body) achievement test of the experimental group is 9.43 and the delayed post-test mean is 9.53. The standard deviation of the immediate post test result is .858 and that of the delayed post test result is .860

Although, there seems to be a difference between the two tests with respect to the results of the immediate post test and the delayed post test based on the parts of the body, there is no significant difference between the two tests since the level of significance is p> 0. 05.

**Table 8**  
**The differences between the two test results in the experimental group.**

	<b>N</b>	<b>M</b>	<b>Sum of ranks</b>
<b>Negative Ranks</b>	3	4.67	14.00
<b>Positive Ranks</b>	5	4.60	22.00
<b>Ties</b>	22		
<b>Total</b>	30		

As is seen in Table 8, 22 pupils of the experimental group scored the same in both the immediate and delayed post tests. However, five of the pupils in the same group increased their scores while three of them decreased their scores.

*Table 9* shows whether there is a significant difference between the immediate post test and the delayed post test results of the (House) vocabulary achievement test of the experimental group.

**Table 9**  
**Vocabulary (House) Test - Experimental Group**

	N	M	sd	z	p	Level of Significance
<b>House-Immediate post test</b>	30	9.56	1.07	1.30	.194	p> 0.05*
<b>House-Delayed post test</b>	30	9.43	1.22			

N: Number of participants, M: Mean, sd: Standard deviation, Z: z-test value, p: level of significance p>0.05

The mean of the immediate post test (vocabulary - house) of the experimental group is 9.56 and that of the delayed post-test is 9.43. The standard deviation of the immediate post test result is 1.07 and that of the delayed post test result is 1.22.

Although there is a difference between the two test results, this difference is not significant as the significant level is p>.0.05.

**Table 10**  
**The differences between the two test results in the experimental group.**

	N	M	Sum of ranks
<b>Negative Ranks</b>	3	2.83	8.50
<b>Positive Ranks</b>	1	1.50	1.50
<b>Ties</b>	26		
<b>Total</b>	30		

As is seen in Table 10, of the subjects in the experimental group who took both the immediate and delayed post tests, only one pupil increased the score and three pupils forgot some vocabulary items, 26 pupils got the same results.

*Table 11 shows whether there is a significant difference between the immediate post test and the delayed post test results of the (Kinship) vocabulary achievement test of the experimental group.*

**Table 11**  
**Vocabulary (Family) Test -Experimental Group**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Family Immediate post test</b>	30	8.73	1.72	2.90	.004	p< 0.05*
<b>Family-Delayed post test</b>	30	7.86	1.73			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance p<0.05

As is seen in Table 11, the results of the test results reveal that there is a significant difference between the tests at the significant level of the test p<.05.

The mean of the immediate post test results of the experimental group related to family members is 8.73 and that of the delayed post test is 7.86. The standard deviation of the immediate post test results is 1.72 and of the delayed post test results 1.73.

**Table 12**  
**The differences between the two test results in the experimental group.**

	<b>N</b>	<b>M</b>	<b>Sum of ranks</b>
<b>Negative Ranks</b>	17	12.59	214.00
<b>Positive Ranks</b>	5	7.80	39.00
<b>Ties</b>	8		
<b>Total</b>	30		

As can be seen in Table 12, eight pupils of the experimental group scored the same in both the immediate and delayed post tests. On the other hand, 17 pupils in the same group decreased and five increased their scores.

As a result it is possible to say the teaching of vocabulary items in question in compliance with MIT enhanced their retention in the long term memory.

**5.1.4. RESEARCH QUESTION 4: Are there any differences between the immediate post test results and the delayed post test results of the control group?**

The tables 13, 15 and 17 show the differences between the immediate post and delayed post tests of the control group.

Tables 14, 16, and 18 indicate what the subjects in the control group did in the immediate and delayed post tests.

*Table 13 shows whether there is a significant difference between the immediate post test and the delayed post test results of the (Body) vocabulary achievement test of the control group.*

**Table 13**  
**Vocabulary (Body) Test-Control Group**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Body- Immediate post test</b>	30	7.96	2.00	3.66	.000	p< 0.05*
<b>Body-Delayed post test</b>	30	5.40	3.52			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance p<0.05

As can be seen in Table 13, the test results of the vocabulary items (body) of the control group reveal that there is a significant difference between the tests at the significance level of p<0.05.

The immediate post test mean of the vocabulary achievement test results is 7.96 and that of the delayed post test is 5.40. The standard deviation of the immediate post test results is 2.00 and that of the delayed post test results 3.52.

In Table 13, it is observed that some of the pupils in the control group forgot the vocabulary items after a month.

**Table 14**  
**The differences between the two test results in the control group.**

	<b>N</b>	<b>M</b>	<b>Sum of ranks</b>
<b>Negative Ranks</b>	20	12.90	258.00
<b>Positive Ranks</b>	3	6.00	18.00
<b>Ties</b>	7		
<b>Total</b>	30		

Table 14 indicates seven pupils of the control group scored the same in both the immediate and delayed post tests. The scores of the 20 pupils in the same group decreased and those of the three pupils increased.

*Table 15 shows whether there is a significant difference between the immediate post test and the delayed post test results of the (House) vocabulary achievement test of the control group.*

**Table 15**  
**Vocabulary (House) Test-Control Group**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>House-Immediate post test</b>	30	8.06	2.47	2.53	.011	p< 0.05*
<b>House-Delayed post test</b>	30	6.76	3.15			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance p<0.05

As is seen in Table 15, the immediate post test mean of the vocabulary achievement test of the control group is 8.06 and that of the delayed post test is 6.76. The standard deviation of the immediate post test results is 2.47 and that of the delayed post test results is 3.15.

The results of the two tests reveal that there is a significant difference between the immediate post test and the delayed post test with the respect to vocabulary achievement of fourth graders at the significant level p<0.05.

**Table 16**  
**The differences between the two test results in the control group.**

	<b>N</b>	<b>M</b>	<b>Sum of ranks</b>
<b>Negative Ranks</b>	16	11.75	188.00
<b>Positive Ranks</b>	5	8.60	43.00
<b>Ties</b>	9		
<b>Total</b>	30		

According to Table 16, nine pupils of the control group scored the same in both the immediate and delayed post tests. The scores of the five pupils in the same group increased while those of the 16 pupils decreased.

*Table 17 shows whether there is a significant difference between the immediate post test and the delayed post test results of the (Family) vocabulary achievement test of the control group.*

**Table 17**  
**Vocabulary (Family) Test-Control Group**

	<b>N</b>	<b>M</b>	<b>sd</b>	<b>z</b>	<b>p</b>	<b>Level of Significance</b>
<b>Family-Immediate post test</b>	30	6.60	3.39	3.18	.001	p< 0.05*
<b>Family-Delayed post test</b>	30	5.33	3.34			

**N:** Number of participants, **M:** Mean, **sd:** Standard deviation, **Z:** z-test value, **p:** level of significance p<0.05

As can be seen in Table 17, the immediate post test and the delayed post test results of the vocabulary of family members reveal that there is a significant difference between the tests (p<0.05).

The immediate post test mean of the achievement test (kinship vocabulary) of the control group is 6.60 and that of the delayed post test is 5.33. The standard deviation of the immediate post test results is 3.39 and that of the delayed post test results is 3.34.

**Table 18**  
**The differences between the two test results in the control group.**

	<b>N</b>	<b>M</b>	<b>Sum of ranks</b>
<b>Negative Ranks</b>	18	13.42	241.50
<b>Positive Ranks</b>	5	6.90	34.50
<b>Ties</b>	7		
<b>Total</b>	30		

According to Table 18, the scores of the 18 pupils in the same group decreased and those of the five pupils increased. However, seven pupils in the control group scored the same in both the immediate and delayed post tests.

**5.1.5. RESEARCH QUESTION 5: Are there any differences between the girls and the boys in the control group with respect to the results of the immediate post test?**

The tables 19, 20 and 21 present the differences between the immediate post test results of the male and female pupils in the control group .Wilcoxon Signed Ranks Test was applied in order to determine whether there is a significant difference between girls and boys.

**Table 19**  
**The Comparison of the achievements of the girls and boys in the control group according to the immediate post test results on vocabulary (Body)**

<b>Control Group Immediate Post Test (Body)</b>		<b>N</b>	<b>M</b>	<b>sd</b>	<b>p</b>	<b>Level of significance</b>
<b>Gender</b>	<b>Female</b>	15	9.00	1.73	align="center">0.002	align="center">p< 0.05*
	<b>Male</b>	15	6.93	1.75		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p<0.05

When the results of the immediate post test (vocabulary-body) in Table 19 are studied, it will be seen that there is a significant difference between the female and the male pupils at the  $p < 0.05$  level.

The girls are seen to have been more successful than the boys as the mean of their scores is 9.00 while that of boys is 6.93 and the standard deviation of the immediate post test results is 1.73 in girls and 1.75 in boys.

**Table 20**

**The Comparison of the achievements of the girls and boys in the control group according to the immediate post test results on vocabulary (House)**

<b>Control Group Immediate Post Test (House)</b>		<b>N</b>	<b>M</b>	<b>sd</b>	<b>p</b>	<b>Level of significance</b>
<b>Gender</b>	<b>Female</b>	15	8.93	2.25	0.016	$p < 0.05^*$
	<b>Male</b>	15	7.20	2.45		

**N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance  $p < 0.05$**

As is seen in Table 20, there is a significant difference between the girls and boys according to the immediate post test results (vocabulary- house) as the mean is 8.93 and standard deviation is 2.25 in the female group whereas the mean is 7.20 and the standard deviation is 2.45 in the male group.

This means that the girls did better than the boys in the immediate post test on vocabulary items related to the body.



**Table 21**

**The Comparison of the achievements of the girls and boys in the control group according to the immediate post test results on vocabulary (Kinship)**

<b>Control Group Immediate Post Test (Kinship)</b>		<b>N</b>	<b>M</b>	<b>sd</b>	<b>p</b>	<b>Level of significance</b>
<b>Gender</b>	<b>Female</b>	15	8.73	2.46	0.000	p< 0.05*
	<b>Male</b>	15	4.46	2.85		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p<0.05

According to the results of the immediate post test (kinship vocabulary), it is seen that there is a significant difference between the female and the male pupils at the p<0.05 level.

The girls are significantly more successful than the boys as the mean of the girls' scores is 8.73 while that of the boys' scores is 4.46 and the standard deviation of the immediate post test results is 2.46 in girls and 2.85 in boys.

**5.1.6. RESEARCH QUESTION 6: Are there any differences between the girls and the boys in the control group with respect to the results of the delayed post test?**

Table 22, 23 and 24 indicate the differences between the boys and the girls in the control group with respect to the delayed post test results.

**Table 22**

**The Comparison of the achievements of the girls and boys in the control group according to the delayed post test results on vocabulary (Body)**

<b>Control Group Delayed Post Test (Body)</b>		<b>N</b>	<b>M</b>	<b>sd</b>	<b>p</b>	<b>Level of significance</b>
<b>Gender</b>	<b>Female</b>	15	7.33	3.19	0.002	p< 0.05*
	<b>Male</b>	15	3.46	2.74		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p<0.05

As can be seen in table 22, there is a significant difference between the girls and boys according to the post test results (vocabulary- body) as the mean is 7.33 and standard deviation is 3.19 in the female group while the mean is 3.20 and the standard deviation is 2.74 in the male group.

It can be said that the girls are significantly more successful than the boys in the delayed post test on vocabulary items (body).

**Table 23**

**The Comparison of the achievements of the girls and boys in the control group according to the delayed post test results on vocabulary (House)**

Control Group Delayed Post Test (House)		N	M	sd	p	Level of significance
Gender	Female	15	8.00	2.61	0.045	p< 0.05*
	Male	15	5.53	3.27		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p<0.05

The results of the delayed post test (vocabulary-house) in table 23 show that there is a significant difference between the female and the male pupils at the p< 0.05 level.

The girls are seen to have been more successful than the boys as the mean of the scores of the girls is 8.00 while that of the boys is 5.53 and as the standard deviation of the delayed post test results is 2.61 in girls and 3.27 in boys.

**Table 24**

**The Comparison of the achievements of the girls and boys in the control group according to the delayed post test results on vocabulary (Kinship)**

Control Group Delayed Post Test (Kinship)		N	M	sd	p	Level of significance
Gender	Female	15	7.00	2.92	0.006	p< 0.05*
	Male	15	3.66	2.94		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p<0.05

As is seen in Table 24, there is a significant difference between the girls and boys according to the delayed post test results (vocabulary- family) at the significance  $p < .005$  level. The mean is 7.00 and standard deviation is 2.92 in the female group whereas the mean is 3.66 and the standard deviation is 2.94 in the male group.

**5.1.7. RESEARCH QUESTION 7: Are there any differences between the girls and the boys in the experimental group with respect to the results of the immediate post test?**

The tables 25, 26 and 27 present the differences between the immediate post test results of the male and female pupils in the experimental group.

**Table 25**

**The Comparison of the achievements of the girls and boys in the experimental group according to the immediate post test results on vocabulary (Body)**

Experimental Group Immediate Post Test (Body)		N	M	sd	p	Level of significance
Gender	Female	18	9.33	.907	.518	$p > 0.05^*$
	Male	12	9.58	.793		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance  $p > 0.05$

The results of the immediate post test (vocabulary-body) in Table 25 show that there is no significant difference between the girls and the boys at the  $p > .005$  level.

The mean of the scores of the girls is 9.53 while that of the boys is 9.58 with the standard deviation of the immediate post test results is .907 in girls and .793 in boys.

**Table 26**

**The Comparison of the achievements of the girls and boys in the experimental group according to the immediate post test results on vocabulary (House)**

Experimental Group Immediate Post Test (House)		N	M	sd	p	Level of significance
Gender	Female	18	9.44	1.19	.545	p> 0.05*
	Male	12	9.75	.866		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p>0.05

According to Table 26, it is seen that there is no significant difference between the female and the male pupils at the p>.05 level.

The mean of the scores is 9.44 and the standard deviation is 1.19 in the girls while the mean is 9.75 and the standard deviation is .866 in the boys.

**Table 27**

**The Comparison of the achievements of the girls and boys in the experimental group according to the immediate post test results on vocabulary (Kinship)**

Experimental Group Immediate Post Test (Kinship)		N	M	sd	p	Level of significance
Gender	Female	18	8.50	1.88	.391	p> 0.05*
	Male	12	9.08	1.44		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p>0.05

As is seen in Table 27, there is no significant difference between the girls and boys at the p>0.05 level. According to the immediate post test results (vocabulary-kinship), the mean is 8.50 and standard deviation is 1.88 in the female group, and the mean is 7.20 and the standard deviation is 2.45 in the male group.

**5.1.8. RESEARCH QUESTION 8: Are there any differences between the girls and the boys in the experimental group with respect to the results of the delayed post test?**

Table 28, 29 and 30 show the differences between the boys and the girls in the experimental group with respect to the delayed post test results.

**Table 28**

**The Comparison of the achievements of the girls and boys in the experimental group according to the delayed post test results on vocabulary (Body)**

Experimental Group Delayed Post Test (Body)		N	M	sd	p	Level of significance
Gender	Female	18	9.55	.855	.917	p>0.05*
	Male	12	9.50	.904		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p> 0.05

As is shown in Table 28, the delayed post test mean (the vocabulary achievement test on body) is 9.55 in the female group and it is 9.50 in the male experimental group. The standard deviation of the female pupils is .855 and that of the male pupils is .904.

With respect to the results of the delayed post test based on the parts of the body, there is no significant difference between the two tests (p> 0.05).

**Table 29**

**The Comparison of the achievements of the girls and boys in the experimental group according to the delayed post test results on vocabulary (House)**

Experimental Group Delayed Post Test (House)		N	M	sd	p	Level of significance
Gender	Female	18	9.38	1.24	.819	p>0.05*
	Male	12	9.50	1.24		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance p> 0.05

In Table 29, it is seen that the delayed post test mean of the vocabulary (achievement) related to the house is 9.38 in the female experimental group and it is 9.50 in the male experimental group. The standard deviation of the girls is 1.24 and that of the boys is 1.24. There is no significant difference between the girls and the boys according to the delayed post test results on the kinship vocabulary since the level of significance is  $p > 0.05$ .

**Table 30**

**The Comparison of the achievements of the girls and boys in the experimental group according to the delayed post test results on vocabulary (Kinship)**

Experimental Group Delayed Post Test (Kinship)		N	M	sd	p	Level of significance
Gender	Female	18	7.88	1.87	.787	$p > 0.05^*$
	Male	12	7.83	1.58		

N: Number of participants, M: Mean, sd: Standard deviation, p: level of significance  $p > 0.05$

When the results of the delayed post test (vocabulary-kinship) in Table 30 are discussed, it can be seen that there is no significant difference between the female and the male pupils at the  $p > 0.05$  level. The mean of the scores of the girls is 7.88 while that of the boys is 7.83 with the standard deviation of the post test results is 1.87 in girls and 1.58 in boys.

## **5.2. DISCUSSION OF THE FINDINGS**

All along this study, we have tried to provide answers to the following research questions.

### **5.2.1. Research Question: Are the Multiple Intelligence activities effective on the learning and the retention on the vocabulary items?**

According to the findings, it can be said that there is a significant difference between the two groups in achievement tests in favor of the MIT class. In other

words, the procedure and the classroom activities based on the MIT affected the pupils' achievement in the experimental group positively.

In addition, the students in the experimental group showed great interest to the activities; they voluntarily took part in the activities and projects and felt more self-confident than those in the control group.

According to the findings, it is seen that there is a significant difference between the means of the delayed post-test results of the two groups on the vocabulary retention in favor of the experimental group. This means that the MIT activities positively influenced the learning and the retention of the vocabulary items of the pupils in the experimental group.

#### **5.2.1.1. Are there any differences between the immediate post test results of the control group and those of the experimental group?**

When the immediate post test results of the parts of the body vocabulary achievement test are studied, it is seen that there is a significant difference between the pupils in the experimental group and those in the control group.

The mean value shows that the pupils in the experimental group have a much higher mean score, and the result shows that there is a significant difference between the two groups at the  $p < .005$  significance level. This indicates the pupils in the experimental group are more successful than those in the control group.

The findings show that the MI activities enabled the pupils in the experimental group to enhance their learning in comparison with the traditional procedure and the activities suggested in the teachers' book that were used with the control group.

### **5.2.1.2. Are there any differences between the delayed post test results of the control group and those of the experimental group?**

In order to evaluate the retention of the vocabulary items by the experimental and the control groups, the same tests were administered to both groups one month after each administration of the immediate post test. The results of the delayed post test reveal that there is a significant difference between the groups with respect to the retention of the lexical items.

According to the analysis, the mean of the vocabulary delayed post test results of the experimental group is significantly higher than the control group.

It is seen that the pupils in the control group were not as successful as those in the experimental group as most of them forgot the vocabulary items to an important extent after a month. The pupils in the experimental group were more successful as they recollected all the vocabulary items related to *parts of the body* and *house* in the delayed post test. In addition to this, the pupils in the experimental group remembered more words in the delayed post test when compared with those in the immediate post test. However, their delayed post test results related to the *kinship* revealed that the subjects were not that successful since they were not able to recollect a few vocabulary items. It was surprisingly seen that the subjects in the control group also forgot the vocabulary items related to *kinship*. But they forgot more kinship words than the subjects in the experimental group did.

The difficulty that the subjects of the both groups had with the retention of the *kinship* words can be attributed to the fact that the semantic fields related to those words are different in Turkish and English.

The delayed post test results show that the procedure and activities in compliance with MIT help the pupils to store vocabulary items more easily than those suggested in the traditional method and in the teachers' book used in the primary education.



**5.2.1.3. Are there any differences between the immediate post test results and the delayed post test results of the experimental group?**

The results of the vocabulary achievement test based on the 'body' and 'house' items reveal that there is no significant difference between the immediate post test and the delayed post-test mean of the experimental group. On the other hand, the mean of the immediate post test results (the achievement test related to the 'kinship' vocabulary) is 8.73 and that of the delayed post test is 7.86. The standard deviation of the immediate post test results is 1.72 and that of the delayed post test results is 1.73. It is seen the subjects in the experimental group were less successful in the retention of the kinship words than the retention of the other two groups of words. However, it did not affect the fact that the subjects in the experimental group easily kept the vocabulary items in the long term memory owing to the procedure and activities in compliance with MIT.

According to the results in general, it means the pupils in the experimental group with MIT activities can recall the vocabulary items after a month easily.

**5.2.1.4. Are there any differences between the immediate post test results and the delayed post test results of the control group?**

As is seen from the results of the immediate post test mean of the vocabulary achievement test of the control group, there is a significant difference at the  $p < .005$  level of each tests.

The results of the control group indicate that the traditional approach is not very effective for the long-term memory.

**5.2.1.5. Are there any differences between the girls and the boys in the control group with respect to the results of the immediate post test?**

The results of the immediate post test (vocabulary-body) show that the girls are more successful than the boys as the mean of the results of the female is higher than that of the boys. There is a significant difference between the female and the male pupils at the  $p < 0.05$  level in the control group.

The study shows that when the male and the female participants in the control group are compared, the girls have been more successful in learning the vocabulary items than the boys.

**5.2.1.6. Are there any differences between the girls and the boys in the control group with respect to the results of the delayed post test?**

As can be seen from the results of delayed post test (vocabulary-body) the girls are more successful than the boys as the mean of the results of the female is higher than that of the boys. There is a significant difference between the female and the male pupils at the  $p < 0.05$  level in the control group.

This study reveals that when the male and the female participants in the control group are compared, the girls have been more successful in retention of the vocabulary items than the boys.

**5.2.1.7. Are there any differences between the girls and the boys in the experimental group with respect to the results of the immediate post test?**

The results of the immediate post test based on the parts of the 'body', 'house' and 'family members' show that there is no significant difference between the male and the female groups since the significance level is  $p > 0.05$ .

When the findings of the study are examined, it is seen that the boys and the girls in the experimental group have benefited from MIT activities and learned the vocabulary items equally well.

**5.2.1.8. Are there any differences between the girls and the boys in the experimental group with respect to the results of the delayed post test?**

According to the delayed post results of the subjects in the experimental group, to whom the lexical items were taught by means of MIT activities, there is no significant difference between the male and the female group with respect to the retention of the vocabulary items.

With respect to the results of the delayed post test based on the parts of the 'body', 'house' and 'family members', it can be seen that there is no significant difference between the male and the female groups since the significance level is  $p > 0.05$ .

The immediate test and the delayed post test results show that the procedure and activities prepared in compliance with MIT help the pupils to store vocabulary items more easily than the traditional procedure and activities do.

In conclusion, we can say that the use of MIT in teaching English enhances the learning and retention of the lexical items in the learners to a great extent. We can also say that there is no significant difference between boys and the girls in the experimental group. This means MIT activities have the same effect on boys' and girls' learning and retention. Although there is a significant difference between the male and female participants in the control group in favor of the girls, there is not such a difference between the males and females in the experimental group. This means MI activities enhance the learning and the retention of the vocabulary items in boys and girls in the same way.

Another finding in this study is that the subjects of the both groups had difficulty with the retention of the *kinship* words which can be attributed to the fact that the semantic fields related to those words are different in Turkish and English. To claim that the characteristics of vocabulary items play an important role in their retention in the long term memory, another study must be carried out.

### **5.3 SUMMARY OF THE CHAPTER**

The findings have been stated and discussed in this chapter. Next chapter will give the conclusion and the suggestions.

## **CHAPTER SIX**

### **CONCLUSION AND SUGGESTIONS**

#### **6.0. INTRODUCTION**

This chapter presents the conclusion and the suggestions of the study.

#### **6.1. CONCLUSION**

In this study, it has been investigated to find out whether the English vocabulary teaching activities which stimulate the multiple intelligences have a significant effect on the language learning process and the retention of vocabulary items by the fourth graders.

Thirty words about different topics were selected and taught to the pupils in the experimental group in parallel with MIT, and at the end of the research, it was found out that this had a positive effect on their vocabulary learning process. However, the teaching of the same words to the pupils in the control group in compliance with the traditional method and the activities suggested in the teachers' book did not have the same positive effect.

The findings show that MI activities enabled the pupils in the experimental group to enhance their learning in comparison with the traditional procedure and the activities suggested in the teachers' book that were used with the control group.

It can be stated that there is a significant difference between the two groups in achievement tests in favor of the experimental group. In other words the activities related to MIT have a positive influence on the pupils' in the experimental group.

Besides, the students in the experimental group, who participated in the MI activities, were more enthusiastic than those in the control group. The levels of their interest increased by the help of the MI activities, they became more aware of their skills, and felt more self-confident. They voluntarily took part in the activities and

projects<sup>7</sup> which were prepared by the teacher in compliance with MIT; and it was observed that the pupils in the MIT group became more creative in their studies. The pupils in the experimental group pointed out that they could not realize how the time passed during these activities and they added that they were able to understand the subjects more easily by means of the procedure used in the classroom. Both the teacher's and the pupils' opinions about the multiple intelligence activities were in compliance with the results and the findings of the other studies.

According to the findings, it is seen that there is a significant difference between the means of the delayed post-test results of the two groups on the vocabulary retention in favor of the experimental group. In other words, the activities that stimulated MIT positively influenced the recall of the vocabulary items by the pupils in the experimental group.

In this study, the pupils were taught thirty words related to three different topics; 'family', 'body', and 'house'. They learned the words related to the parts of the body, family members and the parts of the house, and it is seen that the learners both in the experimental and control groups had difficulty with the retention of the kinship vocabulary. The difficulty that the subjects of the both groups had with the retention of the *kinship* words can be attributed to the fact that the semantic fields related to those words are different in Turkish and English.

As a result of the study it can be stated that the use of MIT in teaching English enhances the learning and retention of the lexical items in the learners to a great extent. It can also be concluded that since there is no significant difference between boys and the girls in the experimental group, MIT activities have the same effect on boys' and girls' learning and retention. Although there is a significant difference between the male and female participants in the control group in favor of the girls, there is not such a difference between the males and females in the experimental group. This means MI activities enhance the learning and the retention of the vocabulary items in the boys and girls in the same way.

---

<sup>7</sup> Appendix 4-5

When the feedback<sup>8</sup> received from the learners and the attitudes observed by the teacher are taken into consideration, it can be stated that the pupils in the experimental group were more voluntary to participate in the lessons; they learned how to do something independently; developed the skills of leadership and self-confidence, and they began to easily remember the subjects which were studied a month ago.

## 6.2. SUGGESTIONS

In this part, the suggestions are stated.

1. This study involves vocabulary teaching to beginners. Similar studies should be carried out at different levels.
2. It is seen here that the teaching method based on MIT is more effective on the students' vocabulary learning than the traditional one. It is suggested that the research studies be carried out to find out the efficacy of MIT in teaching *grammar*, *listening comprehension*, *speaking*, *reading* and *writing* at different levels.
3. Workshops on MIT should be arranged for the teachers of English.
4. The teachers should be made aware of the fact that there is not only one way of teaching in MIT, and there are various ways of using this method in ELT.
5. The efficacy of the MIT activities should be tested in the schools of different social-economical levels.
6. There should be more classroom activities parallel to MIT, the parents should be informed about the intelligence types their children process.
7. The studies should be applied on large groups. Testing and evaluation techniques related to MIT should be developed.
8. In order to prepare the lessons plans according to MIT, the program development group and the primary education teachers should be work collaboratively, and should determine the suitable education activities and materials.
9. MIT studies, that are very new in our country, should be developed.

---

<sup>8</sup> Appendix 6-7-8-9-10

**10.** The MIT activities should be applied on more areas of education.

### **6.3. SUMMARY OF THE CHAPTER**

This chapter has discussed the conclusions of the study and has given suggestions for the studies in this area.



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## APPENDICES

## SARUHANBEY İLKÖĞRETİM OKULU

HER RESMİN YANINDAKİ PARANTEZİN İÇİNE DOĞRU SÖZCÜĞÜ  
YA DA HARFİNİ YAZINIZ.

AD: SOYAD:

SINIF: NO:

- |          |         |
|----------|---------|
| A- BODY  | F- FOOT |
| B- HAND  | G- ARM  |
| C- MOUTH | H- EYE  |
| D- EAR   | I- LEG  |
| E- HAIR  | J- NOSE |

2- THIS IS MY.....

3- THIS IS MY.....

4- THIS IS MY.....

MY NAME IS SELİN

5- THIS IS MY.....

1- THIS IS MY.....

6- THIS IS MY.....

7- THIS IS MY.....

8- THIS IS MY.....

9- THIS IS MY.....

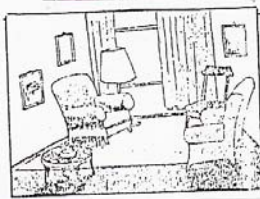
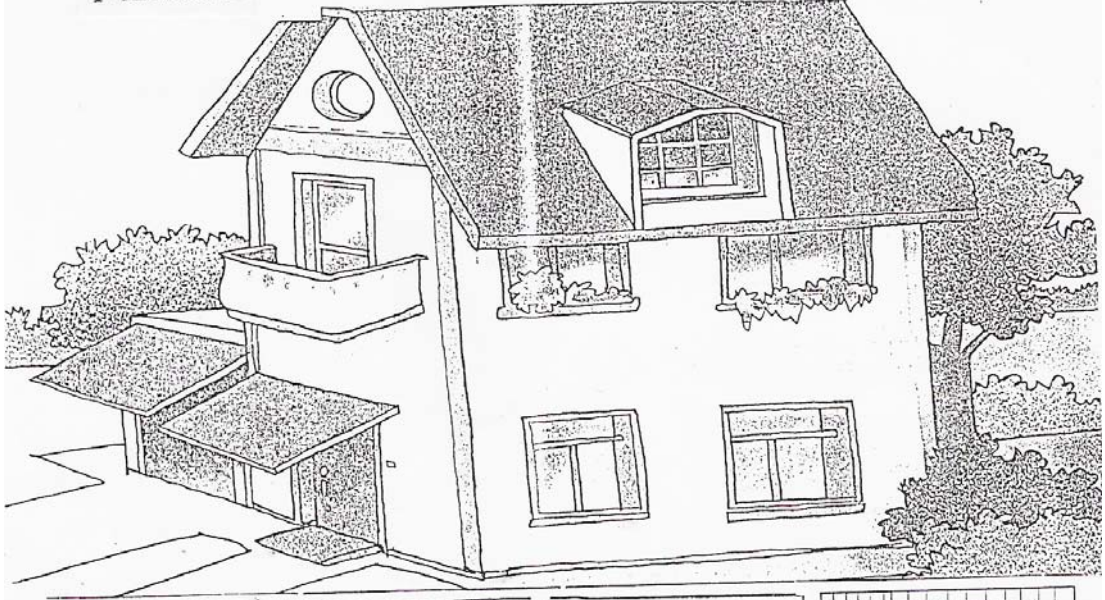
10- THIS IS MY.....

BAŞARILAR- SEMAPEKDERİN(APPENDIX 1

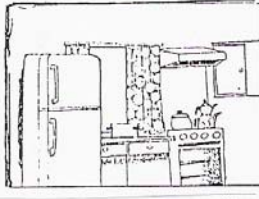
## SARUHANBEY İLKÖĞRETİM

HER RESMİN ALTINDAKİ BOŞLUĞUN İÇİNE DOĞRU SÖZCÜĞÜ YA DA HARFİNİ YAZINIZ.

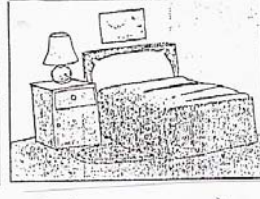
A- LIVING ROOM B- BATHROOM C- KITCHEN D- BATHROOM E- BED  
F- ARMCHAİR G- SHOWER H- CARPET I- FRIDGE J- WASHING MACHINE



1- (.....)



2- (.....)



3- (.....)



4- (.....)



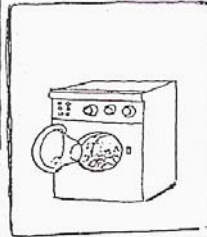
5- (.....)



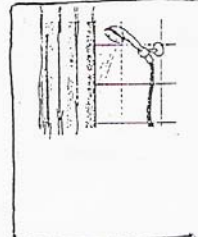
6- (.....)



7- (.....)



8- (.....)



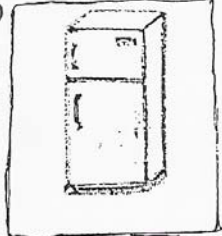
9- (.....)

AD: .....

SOYAD: .....

SINIF: .....

NO: .....



10- (.....)

BAŞARILAR- SEMAPEKDERİN  
(APPENDIX 2)

AD:

SOYAD:

SINIF:

NO:

## SARUHANBEY İLKÖĞRETİM OKULU

HER RESMİN YANINDAKİ BOŞLUĞUN İÇİNE DOĞRU SÖZCÜĞÜ YA DA HARFİNİ YAZINIZ.

A- MOTHER

B- FATHER

C- GRANDMOTHER

D- GRANDMOTHER

E- AUNT

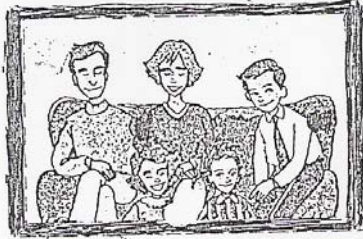
F- UNCLE

G- SISTER

H- BROTHER

I- FAMILY

J- HOUSE



1- THIS IS MY.....



2- THIS IS MY.....

3- THIS IS MY.....

4- THIS IS MY.....



MY NAME IS ALİ

6- THIS IS MY.....



8- THIS IS MY.....

5- THIS IS MY.....

7- THIS IS MY.....



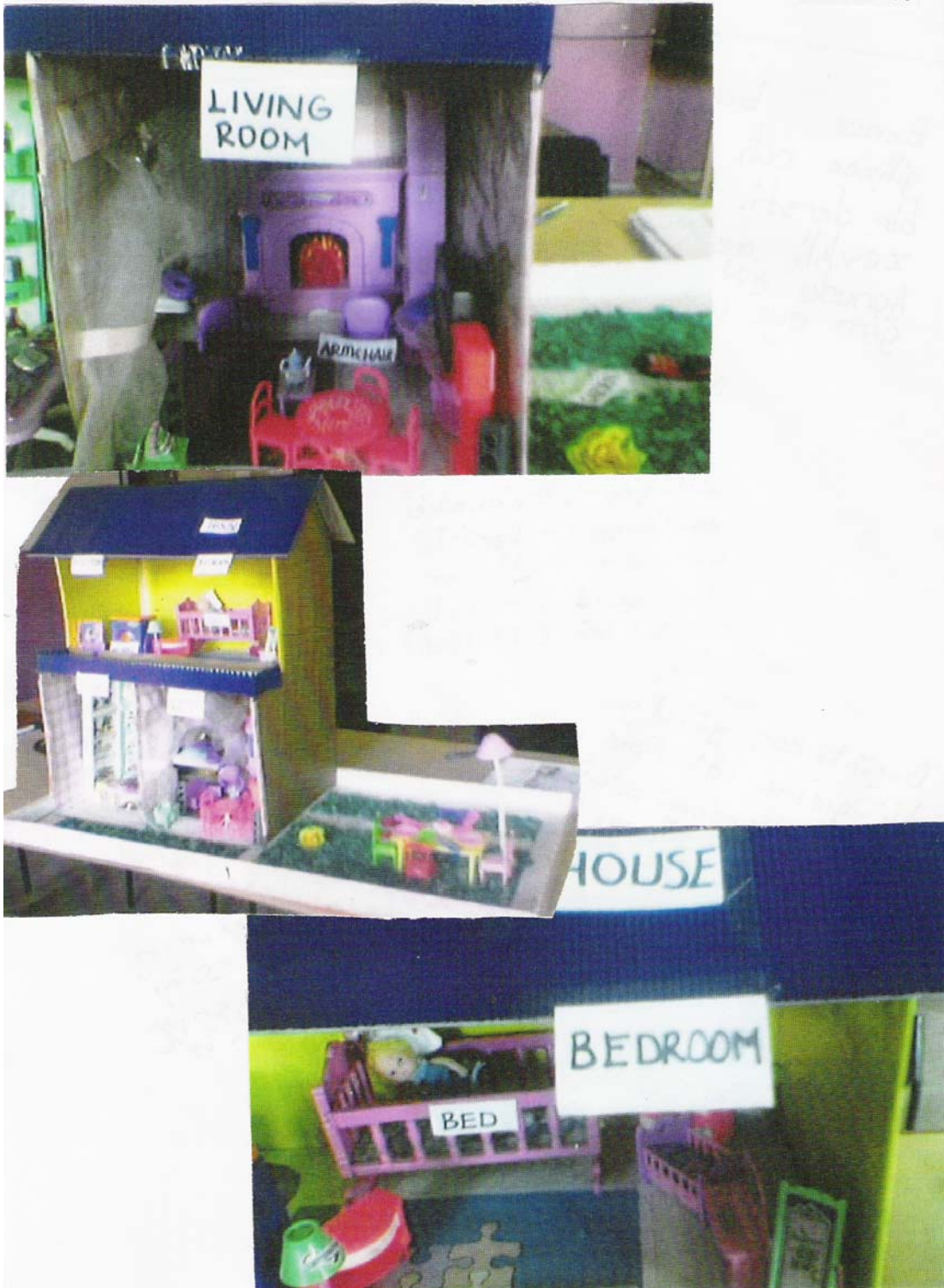
Ali

10- THIS IS MY.....

9- THIS IS MY.....

BASARILAR- SEMAPEKDERİN(APPENDIX 3)

APPENDIX 4



APPENDIX 5



Derse girmistik. Öğretmenimiz bize ev ile ilgili çok şeyler öğrettik. Öğretmenimiz bize mutfak eşyaları getirdi. Ne öğretti. Artık biz ev eşyalarının İngilizce sözlerini biliyorduk. Ben bunları çok iyi öğrendim. Ve biraz betimleyebiliyorum. Öğretmenimiz sınıfta oyuncaklar getirmişti. Çok eğlenmiştik. Keske her hafta iki gün İngilizce olsa. İktıl Buse Durak.

Bu derste en çok ailem ve akrabalarımın adlarının İngilizcesini öğrendim. Kız ve erkek kardeşlerini öğrenmekte zorlandım.

Ailemiz konusunda çok eğlence vardı anlamadığımız yerler vardı. Büyük baba ile büyük annemi sordum. Bu konuyu çok sevdim. Babamda sordığım yerleri çok zor öğrendim.  
ALI OSUAN  
GÜLEÇ

Bu ders ilginç ve müthiş geçti. Öğretmenimizin getirdiği oyuncaklar ilgimi çekti. Odaları, odaların içindeki eşyaların İngilizce adlarını öğrendik. İngilizce dersini bu yüzden çok seviyorum. Hiç sıkılmadan ders yapıyoruz. Ama haftada hepke daha çok İngilizce dersimiz olsa. İngilizceyi çok çabuk öğrenmek istiyorum.

Nurten Pipken.

Bu derste çok eğlenceli geçti. Odamı, yatağımı, kullandığım İngilizcesini öğrendim. Sonra öğretmenim beni ve birkaç arkadaşımı tahtaya kaldırdı. Bizden sorduğum soruların yanıtını istedi. Heyecana kapıldım. Soruyu yanıtlamayı başardım. İkinci ralde ise yine oldum.

Dilek Aktar.

Bugünkü dersi çok sevdim. Sınav bakınca bana biraz zor geldi. Ama hiçte zor değilmis en sevdiğim kelime bed oldu.

Alpay



## APPENDIX 7

Bu derisi çok  
sevdim yeni şey  
ler öğrendim  
ders çok eğlen  
celiydi sınav saati  
çok şey öğrendim

Vücudumuzu daha kolay öğrendik  
Müzikleri daha kolay öğrendik  
Yeni öğrendiğimiz konuları seyerek yaptık  
ders yaparken vakit sabırak geçti  
eğlenerek gülerken vakit geçirdik öğretmenlerle  
öğrendik.

Geçen dersimiz  
çok güzel geçti  
sarkı öğrendik  
eğleneli bir ders  
idi bu derste  
daha dikkatli  
davrandım zamanımı  
nasıl geçtiğini  
fark edemedik  
öğretmeni çok  
güzel bir ders idi  
Her dersimiz  
böyle eğlenceliydi

Bence bugün öğren  
diğimiz şeyler bizim  
için çok önemlidir. Çünkü  
vücudumuzun İngilizce  
sini öğreneceğiz. Bil  
giler edineceğiz.

Zeynep

Bence İngilizce  
dersi çok güzel  
geçti. Artık vücudumu  
İngilizceyle öğrendim  
En çok beğendiğim  
İngilizce sözü arm

İngilizce dersimiz çok iyi geçti. Hatta za  
manın nasıl geçtiğini bile anlamadım. Se  
ma öğretmenimiz sayesinde İngilizce sar  
kı, güzel sözler, kısaca her şeyi öğrendik  
diyebiliriz. Seva öğretmenimiz saye  
sinde artık İngilizce dersini çok sevi  
yorum.

İngilizce dersi eğle  
celi geçti. Evimizde  
esya için İngilizcesini  
öğrendim. Mutluyum.  
En sevdiğim keli  
me kitchen (Mutfak)  
oldu

Bence bugünkü ders çok  
eğlenmeli geçti. Evimizin  
bölümlerini öğrendik. Bu  
dersi çok sevdim.

Bu ders bana göre çok ilginç geçti. Daha önce öğrendiğimiz şarkıları değiştirerek söyledik. Ders işleniyor oyun oynuyor gibiydik. Dersin ne çabuk geçtiğini anlamadık. Ders bittiğinde çok üzüldüm.

Şeyma Işık

Bence: Bugünkü ders beni çok etkiledi çünkü evin içindekinler İngilizce şeklinde öğrendi en sevdiğim konu oturma odası (LIVING ROOM)'du

Bu ders çok ilginç geçti. Vücudumuzun İngilizcesini öğrenmek bana ayrı bir zevk veriyordu Kendimi derste değil de sanki oyunda buldum. Bu dersin hiç bitmemesini istiyordum. Çünkü en ilginç, zevkli geçen bir dersti.

Gökay Hocalar

Bugünkü öğrendiğim konu çok eğlenceliydi. Bu derste vücudumuzun öğrendim. En sevdiğim kelime Body'di. Okulime çok hoşuma gitti.

Ali İhsan Özcan

Bence en güzel ders  
Bu günkü dersimiz  
Vücudumuzu tanıdık.  
Tanırken hem eğlen  
dik hem öğrendik  
İngilizce dersini  
Seviyorum heleki  
Sınavları seviyo  
rum en çok İngilizce  
öğretmeninise.

Ailemiz konusunu işledik. Bu konu da çok eğlenceli oldu ama kanı tırdığımız yarılar vardı özellikle amca ile halada çok şaşındım. Bu konuyuda sezerek işledik zamanın nasıl geçtiğini anlamadık. Bu konuyuda sevindik. Öğrettiğimiz şarkılar ve şarkıların müziği çok güzeldi.

## APPENDIX 9

Bence bugünensevdiğim  
Carpet oldu Bence de  
bugün sınıfta  
çok eğlendik  
ev eşyalarının  
ingilizcesini  
öğrenmek bizim  
işimiz oldu.

Her dersimiz çok eğlenceli geçti  
du. Sonra evin ne olduğunu öğrendik  
ev kelimesi ingilizcede house olarak  
yazılıyormuş. Bunu bize öğretmenim  
öğretti Evimizin bölümlerinde öğrendik.  
Bu dersimizde güzel geçti. Sınıfın  
20 oyuncaklar getirdik oyuncaklar  
sayesinde daha kolay öğrendik.

ÖMER KİNCİ

Bu ders ilginç geçti. Amca ve dayı  
kelimesi aynı, hala, teyze aynı bu ka-  
fami karıştırdı. This is my mother  
şarkısını öğrendik. Kısaça dersimiz  
eğlenceli geçti. Zaman yine çabuk  
geçti. Arkadaşlarımız çok güzel aile  
rolü yaptılar.

Ailemiz konusunda Sema  
öğretmenimiz sayesinde  
ingilizce anne, baba, vb. isim-  
leri kolayca öğrendim. Birde  
ailemiz konusu en zevkli  
konular dan biridir.  
Adım. Binan. Soyadıım: Aksoy

Hilemden büyük  
babayı anneyi kolay-  
ca öğrendik. Ailemle  
ilgili bazı isimleri  
karıştırdım. Anneyi  
karıştırdım. Ailemi  
bazen kolay bazen  
de zor öğrenerek  
geçtik

Sezgin Atmaca

Bu derste ilginçti. Fakat bazı  
kelimeleri karıştırdım. Bu keli-  
meler amca ve teyzeydi. Ama  
arkadaşlarımla rolü sayesinde  
anladım. Çok komikti. Dersimiz  
mualesef çabuk geçti. Ama  
arkadaşlarımla sayesinde aklımda.

Gülşen ARI.

Bu ders ilginçti. Ama Büyükanne ve  
dayıyı karıştırdım. Ama zamanla  
öğrendim. Sonrada Bu aile ile ilgili  
şarkı öğrendik. Çok güzeldi. Herşey aklımda  
da çünkü şarkı çok güzeldi. Kısaçası  
dersimiz çok güzel ve eğlenceli geçti.  
Sonra zil çaldı. Ve ben çok üzülüm.  
Arkadaşlarımızın taklitleri komikti.  
Güldük.

Sercan

Sema öğretmenimiz  
sayesinde Anne, Baba, Büyük  
anne, Büyük baba, erkek karde-  
şim, kız kardeşim, Abi ve Abla  
kelimelerinin ingilizce k  
şilgini öğrendim.

Emre Can Yaman



## APPENDIX 11

Control Group (4-A) - BODY				
Sıra No		Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	8	10
2	Kız	0	7	4
3	Kız	0	10	7
4	Kız	0	10	10
5	Erkek	0	9	1
6	Erkek	0	8	10
7	Kız	0	8	8
8	Kız	0	10	8
9	Kız	0	8	2
10	Erkek	0	6	6
11	Erkek	0	8	1
12	Kız	0	10	10
13	Kız	0	10	6
14	Erkek	0	6	0
15	Erkek	0	6	5
16	Erkek	0	5	3
17	Erkek	0	6	2
18	Kız	0	10	10
19	Erkek	0	4	6
20	Erkek	0	9	0
21	Kız	0	10	9
22	Erkek	0	8	6
23	Kız	0	10	10
24	Kız	0	10	10
25	Kız	0	10	6
26	Erkek	0	5	3
27	Erkek	0	10	4
28	Kız	0	4	0
29	Erkek	0	8	2
30	Erkek	0	6	3

**APPENDIX 12**

Control Group (4-A) - HOUSE				
Sıra No	Name	Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	10	10
2	Kız	0	10	8
3	Kız	0	10	8
4	Kız	0	10	10
5	Erkek	0	5	3
6	Erkek	0	10	8
7	Kız	0	10	6
8	Kız	0	10	7
9	Kız	0	6	0
10	Erkek	0	4	2
11	Erkek	0	4	4
12	Kız	0	8	8
13	Kız	0	10	7
14	Erkek	0	9	10
15	Erkek	0	1	0
16	Erkek	0	8	7
17	Erkek	0	3	4
18	Kız	0	10	8
19	Erkek	0	5	0
20	Erkek	0	2	2
21	Kız	0	10	8
22	Erkek	0	1	4
23	Kız	0	2	1
24	Kız	0	10	8
25	Kız	0	10	10
26	Erkek	0	3	0
27	Erkek	0	2	2
28	Kız	0	5	6
29	Erkek	0	7	5
30	Erkek	0	3	4

**APPENDIX 13**

Control Group (4-A) - FAMILY				
Sıra No	Name	Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	10	10
2	Kız	0	10	8
3	Kız	0	10	8
4	Kız	0	10	10
5	Erkek	0	5	3
6	Erkek	0	10	8
7	Kız	0	10	6
8	Kız	0	10	7
9	Kız	0	6	0
10	Erkek	0	4	2
11	Erkek	0	4	4
12	Kız	0	8	8
13	Kız	0	10	7
14	Erkek	0	9	10
15	Erkek	0	1	0
16	Erkek	0	8	7
17	Erkek	0	3	4
18	Kız	0	10	8
19	Erkek	0	5	0
20	Erkek	0	2	2
21	Kız	0	10	8
22	Erkek	0	1	4
23	Kız	0	2	1
24	Kız	0	10	8
25	Kız	0	10	10
26	Erkek	0	3	0
27	Erkek	0	2	2
28	Kız	0	5	6
29	Erkek	0	7	5
30	Erkek	0	3	4

**APPENDIX 14**

Experimental Group (4-B) - BODY				
Sıra No	Name	Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	8	10
2	Kız	0	8	8
3	Kız	0	10	10
4	Kız	0	10	10
5	Kız	0	10	10
6	Erkek	0	10	10
7	Erkek	0	10	10
8	Kız	0	10	10
9	Erkek	0	8	10
10	Kız	0	10	10
11	Erkek	0	10	10
12	Erkek	0	10	10
13	Erkek	0	10	10
14	Erkek	0	10	8
15	Kız	0	10	10
16	Kız	0	10	10
17	Kız	0	10	8
18	Erkek	0	8	8
19	Kız	0	10	10
20	Erkek	0	10	10
21	Erkek	0	10	10
22	Erkek	0	10	10
23	Kız	0	8	8
24	Kız	0	9	10
25	Erkek	0	9	8
26	Kız	0	10	10
27	Kız	0	8	8
28	Kız	0	8	10
29	Kız	0	10	10
30	Kız	0	9	10



**APPENDIX 15**

Experimental Group (4-B) - HOUSE				
Sıra No	Name	Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	10	10
2	Kız	0	8	8
3	Kız	0	10	10
4	Kız	0	10	10
5	Kız	0	10	10
6	Erkek	0	10	10
7	Erkek	0	10	10
8	Kız	0	10	8
9	Erkek	0	10	10
10	Kız	0	10	10
11	Erkek	0	10	10
12	Erkek	0	10	10
13	Erkek	0	10	10
14	Erkek	0	10	10
15	Kız	0	10	10
16	Kız	0	6	6
17	Kız	0	10	10
18	Erkek	0	7	6
19	Kız	0	10	10
20	Erkek	0	10	10
21	Erkek	0	10	8
22	Erkek	0	10	10
23	Kız	0	9	10
24	Kız	0	10	10
25	Erkek	0	10	10
26	Kız	0	10	10
27	Kız	0	7	7
28	Kız	0	10	10
29	Kız	0	10	10
30	Kız	0	10	10

## APPENDIX 16

Experimental Group (4-B) - FAMILY				
Sıra No	Name	Pre-test	Immediate Post Test	Delayed Post Test
1	Kız	0	9	8
2	Kız	0	9	6
3	Kız	0	10	8
4	Kız	0	10	10
5	Kız	0	8	10
6	Erkek	0	10	10
7	Erkek	0	10	8
8	Kız	0	8	6
9	Erkek	0	10	8
10	Kız	0	8	8
11	Erkek	0	10	7
12	Erkek	0	10	10
13	Erkek	0	10	8
14	Erkek	0	7	7
15	Kız	0	10	8
16	Kız	0	5	6
17	Kız	0	10	7
18	Erkek	0	10	8
19	Kız	0	10	8
20	Erkek	0	8	6
21	Erkek	0	6	5
22	Erkek	0	8	7
23	Kız	0	4	3
24	Kız	0	9	10
25	Erkek	0	10	10
26	Kız	0	10	10
27	Kız	0	7	9
28	Kız	0	10	8
29	Kız	0	10	10
30	Kız	0	6	7