

# The Effect of Multiple Intelligence-based Teaching on Academic Achievement of Students towards English Language

## Abstract

The purpose of this study was to investigate the effects of Multiple Intelligence-Based teaching on Academic achievement of students in towards English Language. The research is experimental and it was carried out during 2012-2013 session of ninth grade students of Meerut Public School affiliated to CBSE. A total of forty ninth grade students from two different sections were involved in the study. They were selected through random sampling method. The experimental group was instructed through MI based teaching and the control group was taught through the traditional method. This experimental study lasted three weeks. To determine the effect of multiple intelligence-based teaching over traditional teaching, an achievement test of English language which consisted of thirty items was administered as pre-test and post-test to students both in the experimental and control groups. The data were analyzed by using SPSS technique of data analysis. The results showed that students who were taught through Multiple Intelligence-based Teaching were achieved higher score than the ones which were taught through the traditional method.

**Keywords:** Multiple Intelligence-Based Teaching, Traditional Method, English Language.

## Introduction

Today, one can widely think about the advancement in the field of Education. When we talk about our education system we focused on child centered education and advocate to consider individual differences. Multiple intelligence theory is proposed to be considering as a new teaching methods for this purpose as it rejects the notion of traditional understanding of intelligence by means of IQ test. The Multiple intelligences theory was originally proposed by Howard Earl Gardner, an American psychologist, in his book 'Frames of Mind' in 1983. Gardner defines intelligence as "the ability to process information that is activated in a cultural context for problem solving or creating products which are worthy in a culture". (Gardner 1999, p. 33) In 1983, Gardner set forth that any individual has a variety of intelligence degree (mathematical-logical, verbal-linguistic, musical-rhythmic, bodily-kinesthetic, intrapersonal, social, visual-spatial and nature); and this revealed multiple intelligence theory which describes the learning styles, interests, capabilities and tendencies of individuals. The current multiple intelligences theory outlines eight intelligences, although Gardner continues to explore additional possibilities. An individual might possess all nine intelligences but they are not equally developed, some of them might be less or more developed to form the unique combination of intelligence as their MI profile. Moreover, the undeveloped or inactive intelligences can be activated and developed at any point of time. Another interesting fact is that intelligences seldom act individually. They always act as a group. Each of intelligence is supported by one or two other intelligences.

Multiple Intelligences theory outlines nine types of intelligences-

1. Verbal/linguistic Intelligence: the ability to use language effectively both orally and in writing.
2. Logical /Mathematical Intelligence: The ability to use numbers effectively and reason well.
3. Visual/Spatial Intelligence: The ability to recognize form, space, color, line, and shape and to graphically represent visual and spatial ideas.
4. Bodily/Kinesthetic Intelligence: The ability to use the body to express ideas and feelings and to solve problems.

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5. Musical Intelligence: The ability to recognize rhythm, pitch, and melody.
6. Interpersonal intelligence: The ability to understand another person's feeling, motivations, and intentions and to respond effectively.
7. Intrapersonal intelligence: the ability to know about and understand oneself and recognize one's similarities to and differences from others.
8. Naturalist intelligence: the ability to recognize and classify plants, minerals, and animals.
9. Existential Intelligence: the ability to tackle deep questions about human existence.

Gardner mentioned two important advantages of multiple intelligence in education. They are:

1. It gives the opportunity to plan our education program so as to make the students desired. (For example, musician and scientific training)
2. It enables us to reach more students trying to learn different disciplines and theories.

As a psychologist Gardner relied on brain research and neuropsychology. So his theory of multiple intelligences is based on scientific evidences. It is found in brain research that each type of intelligence relates to a specific part of the brain. Multiple intelligences theory puts forward the notion that students must be trained by using these nine intelligences enable them to know their learning strength as they are smart in different ways. MI helps the students to reach their potential. MI theory offers the nine ways of learning style which ensure the teacher providing enough variety in teaching strategies to enhance the learning potential of their students. Provision to different intelligence area of each student is the main principal of MI theory. A teacher is required to use various teaching methods and teaching techniques according to MI theory to ensure the development of ability to creating links between the information in students.

The greatest percussion of Multiple Intelligences theory in education is to make the teaching more effective and more creative in developing teaching strategies as different intelligence types are used in classroom activities during that process, cooperation is possible between the teachers whose expertise areas are completely different from each other.

#### **Problem of the Study**

The main purpose of the study was to examine the effectiveness of multiple intelligences based teaching (MIBT) over Traditional English teaching method (TETM) on ninth class students' towards English. The problem for the study was, "Is there any significant difference exist between the academic achievements of students of 9<sup>th</sup> class after using multiple intelligences based teaching method (MIBT) in English language?"

#### **Objective of the Study**

To compare the academic achievement of students of experimental and control group in terms of multiple intelligence based teaching towards English language.

#### **Hypothesis of the Study**

The following hypothesis was formed for the study:

##### **H1**

There is no significant differences between the students of the experimental and control groups in the pre test score on MCEA.

##### **H2**

There is no significant differences between students of the experimental and control groups in the post test score on MCEA.

##### **H3**

There is no significant differences between the mean score of the experimental and control groups in the pre and post test score on MCEA.

#### **Study Limitation**

The study limits were confined to the following:

1. The study was restricted to the IX Class students.
2. Population of the study consisted of male and female students studying in Public School affiliated to C.B.S.E.
3. The study was confined the Experimental type of research method.
4. The study was restricted to the Meerut city only.
5. The Present study was delimited to English subject only

#### **Study Variables**

##### **Independent Variable**

Multiple Intelligences based teaching method and Traditional English teaching method

##### **Criterion Variable**

Lesson Plan of English

##### **Dependent Variable**

Academic Achievement

#### **Review of Literature**

There are many prominent professors, teacher educators, consultants and experts who have made considerable contributions to the field of MI such as Armstrong (1994), Lazear, D. (1990, 1994, 1998, 1999, 2003), Christison, M. A. (1996, 1998, 1999). In addition, there are numerous educators who have incorporated MI theory into their work, giving MI theory valuable practical use and suggestions such as Smagorinsky, P (1991, 1995), Haggerty (1995), Jasmine, J (1996), Checkley, K (1997), Costanzo, M& Paxton, D (1999), Nichoson-Nelson, K.(1998), Silver, H. F. (2000), Altan, M. Z. (2001), Tanner, R (2001), etc. With all these people's contributions, the development of MI in ELT is developing by leaps and bounds. Armstrong T. (2003), In the Multiple Intelligences of Reading and Writing: Making the Words Come Alive, shows how to involve the other seven intelligences to help pupils acquire reading and writing skills. Shearer C. B. (2006) in his PH.D paper analyzed the relevance of reading skills to MI theory.

Bahmannia, Khosravi and Khorshidi (2014) aimed to identify intelligence types of gifted students in Tehran through a field study. The researchers used a random sample of over 250 students. To analyze data, independent t test, ANOVA, Kolmogorov-Smirnov test and Friedman test were used. The study revealed that the gifted girls were significantly better than boys in verbal, spatial, musical, physical, intrapersonal, interpersonal, naturalist, spiritual, moral

and emotional intelligence. However, the researchers found no difference in logical-mathematical intelligence between gifted boys and girls studying at schools in Tehran.

Koura and Al-Hebaishi (2014) investigated into multiple intelligences and self-efficacy profiles that characterized gifted vs. regular Saudi female students. The researchers also aimed to find out the relationship of multiple intelligences with the respondents' achievement in EFL language skill. The sample consisted of 85 third intermediate level students among whom 43 were identified as gifted and 42 were regular students. Three tools were used to collect data: Multiple Intelligence Inventory, Self-efficacy Scale and Language Achievement Test. The results of data analysis revealed that both gifted and regular participants scored higher in interpersonal intelligence than any other intelligence types. Musical intelligence was the least preferred intelligence among both the groups. The study also revealed that there was significant correlation between multiple intelligences and achievement in specific language skills.

Saadatmanesh (2014) conducted a study to examine the correlation of multiple intelligences and learning styles with EFL learners' English achievement in Arak, the capital of Markazi province. A sample of 200 high school students, both male and female, was chosen randomly. The instruments used were Multiple Intelligence Developmental Assessment Scales (MIDAS), designed by Shearer in 1996 and Group Embedded Figure Test (GEFT). The results showed relationship between the combination of multiple intelligences and students' final English achievement scores in general and a relationship between linguistic intelligence and their final English achievement scores in particular. However, the researcher found no relationship between students' learning styles and their final English achievement scores.

Muthusami (2013) in his survey study tried to find out the relationship between multiple intelligences and achievement in English among high school students in Pudukkottai district, Tamilnadu. Multiple Intelligences Inventory (MII), developed by Armstrong, was applied on a randomly selected sample of 200 male and female students. Analysis of data revealed that a positive relationship existed between multiple intelligences and academic achievement in English among high school students.

Zarei and Azin (2013) led a study to investigate into the relationship between multiple intelligences and self-regulated learning components of Iranian EFL university students, majoring in the subject "Teaching English and English Translation". A sample of 150 intermediate level students from Imam Khomeini International University in Qazvin and Islamic Azad University in Takestan was selected. Data were analyzed using stepwise multiple regression analysis. Results indicated that linguistic and existential intelligences were predictors of cognitive self-regulated learning. It was also revealed that spatial and linguistic intelligences made significant contribution in predicting meta-cognitive

self-regulated learning. A negative relationship between spatial intelligence and meta-cognitive self-regulation was also found out in this study.

Foong, Shariffudin and Mislan (2012) examined the pattern of multiple intelligences, personality traits and critical thinking skills among high achievers in Malaysia. Their study-sample consisted of 1268 students, selected randomly from secondary schools. The Multiple Intelligences Inventory, developed by Walter McKenzie in 1999, was modified and used in this quantitative survey study. Data analysis showed the majority of high achievers having high intrapersonal intelligence, followed by existential, kinesthetic, logical-mathematical, spatial, interpersonal, linguistic, naturalist and musical intelligences. On the other hand, normal students were found to score highly in interpersonal intelligence.

Mohammadi, Abidin and Ahmad (2012) conducted a study in Perak, Malaysia, to find out the relationship between multiple intelligences and achievement in learning English of 120 adolescent secondary level urban male students. Both descriptive and inferential methods were used for data analysis. The study revealed that interpersonal intelligence showed the strongest significant positive influence on language achievement, followed by logical-mathematical intelligence. Naturalist intelligence showed significant negative influence on language achievement, followed by linguistic and musical intelligences.

Salehi and Gerami (2012) conducted a study on 50 engineering students of Sharif University, Iran, to find out which type of multiple intelligences were dominant in them and predictor of their success in English language learning. Multiple Intelligences Inventory, developed by Armstrong in 2010, was used in this ex-post facto study. Correlation analysis and multiple regressions were used to analyze data. It was revealed that none of the intelligence types correlated in a significant way with achievement scores of the respondents, though the best predictor of their success in English language was musical intelligence, followed by bodily- kinesthetic intelligence.

Zarei and Mohseni (2012) sought to find out the relationship between four types of intelligences (logical-mathematical, interpersonal, linguistic and intrapersonal intelligences) and grammatical and writing accuracy of foreign language learners. A 40-itemed multiple intelligences questionnaire was administered on 190 university level students in Iran. Multiple regression analysis of data indicated that both intrapersonal and interpersonal intelligences were predictors of the respondents' grammar accuracy and intrapersonal intelligence made a statistically significant contribution to predicting their writing accuracy.

Ghazi, Shahzada, Gilani, Shabbir and Rashid (2011) led a study in Bannu district, Pakistan, to investigate into the relationship between students' self-perceived multiple intelligences and their academic achievement. Multiple Intelligences Inventory, developed by Armstrong in 1994 was administered on a sample of 714 1st year students to

collect data. A significant correlation was found between students' self-perceived linguistic, logical-mathematical, interpersonal, intrapersonal, naturalist intelligences and their academic achievement. However, the researchers found no significant correlation between the respondents' self-perceived musical intelligence and their academic achievement. Moreover, a weak correlation was found between self-perceived bodily-kinesthetic intelligence and academic achievement of the respondents.

Al-Faoury, Khataybeh and Al-Sheikh (2011), in their survey study, aimed to identify and rank the differences in multiple intelligences of 1436 students from some private and public universities of Jordan, in respect of some variables like gender, university type (public / private), students' GPA, their specializations and academic year. ANOVA, t test and post hoc tests of data revealed that, there were significant differences among the respondents in linguistic and interpersonal intelligence in favor of females. Regarding the relationship between their GPA and types of intelligence, the study revealed that high GPA correlated with a high level of logical-mathematical intelligence.

Rivera (2010) conducted a descriptive survey study to determine multiple intelligences and their relationship with academic performance in social philosophy of BEE fourth year students. The study revealed that majority of the students were musically inclined and their age and sex did not affect their multiple intelligences. Besides, their academic performance was affected by the nature of their intelligence.

Ozdilek (2010) aimed at investigating multiple intelligences of sixth grade students to determine the extent to which they affected the respondents' achievement in the topic „particle model of matter“. The study was conducted with 132 students in Turkey. Results revealed that there were low positive correlation between their achievement in the topic and logical-mathematical, spatial and interpersonal intelligences. It was also found that the respondents with prominent bodily-kinesthetic and naturalist intelligences academically achieved lower than ones with dominant logical-mathematical, spatial and musical intelligences.

Fernando and Cabrera (2009) sought to determine the extent to which students' multiple intelligences were predictors of their academic performance as reflected in their test scores in Cost Accounting and Financial Management. A descriptive field study was conducted with a purposive sample of 56 respondents in the Philippines. It was found that, average scores of students who perceived to have a great extent of multiple intelligences, got higher grades in the two courses than students who perceived to have a moderate extent of multiple intelligences. The researchers also found significant relationship between logical-mathematical, linguistic and spatial intelligences and their academic performance.

Ikiz and Cakar (2009) investigated the relation between multiple intelligences and academic achievement of secondary school students in Turkey

in a survey study. Participants were 250 students from secondary schools. Data were analyzed with descriptive statistics, t test and ANOVA. It was found that academically low achieving group had lower linguistic, logical-mathematical, interpersonal and intrapersonal intelligences than the high achievers. The study also showed that students involved in music, were doing better than those who were not.

Marasigan (2009) conducted a descriptive survey study to determine the relationship between multiple intelligences and academic performance of high school students of Olivarez College. It was found that a relationship existed between academic performance and multiple intelligences of the respondents. Among the respondents, intrapersonal intelligence was ranked number one, followed by bodily-kinesthetic, spatial, interpersonal, musical, linguistic, logical-mathematical and naturalist intelligences.

The previous studies show that most experimental studies stress the effective use of multiple intelligence, as a facilitating strategy, it helps in delivering the educational material to students easily and it plays a positive role in enhancing the general trend toward the use of student centered instruction. MI based teaching activities has a positive impact on cognitive achievement, academic achievement, comprehension and application.

The current study is an attempt to support the previous studies in using the experimental method in studying variables and also it stimulates the activation of MI based instruction in academic teaching.

#### **Methodology of the Study**

The researcher followed the true-experimental method to achieve the aim of the study. The present study was conducted on two groups of IX Class students. In the present study an experimental method was used in order to find out difference between traditional method and multiple intelligence based teaching method. The MI based method was used to teach the lessons of the experimental group while the ordinary method was used in teaching the lessons of the control group of ninth class for English teaching in Meerut Public School, Meerut.

#### **Population of the Study**

The population of the study consisted of male and female students studying in ninth class in Public Schools of Meerut city those are affiliated to C.B.S.E.

#### **Sampling**

Simple random sampling technique was applied to select the true representative subject for the study. Random sampling technique is generally applied in order to obtain a representative sample. This study was confined to CBSE patterned public school only; one school for the study was selected by lottery method. A list of ninety CBSE patterned public schools prepared by the researcher and Meerut Public School, A Co-Educational public school affiliated to CBSE selected by lottery method. There were four sections in ninth class. Two sections of ninth class were assigned with lottery method. There were forty students in each section of ninth class. A

list of all the students was prepared and forty students, twenty students per group were assigned to the control and experimental group by odd even method. The ages of subjects ranged from 14 to 15. Sixty percent of the students were male and forty percent of the students were female.

#### **Instrument**

In order to collect the data related to academic achievement of the student "The Academic Achievement test" was developed by the researcher including multiple choice questions (MCQ) and MI inventory taken from the internet.

#### **Multiple Choice English Achievement Test**

To find out the effects of Multiple Intelligences based teaching on academic achievement of the students in English subject; researcher has made Multiple Choice Achievement test for English language. Behavioral objectives on the content were developed for ninth grade public high school students by using the English textbook that was in use in public high schools. The objectives are given in The MCEA should have 30 multiple choice items, high reliability (more than .80) and validity. It should also take approximately 25 minutes to complete by an average student. Since there was no previously developed achievement test on the content, MCEA was developed with respect to the behavioral objectives. First of all, previously developed questions in Text book "Literature reader" Then 45 multiple choice items were developed. One English professor and two English assistant professors and two English teachers were checked this test for face and the content validity by comparing the content of the test with the objectives. After that, this test was administered at the end of the fall semester to the ninth grade high school students in Meerut. Then 30 questions were selected based on the feedback from the pilot study students while the test was administered. Items with negative item correlations were discarded. Internal reliability of the test was calculated using split half and Cronbach Alpha. The values obtained for these reliability coefficients were 0.38 and 0.33 for the pretest and 0.40 and 0.44 for the post test, respectively. The completion time for students was approximately 30 minutes.

#### **MI Inventory**

Before the MI inventory some background questions was asked to the subjects. These questions were like student's name, gender, age, prior English GPA. To investigate the students current multiple intelligences profile, MI inventory was needed. The MI inventory of this study was adopted from internet. It was developed by Walter L. McKenzie, 2017 and downloaded from the website <http://surfufaquarium.com>. The inventory contains 90 statements whose responses can be used to measure the individuals multiple intelligences. Each student was asked to complete the questionnaire by putting a number from 0 to 1 next to each statement that described them most. 1 shows that statement describes the student and 0 or blank shows that it does not.

#### **Teaching/ Learning Materials (MI based LESSON PLANS)**

The seven-step procedure was used during the preparation of the MI based lesson plans. At the beginning the researcher was decided on the MI dimensions to be focused in this study. In the pilot study, students' highest average scores were from Visual/Spatial intelligence, and Interpersonal, Verbal/Linguistic intelligence, Logical-Mathematical intelligence. Because of that reason these four intelligence dimensions were selected for the lesson plans.

Therefore, the lesson plans on the selected content, (the three lessons in text book "LITERATURE READER") were designed according to these MI dimensions. Activities in lesson plans targeted one Intelligence and it was supported with 2 or 3 different intelligences. At the first step, the researcher focused on the objectives prepared with respect to the Bloom's taxonomy. Objectives of the lessons were placed at the center of a sheet paper. Then for these objectives some kinds of questions (for four MI intelligence dimensions) were asked. These questions were "How can I use the spoken or written word?", "How can I bring in numbers, calculations, logic, classifications, or critical thinking skills?", "How can I use visual aids, visualization, color, art, or metaphor?" and "How can I engage students in peer sharing, cooperative learning, or large-group simulation?" (Armstrong, 1994, p.58). Then the researcher looked over these questions. Then thought which of the methods and materials seem most appropriate. At this time researcher used variety of different books (Campbell, 1994; Campbell, et al. 1996; Bellanca, et al. 1997; Bellanca, 1997). Receptive and productive domain of English language and basic language skills were focused for each intelligence dimension. So activities covering the same objectives were prepared. However, there was at least more than one idea for each Intelligence. Then, researcher decided on the most appropriate activities according to the MI based teaching on selected content. After that lesson plans were designed by using these selected activities. Before implementing the MI based lesson plans opinions of the experts were taken. One professor, one associate professor and one instructor gave their opinions about the MI lesson plans. They examined "If the activities covering the objectives of the selected content?", "If the activities of four intelligence dimensions covering the same objectives?" and "If the activities of four intelligence dimension really related to these intelligences?" "If the activities of four intelligences dimension were really targeted one intelligence and supported with two or three intelligences?" Moreover, two English teachers were said their opinions about the appropriateness of the lesson plans to ninth grade students and appropriateness of the lesson plans to the content. According to the opinions of these experts, researcher revised the lesson plans. Moreover, some posters related to the content were also created. These posters were included in lesson plans. Teachers used these posters during the lessons.

**Design of the Study**

This study was a True- Experimental Design since the subjects were randomly assigned to experimental and control groups. Pretest / posttest experimental design with a control group was used in the study. At first experimental and control groups are given pretests. After pretests Experimental groups are exposed to treatment and then both the groups are given posttests (McMillan & Schumacher, 2001; Shaughnessy, 2000). A total of forty students were selected from the two sections of ninth class. In control groups there were twenty students. The students in this control group were instructed with Traditional Teaching method. In experimental groups there were also twenty students and the students in this group, were exposed to the Multiple Intelligences based instruction. Before the treatment, all of the classes were given the MI Inventory and the MCEA as pretests. After pretests, the students in experimental group were exposed three weeks long to Multiple Intelligences based lesson plans and the materials. Meanwhile control groups were exposed to the traditional teaching method. Then the same tests were administered as posttests to the groups. Moreover, Table 1 shows research design for this study.

**Table 1: Research design of the study**

Group	Pre-test	Experimental treatment	Post-test
Experimental	O1	X	O1
Control	O2	-	O2

**Treatment Protocol**

Researcher followed these treatment protocol steps in experimental groups. The treatment protocol steps are given below:

1. At the beginning of the lesson, researcher groups the class with respect to the grouping list prepared by herself.
2. Then, activities are given to all of the students. During this process, teacher gives activities printed on color papers with respect to the color names of the groups. There were also some clues to understand easily which activities belong to which groups.
  - a. Yellow activity papers having frame with pencils and having a mark "D" on the right up side of the paper is for Verbal/ Linguistic intelligence groups.
  - b. Pink activity papers having frame with insects (ladybird)) and having a mark "M" on the right up side of the paper is for Logical/Mathematical intelligence groups.
  - c. Blue activity papers having frame with bells and having a mark "G" on the right up side of the paper is for Visual/Spatial intelligence groups.
  - d. Green activity papers having frame with boys and having a mark "S" on the right up side of the paper is for Interpersonal intelligence groups.
  - e. The researcher stated needed time for each activity in the lesson in the lesson plans and should follow all of these steps in these time schedule.
  - f. Researcher overviews the previous lesson and then he/she starts with a short explanation about the lesson as given in the MI based lesson plans.

- g. After this explanation, she starts the groups do the first activities for a given time duration.
- h. After completing the activities, students present their product to the class.
- i. The teacher summarizes the first activity results with the MI based examples.
- j. Similarly students do the second and third activities.

By this treatment protocol, researcher standardized the procedure and the implementation of the treatment in experimental groups. Moreover, in control groups, teachers were not allowed to do similar activities or examples given in MI based lesson plans.

**Procedure**

Before treatment, pretests of this study were given to both of the experimental and control group. Pretests were the MI Inventory, and the MCEA. Students' answers for MI inventory were collected in optic forms. Moreover, for the MCEA, an answer sheet was distributed to the students and they gave their answers on it. Moreover, at the beginning of the MI inventory some background questions such as students gender, birthday, and prior semester English GPA were asked. Two-class hour were given to the students to complete the pretests. After pretests, the students in experimental group were exposed three weeks long to Multiple Intelligences based lesson plans and the materials. Meanwhile, control groups were exposed to the traditional teaching method. According to pretest results of the MI inventory; in experimental groups students were sub grouped with respect to their strongest intelligences. The researcher wanted to have at least one group from each intelligence dimension because of that reason; in some cases students were grouped with respect to their second strong intelligence. In each sub group, there were 5 students. Since the e group had twenty students, there were four groups in class. The generated groups were mixed gender groups. Each intelligence dimension labeled with one color. According to this Verbal/Linguistic groups were called as yellow groups, Logical/Mathematical groups were called as pink groups, Visual/Spatial groups were called as blue groups, and Interpersonal groups were called as green groups. Therefore, students did not know their strongest intelligence dimensions. Instead of that they were named as color groups. After grouping, students were given activities with respect to strongest intelligences. Activities were printed with respect to the colors of the groups. Therefore, for example Verbal/Linguistic groups were given activities on yellow papers. There were four intelligence centers (groups): Verbal/Linguistic, Logical/Mathematical, Visual/Spatial, and Interpersonal. In these intelligence centers activities were mainly based on one intelligences and supported with two or three intelligences. In each groups' activity paper there were three activities. First of all, by all the groups, the first activity was made and then, the second and the last, respectively. Each of the students in groups should do the activities. At the end of each activity, each group shared their results with the class by doing presentation. So, all the students were treated

with their strongest intelligence based lesson plans and activities. During the treatment in experimental groups researcher overviewed the previous lesson at the beginning of the lesson. After the students completed the activities the researcher summarized the topic with the MI based examples. Moreover, in lesson plans there were examples for each activity with respect to the intelligence dimensions. However, most of the time lessons were student centered. Throughout the experiment researcher ensured that the he had implemented the MI supported PBL method appropriately and the researcher observed the control group to ensure that the teacher did not use MI based instruction.

**Analysis of Data**

In the present study, the researcher has used Statistical Package (SPSS) for analyzing all processes:

1. Calculating the mean.
2. Calculating the standard deviation.
3. T-test to examine the difference between the performance of control and experimental groups.

**Research Findings**

After applying the experiment, the researcher conducted a post academic achievement test then she analyzed the study out-comes to figure out the impact of MI based teaching on ninth class students' academic achievement and the results were as follows:

**Results related to the First Hypothesis**

There is no significant differences between students of the experimental and control groups in the pre test score on MCEA.

Mean and the standard deviation of the pre-test score on MCEA of the experimental and control groups were extracted as shown in Table 2.

Table 2 reveals that there are no statistically-significant differences between the experimental and control groups at the significance level of 0.01 in the

**Table 4: Comparison between the results of the pre and Post Achievement Tests For The Control And Experimental Groups**

Group	Pre achievement test		Post achievement test		t-value	Significant level (0.01)
	Mean	S.D.	Mean	S.D.		
Control	20.75	17.7	21	18	-0.81	Insignificant
Experimental	20.3	16.2	25	25	-14.32	Significant

Table 4 shows statistically significant differences between the pre and post achievement test at the significance level of 0.01 for both the control and experimental groups.

It is observed that the development of the academic achievement for the experimental group is greater than that of control group. This stresses the effective use of MI based teaching in English language.

**Conclusion**

The purpose of this study is to determine the effect of Multiple Intelligences based teaching on ninth class student's achievement in English language.

As a result of this study, in which the effects of multiple intelligences based teaching on achievement of students in English lesson have been examined, the following suggestions can be given depending on the findings obtained:

pre test which indicates the equivalence of the two groups.

Group	N	Mean	S.D.	t-value	Significance level (0.01)
Control	20	20.75	17.7	1.55	Insignificant
Experimental	20	20.3	16.2		

**Results related to the Second Hypothesis**

There is no significant difference between students of the experimental and control groups in the post test score on MCEA.

Mean and the standard deviation of the post-test score on MCEA of the experimental and control groups were extracted as shown in Table 3.

Group	N	Mean	S.D.	t-value	Significance level (0.01)
Control	20	21	18	- 11.9	Significant
Experimental	20	25	26		

Table 3 shows statistically significant differences between the control and experimental groups at the significance level of 0.01 in the post academic achievement test in favor of the experimental group.

**Results Related to the Second Hypothesis**

There is no statistically differences between the mean score of the experimental and control groups in the pre and post academic achievement test on MCEA.

A comparison was made between the standard deviation and the mean for the experimental and control groups in the pre and post academic achievement tests, as shown in Table 4.

1. In light of the gathered data in the study, multiple intelligences based teaching method has been found to be more effective on students' achievement levels than the traditional language teaching methods. So, it is recommended the teachers should use this method in their lessons. Because, after the experimental process of this method, students have risen their achievement levels and attitudes towards the lesson in a greater extent.
2. Seminars and courses should be organized as to train teachers to use this method effectively in their classrooms so that they can create a more positive classroom atmosphere.
3. Teachers should direct the process of the method effectively because if they cannot direct the method effectively, students can be frustrated and demoralized, they can be bored with the

lesson and the method can be unsuccessful from the beginning of the process.

4. By this method, the learning environment is organized in a "student-centered" way. Students do not only memories the concepts and other things; they do study the learning material deeply. In other words, they have a chance to practice their understanding on the learning material with project-based method. So the learning environment should be organized so that students interact face to face with each other and share the responsibility of the learning process.
5. Teachers should give projects to students so that students have a chance to select from a number of subjects. In addition, teachers should pay attention to the students so that the students organize their projects with the principles of multiple intelligences theory. Teachers should have knowledge about the education based on Multiple Intelligences theory in order for them to identify the intelligence profile of the students having difficulty in comprehending the subject and to prepare appropriate activities for these profiles. If teachers have insufficient knowledge about the subject, they can be informed about multiple intelligences-based instructions through in-service training. It is thought that students can be academically more successful through education based on Multiple Intelligences Theory in which they can be more effective, use the materials by themselves, speak and discuss freely, learn by seeing and acting, and use their undiscovered intelligence fields. For this reason, in our era where individual differences come into prominence, more importance should be attached to the theory of Multiple Intelligences that can support the students' individuality, and by doing so that can make learning more pleasant (Hasenekoğlu and Gürbüzöğlü 2009).

Based on the findings obtained in the study, it can be said that there is a significant difference between the achievement levels of the students who have been taught by Multiple-based teaching method and the students who have been taught by the traditional teaching methods. The students who have been taught by Multiple-based teaching method have become more successful than the students who have been taught by the traditional teaching methods. This study indicated that the experimental groups had much greater understanding of the information covered especially on questions that required

Therefore, Classroom teachers should consider how to prepare learning environments in which students will be active in accordance with their characteristics and then present these environments to students. Creating activities based on MI in various subjects will attach a higher degree of importance on the achievement level of students. In addition, the education of trainee teachers will benefit from these methods.

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