

The Relationship between Multiple-Intelligences and Learning Grammar in EFL Settings

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Abstract

Typically, this article highlights some points of grammar related to multiple-intelligence (MI) developed by Gardner (1983, 1993). A survey was conducted using a questionnaire developed by Christison (1999) to specify MI learners, a pre-test and post-test for the examination of knowledge of grammar. This study tests the hypothesis of Gardner (1983) which indicates that if the intelligence of learners is a dominant linguistic intelligence, grammar scores would be higher without any difference if the students are male or female. For this purpose 64 male students and 61 female students, assumed learners of grammar, were invited to participate in the research project. A population of 30 men (of 64) and 30 women (of 61) EFL learners of grammar who had high scores in grammar on the one hand, and dominant linguistic intelligence on the other hand were selected. The results of this study revealed that: (a) the hypothesis of Gardner is partially true, and (b) there is no difference between the multiple intelligences of learners EFL men and women in terms of the domination of their intelligences.

ملخص

هذا المقال يسلط الضوء على بعض النقاط النحوية المتعلقة بالذكاء المتعدد التي طورها جاردنر (1983، 1993) وقد أجريت هذه الدراسة باستخدام استبيان أعده كريستيسون (1999) لتحديد الذكاء المتعدد عند المتعلمين مع امتحان قبلي وبعدي لتحديد مدى الإلمام بالقواعد. تحاول الدراسة التحقق من فرضية جاردنر التي يقول فيها إنه إذا كان الذكاء اللغوي هو المهيمن عند المتعلمين فإن علامات النحو ستكون عالية بغض النظر عن جنس المتعلم. وتم اختيار 64 متعلما و61 متعلمة للمشاركة في الدراسة، كما تم اختيار 30 متعلما من بين 64 و30 متعلمة من بين 61 الذين تحصلوا على علامات عالية في النحو ولديهم ذكاء لغوي مهيمن. وانتهت الدراسة إلى أن فرضية جاردنر تتحقق جزئيا وأنه ليس هناك فرق بين الذكاء المتعدد عن الذكور والإناث فيما يتعلق بالهيمنة الذكائية.

Background

In recent years, there has been a change in the interpretation, explanation, nurturance, evaluation and application of the frames and representations of mind triggered by Gardner's (1983) revolutionary book named "Frames of Mind". Armstrong (2000) indicates that the interpretation comes from Gardner's (2006) culture-based definition of intelligences which challenges the first intelligence tests. According to the culture-based view, mind and intelligence are affected by the culture and the contextual phenomena. Christison and Kennedy (1999) believe that the traditional and mono-dimensional views of intelligence include a narrow range of abilities. The narrow view has been replaced by the most recent views of intelligence which contain a wide extent of abilities.

In the past, intelligence was measured in relation to IQ tests. This was due to the fact that the scores of learners were indicative of their intelligence (Christison & Kennedy, 1999). But at present, the story of intelligence and the way of interpreting it have undertaken some changes which shed light on the nature of intelligence and its position in the pedagogical context. The following approaches have supplied constructive and instructive contributions to the interpretation and understanding of the nature of intelligence and the pedagogical dominance of multi-dimensional view of intelligence over the mono-dimensional one.

The first is Sternberg's triarchic theory (as cited in Miller, 2002; Mondì, 2005) which considers intelligence beyond that measured by conventional IQ test. According to this theory, intelligence is regarded from different perspectives rather than from one fixed view. The second is ecological approach which emphasizes the role of environment in shaping the intelligence of human being. Based on this theory, environmental factors play the most important role in changing and nurturing the intelligence of the learners (Mondì, 2005). The third is technology which deals with the resources to convey and provide information for each dimension of intelligence (Najjari, 1996; Armstrong, 2000). The fourth is artificial intelligence which has increased understanding and perception of the nature of intelligence and has provided an effective application of intelligence in different pedagogical contexts (Leake, 2002; Gardner, 2006; Armstrong, 2003; Alvis. et al., 2004).

The new theory is that of Gardner's (1983; 1991; 2006) theory. According to which there are different kinds of minds which can be developed and nurtured in a variety of social and cultural contexts. These minds have been triggered by other research findings such as genetics, psychology, neurology, history, philosophy and anthropology. Based on these findings and interdisciplinary sciences, materializing the theoretical findings of MI into practice can increase to the maximum. Gardner's (2006) view of multiple-intelligences runs in parallel with the pluralistic view of mind. That is to say, many mental abilities rather than general view of cognitive ability are taken for granted. To put the point another way, mind is possessed with different abilities and people are gifted with many cognitive styles and mental strengths (Armstrong, 2003, 2000).

Some researchers (Christison, 1998; Armstrong 2003, 2000; Alvis et al., 2004; Christison and Kennedy, 1999; Morris and Maisto, 1999) indicate that the nurturance and development of intelligences can be visible and practical by means of pedagogically facilitating techniques and in virtue of understanding and perceiving individual learners' differences, their styles, their strategies, their interests, and their needs.

Founded on the afore-cited discussion, the present research project does not expand on MI in vacuum; It will consider grammar learning, about which in the next section I will explain more in precision detail, within the framework of MI model. To provide a brief definition of grammar, it follows that as with the definition and application of intelligence in context (Gardner, 1991), grammar is defined and applied in context (Celce-Murcia, 2001). Celce-Murcia (2001) proposes that in order to gain a better fit between grammar and communication, three factors such as structure, semantics and pragmatics, must be taken into account.

The Eight Intelligences

Traditionally, intelligence referred to the ability resulted from a test. That is to say, intelligence was connected exclusively to heredity (Morris & Maist, 1999). But the view that intelligence is a general ability has been strongly criticized. So there exists a considerable opposition to the static view of intelligence. Morris and Maist (1999) posit that most intelligence tests were concerned with a narrow range of abilities and that intelligence is far too complex to be precisely measured by tests. Based upon the criticisms leveled against fixed view of intelligence and according to the view that environmental factors (Morris & Maist, 1999) not only after birth but also before birth exercise impact on human being, the dynamic view of intelligence was developed. Accordingly, Gardner's (2006, 1991) eight intelligences and the explicit implications of the applications are explained as follow:

1. Interpersonal intelligence: This intelligence is concerned with the capacity to understand the intentions, motivations and desires of the people (Richards and Rogers, 2002). To put it clearly, this intelligence allows people to work effectively with others. All of the educators, salespeople, religious and political leaders and counselors need a well-developed interpersonal intelligence (Richards & Rogers, 2002; Armstrong, 2000, 2003)), because all of them are in need of exchange of feeling, thinking, interaction with other people. So in order for the teachers to teach grammar successfully and in order for learners to learn grammar at their own speed, the classroom must be dominated by inclusion of co-operative atmosphere. Along the same line, Nunan (1999) holds the view that developing and nurturing the interpersonal intelligences of the learners can be useful. Because in this case, the task is assigned to the students and the teaching and learning context becomes communication-oriented and cooperation oriented, finally learning gets productive.

2. Spatial Intelligence: The ability to sense form, space, color, line, and shape. It includes the ability to graphically represent some visual or spatial ideas (Christison, 1998). In fact, spatial intelligence is the ability at which the architects, decorators, sculptors, and painters are good. Armstrong (2000, 2003) and Richards and Rogers (2002) claim that providing the learners with visual mapping activities and encouraging students to create charts, bulletin boards, establishing class atmosphere in which the learners can draw pictures, watch pictures on TV and voice their opinion about the picture are the characteristics of this intelligence.

Doughty and Long (2003) recommend that if teachers teach the learners to register the grammatical points as visual mappings, the architecture of visual ability will be useful. According to them, through association between grammatical structures and pictorial concepts, the meaning and application of grammar in an appropriate context will be crystallized. Consequently, the pictures smart intelligences will be nurtured in the classroom and the learners' consciousness and curiosity will be raised.

3. Logical-mathematical intelligence: Christinson (1998) and Gardner's (2006, 1991) believe that this is the intelligence which includes the ability to use numbers effectively and to use the power of reasoning. This intelligence includes such skills as understanding the basic properties of numbers. This is an intelligence at which the doctors, engineers, programmers, scientists, and bankers are good (Richards and Rogers, 2002). Clearly enough, the bulk of the currently existing standardized tests, particularly those aspects of testing associated with statistics includes this intelligence. So the intelligence can be the cornerstone for the most of the pedagogically research -oriented programs.

4. Verbal/linguistic intelligence: This intelligence includes the capacity to use language in speaking or writing. Armstrong (2000) proposes that through this intelligence, the manipulation of the syntax, semantics, and pragmatics of the language are undertaken. She believes that this intelligence includes learning vocabulary/grammar, listening/speaking, and reading/writing. To put it more openly, through this intelligence we learn new words and grammar in communication, we listen to tapes of stories, dialogues, and lectures, we tell stories, we do silent reading, we do written exercises, we take note and do our homework.

5. Bodily-kinesthetic intelligence: Christison (1998) postulates that this intelligence is connected to the ability to use the body to express ideas and feelings to solve problems. This includes such physical skills as coordination, flexibility, speed and balance. A moment's reflection shows that through this intelligence we can use our mental abilities to coordinate our bodily movements to express ourselves. On closer scrutiny, this is an intelligence at which athletes, actors, dancers, inventors and craft persons are good (Richards and Rogers 2002). The elements at our disposal confirms that through this intelligence the learners would be provided with the physically needed movements, gestures and actions which will shed light on the successful interpretation, understanding and application of grammatical points. We can teach some of "the imperatives" through gestures and body language. With a view to Widdowson's (1992) situational presentation and connecting this implicitly to bodily intelligence, we can teach present continuous by walking in the classroom and voicing that "I am walking" or questioning that "what am I doing?".

6. Intrapersonal intelligence: the ability to understand our own strengths, weakness, moods and intentions (Christison, 1998). This intelligence is more in tune with the fact that the learners will notice the differences and similarities between themselves and others, whereby they will gain perception of their own talents, they will handle their emotions and speculations so that they can make up a calculated and deliberate mind, once encountered with unexpected circumstances. To highlight the point further, if the atmosphere of the classroom becomes rich with freedom of self-assertion and self-expression, and every learner makes an epoch-making participation in the class, elicitation of learners' styles, strategies, feelings and thinking will be maximized. As a result, the teachers will explicitly lend the learners assistance.

7. Musical Intelligence: This is indicative of the ability to sense rhythm, pitch and melody. This intelligence is usually found in people with good ears for music and in singers (Christison, 1998). Through this intelligence the teachers can supply the classroom with musical instruments in keeping with the grammatical points. The more emotional learning grammar, the more

facilitated learning grammar will be. As the foregoing discussion indicates, music is part of language. On closer investigation, it can be part of the classroom. With the nurturance of musical intelligence we can move beyond the dull boundaries of teaching and learning grammar towards emotionally loaded learning and teaching of grammar. An example which can exercise epoch-making influence on the issue will be to the point: Good better best, never never rest, till your good is better and your better best.

8. Naturalist Intelligence: Alvis et al. (2004, p.6) and Christinson's (1998, p.18) definition addresses the profound depth of naturalist intelligence. The position held by them is that the "intelligence focuses on the individual's ability to recognize and discriminate among flora and fauna, and others in the world like clouds and rocks". A logical inference is suggestive of the point that human being is internally connected to the nature and can understand and enjoy it.

Alvis et al., (2004) believe that one simple way to encourage the naturalistic intelligence is to take students outside to explore their school community environment and find a variety of natural objects and investigate it. As far as grammar learning is concerned, the preliminary indication is that the teachers can provide the learners with several prompts such as today we ..., I saw ..., I learned ..., I think ..., based upon these prompts the students can write or speak about the natural objects. Ultimately, incidental learning of grammar will increase to the maximum by virtue of placing focus on naturalistic intelligence.

Additional Intelligences

Since the highlighted perception of Gardner's (1991) original classic listing of eight intelligences, some exploratory influence has been exerted upon the frame of mind and the underlying notion of mind has been brought to the surface forefronts. Gardner (1991) has conducted a great deal of discussion as to the inclusion of other intelligences. The subsequently possible intelligences for inclusion in the original list are: spiritual intelligence and existential intelligence.

The existential intelligence addresses the capacity to locate oneself with respect to the significance of life, the meaning of death, the ultimate fate of physical and psychological worlds (Gardner, 1991). In other word, existential intelligence comes to the grips with the ultimate questions of life: Who we are? What is it all about? Why is there evil? Where is humanity heading? And is there meaning in life? (Armstrong, 2000; Gardner, 2006).

Despite the pedagogically related validity and application of existential intelligence in the classroom, Armstrong (2000) echoes doubt about the fully-fledged nature of this intelligence. A blunt argument is that

existential intelligence is not a perfect fit in terms of Gardner's (2006) criteria. The issued ultimatum by Armstrong (2000) is that she doesn't see any particular advantage in attempting to apply existential intelligence to every possible educational objective. By considerate inference, of course, the practical implication is not that this intelligence is not of any use at all. The concluding remark is that however there are some potential applications of existential intelligence to the classroom, it has not yet been fully qualified for entry into MI theory.

The other intelligence is spiritual intelligence. The nature of this intelligence is highly controversial. Gardner (1991) voices his explicit opinion about the complexity of spiritual intelligence. The underlying notion of this intelligence is covered with ambiguity. So this intelligence is unclear about its application in the classroom. Precautionary views must be held regarding interpretability and applicability of spiritual intelligence within the domain of MI model (Gardner, 1991). As a result, it seems to be clear that spiritual intelligence is the least applicable and the most complex intelligence, as has been gleaned from theoretical findings, much less practical ones.

Inductive, Deductive and Integrated Approaches to Teaching Grammar

Since the reappearance of grammar as the central focus of instruction, some modifications have been undertaken as to the teaching of grammar (Bowen et al.1985). As it is clear, nowadays there lies no controversy as to teaching grammar, but how to teach grammar has been taken into consideration (Richards & Renandya, 2002).

Among the approaches to teaching grammar, inductive and deductive approaches have been dealt with. According to Thornbury (2000), in deductive approach first a rule is presented and explained then an example in which the rule is applied is taken. To put it briefly, a deductive approach is rule driven. By contrast, an inductive approach is other way round. The approach begins with some examples and an inference is drawn from the examples. A more illuminating definition (Nunan, 1999, P.320) is that "deductive learning is learning rules and then applying them in using language and inductive one is working out rules from examples".

Some researchers such as Brown (2001) support an announcement to the advantage of an inductive approach in context under the rubrics that it moves along the line of natural language acquisition and communicative intention. Of course, it is clear that due largely to some developmental variables, it should not be taken for granted that an inductive approach is always constructive. The point is elaborated on by Brown (2001) who argues that the priority of an inductive approach over the deductive one is traced back to the findings of educational theory which seemed to have led

to discovery learning and in discovery learning inference was the major tenet (Thornbery, 2000).

Due pedagogically to the pros and cons of both of the approaches (Thornbury, 2000) and owing to the empirical findings of the researchers (Scrivener, 1994), the use of both of the approaches is emphasized. To put the discussion in brief, in teaching grammar under various circumstances, instead of thinking of either deductive or inductive approach, we can employ an integrated approach including both of this (Widdowson, 1992; Ellis, 2007).

Revival of Grammar Instruction

The role of grammar instruction in language learning has been the target of language learning research for ages. Due mostly to the vital role of grammar, Widdowson (1990) elaborates on grammar and regards it as a device for mediating between words and contexts. In his view, grammar functions in keeping with words and contexts for the achievement of meaning. The view is absolutely different from traditional teaching approaches which tend to remove grammar from context (Saeidi, 2006).

As is clear from the points considered, grammatical system of language is one of the components of the notions of communicative competence. Based on the available pieces of evidence lending support to the role of grammar in communication (Widdowson, 1990), grammar has recently become an integral part of language use. As far as grammar instruction is concerned, instead of standing alone as an autonomous system to be learned for its own sake, it is now given importance to the fact that grammar instruction assumes a new role and grammar is considered essential for communication.

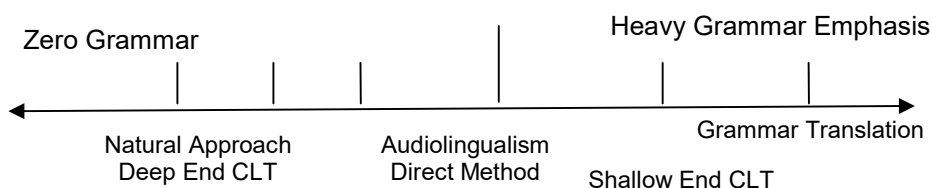
One of the major impetuses for the shift of attention to the importance of grammar is immersion program in Canada (Widdowson, 1991, 2002), through which the learners developed excellent comprehension skills and fluency, but they lacked accuracy and did not focus on form (Rodgers, 2001, cited in Saeidi, 2006). Based mostly on this, focus of attention has been toward revival of grammar instruction in order to develop a well-balanced communicative competence (Lightbown & Spada, 1990, as cited in Saeidi, 2006).

Broadly speaking, what views are held and have been held about grammar instruction is hotly debated. As some researchers such as Richards and Renandya (2002) put it, grammar instruction has always been one of the most controversial and the least noticed aspect of language learning. To elaborate on the point, two raised questions are answered based on the position of grammar instruction from past to date. Two major questions worth considering with regard to grammar teaching are: should we teach

grammar at all? If we should teach grammar how should we teach it? (Richards & Renandya, 2002).

Significantly, answering these questions triggers the cycle to the benefit of the second question. Of course, there exist claims and counterclaims for and against teaching grammar. Taken for instance, Thornberry (2000, p.22) argues that "Prabu in his Bangalore project replicated natural acquisition processes to the disadvantage of grammar instruction". In the same vein, Krashen (1982) argued that formal instruction in grammar will not contribute to communication. At the same time, he proposes the either deductive or inductive approach for teaching grammar. Along the same line, Ellis (2007) substantiates the claim in favor of teaching grammar. Another substantiated claim is equipped and provided by McLaughlin (1991), believing that formal instruction is useful.

To highlight the grammatical attention, at present the dilemma of grammar lies neither in the definition of grammar nor in the teaching of grammar (Richards & Renandya, 2002). But finally, the substantially taken-for-granted fact triggers the cycle of how to teach grammar (Krashen, 1987; Scrivener, 1994; Temperley & Rivers, 1978). To pinpoint and highlight the point that different methods have sought to mirror different ways of teaching grammar and have placed the least or the most weight on grammar, the following chart is to shed the most illuminating light on the issue (Thornbury, 2000).



Based on the chart, amount of weight placed on grammar, as it is arranged on continuum, has been progressively maximized or minimized. To tide up the matter at issue, as the diagram at present stands, at one end of the continuum we evidence heavy grammar emphasis and at the other end we observe zero grammar.

As the chart indicates, with the advent of CLT, there has been both exaggeration of grammar instruction and understatement of it. That is to say, the deep-end and a shallow-end version of CLT run diametrically opposed to each other. Altogether and established on contributory and constructive role of grammar instruction in teaching the learners to notice aspects of English (Cater & Nunan, 2002), researchers such as Doughty and

Long (2005) and Thornbury (2000) have pinpointed and factored the revival of grammar instruction, consciousness-raising and focus on form. Doughty and Long (2005) hold the view that consciousness-raising directs the attention of the language learners to particular grammatical features and focus on form directs the attention to inducing linguistic elements in context.

The concluding remark is that the major pedagogical concern takes sides for the grammar instruction. Owing to the communicative need for grammar, it is believed that grammar would serve as a crucially communicative means (Winddowson, 1990). To gain understanding of the world where we live, grammar instruction must be advocated (Bowen et al., 1985). Richards and Renandya (2002) hold the position that grammar teaching must not be upgraded to the extent that other aspects of language learning and teaching become neglected and downplayed. Rather its rightful and balanced position must be viewed.

Methodology: This part is dealing with a description of the participants, instruments, design and procedure, reliability of the questionnaire and tests, data collection and finally, clear statement of problem and data analysis

Participants: The participants in this study (N=125) were 64 male and 61 female who were divided into 10 classes. These participants were selected randomly from Khajeh Nasiraddine Toosi, Khaje Nasiraddine Ardebil and Setaregan language school in Ardebil. Ten language teachers were also employed for the teaching of grammar on the basis of the objectives of this study. It is worth mentioning that the male and female EFL learners were separately instructed. The participants were learners of English as a foreign language in the communicatively oriented classes and were of different ages and at various educational levels. However the sample in this research included language learners at various educational levels, an attempt was made to select the learners who were at the intermediate level or so in order to make sure of the homogeneity of the learners.

Instruments: Four instruments i.e. A) a questionnaire B) pre-test and proficiency test C) materials of treatment D) and post-test were used in this study as follow.

A) Questionnaire: MI questionnaire was used for the examination of the eight intelligences of the learners. The present questionnaire includes eight intelligences with six statements for every intelligence type and the questionnaire serves the purpose of examining MI of the participants. The questionnaire which was developed by Christison (1999) served to get a perception of the weaknesses and strengths of the participants. The organization of the questions of MI questionnaire was in a way that the students ranked statement 0, 1, or 2. The participants wrote 0 if they

disagreed with the statement and 2 if they strongly agreed. They wrote 1 if they were in between. It is noteworthy to say that every statement had 2 marks so that the total score for every intelligence profile was 12. The final statement being that the reliability for MI questionnaire was estimated at 0.65.

B) Materials of treatment: In undertaking the present research, some educational materials were used for the treatment and for the design of pre-test and post-test questions. The content of the treatment and the tests were mostly extracted from Barron's preparation course. The test items were modified in order to meet the objectives of this study.

C) Pre-test and proficiency test: The pre-test including thirty questions with the total score of 20 was extracted from Barron's preparation course. These items were modified in order to meet the objectives of this study. The pre-test served the purpose of selecting a homogeneous group of students for the treatment and accordingly, for assuring the possibly reliable post-test scorers. Consequently, no random scores were observed among the participants as a result of their pre-test, this shows that the learners were less or more at the same level. A point worth mentioning is that the reliability for pre-test was estimated at 0.65. A proficiency test including thirty questions with the total score of 20 was extracted from Barron's preparation course. These items were modified in order to meet the objectives of this study. The proficiency test served the purpose of measuring the grammar knowledge of the EFL learners and was finally correlated with MI of EFL learners. A point worth mentioning is that the contents of pre-test and proficiency test were similar to each other. The final statement is that the reliability for the proficiency test was estimated at 0.65.

D) Post-test: A post-test including thirty questions with the total score of 20 was extracted from Barron's preparation course. These items were modified in order to meet the objectives of this study. The purpose of post-test was to observe the numerical scores resulted from treatment. The last point to be made is that the reliability for post-test was estimated at 0.78.

Design and Procedure: In order to find answers to the research questions, some procedures were taken. The contents of proficiency test and pre-test were similar to each other, both of which were extracted from Barron's preparation course for TOEFL test. The items were modified in order to meet the objectives of this study. To start the preliminary study, at the outset, a pilot test was conducted. It provided the research with the possibly appropriate reliability for the questionnaire, proficiency test, pre-test and post-test. To achieve the purpose of the study, the following procedures were taken and the study included two phases.

Phase 1: To answer the first research question, first, the eight intelligences of male and female EFL learners were separately examined with use of MI questionnaire, then a proficiency test including 30 questions extracted from TOEFL, was administered to them. As a result, Pearson correlation was conducted to find the relationship between male and female EFL learners' MI and their grammar knowledge.

Phase 2: To find answer to the second research question, first, the eight intelligences of male and female EFL learners were examined with use of MI questionnaire. Then, a pre-test was administered to the learners which served the purpose of measuring the present grammar knowledge of the learners. Next, a treatment, related to grammar instruction for 17 sessions, was undertaken. After that, the learners took a post-test, as a result of which the scores of grammar performance of male and female were compared.

A key point worth-mentioning is that the second research question was intended to test the hypothesis that Gardner (1983) put forward. He held the view that if the learners' dominant intelligence is linguistic intelligence, in this case their grammar scores will be higher. In order to test this hypothesis, first, the grammar scores of 30 male (out of 64) and 30 female (out of 61) EFL grammar learners-whose dominant intelligence was linguistic intelligence and whose grammar scores were higher-were selected. Then a t-test of their linguistic intelligence was conducted to observe whether their linguistic intelligence scores are the same or not. Next, a t-test of their pre-test was conducted, too. After that, a t-test of male and female's post-test was conducted. Finally, it was observed that, first of all, whether Gardner's (1983) hypothesis holds true or not and second, whether male's grammar performance differed from that of female's performance or not. The design of the study was quasi-experimental: with pre-test, post-test and treatment. Quantitative study was used to answer the questions. In this study multiple-intelligences were taken as independent variable and grammar scores were dependent variables. For the purpose of the first research question a correlation was used. Accordingly, the scores of MI questionnaire and the scores of proficiency test for grammar knowledge were compared. In fact, when the extent of the relation was determined, the interpretation of the relationship might have been made cautiously.

Data Analysis: For the purpose of analyzing the collected data, t-test was used for the analysis of any possible differences between the variables and Pearson Correlation was used to analyze the possible relationship between the variables.

Statement of the problems and hypotheses

To bridge the uninvestigated gap, the present study aimed at the two research questions and tackled the following research questions and hypotheses, respectively:

Research questions:

1. Is there any statistically significant relationship between the multiple-intelligences of male and female EFL learners and their grammar knowledge?
2. Is there any significant difference between the grammar performance of male and female EFL learners whose dominant intelligence is linguistic intelligence?

Hypothesis:

1. There is no significant relationship between the multiple-intelligences of male and female EFL learners and their grammar knowledge.
2. There is no difference between the grammar performance of male and female EFL learners whose dominant intelligence is linguistic intelligence.

Data analysis and the findings

In order to answer the first research question, first, a descriptive statistics of male and females' MI and then Pearson correlation are conducted as appear below.

Table 4.1: Descriptive Analysis of Male's MI

MI	N	Mean	Std.D
Linguistic intelligence	64	7.1563	1.95358
Spatial intelligence	64	7.4844	2.09301
Bodily intelligence	64	7.2969	2.08304
Mathematical intelligence	64	8.3438	1.93726
Naturalistic intelligence	64	6.2969	1.90804
Intrapersonal intelligence	64	7.0469	1.94716
Musical intelligence	64	6.5625	2.64200
Interpersonal intelligence	64	7.8125	2.08452

Descriptive Analysis of different profiles of intelligences (as shown in Table 4.1) revealed that mathematical intelligence ($\bar{X}=8.34$, $\underline{SD}= 1.937$) was the most dominant intelligence and the naturalistic intelligence ($\bar{X}=6.29$, $\underline{SD}= 1.908$) was the least dominant intelligence. In addition to the descriptive statistics of males' MI (as shown in Table 4.1), the descriptive statistics of females' MI is also conducted as appears below.

Table 4.2: Descriptive Statistics of Female's MI

MI	N	Mean	Std.D
Linguistic intelligence	61	7.3934	2.01890
Spatial intelligence	61	7.9672	1.90584
Bodily intelligence	61	7.3770	2.00137
Mathematical intelligence	61	8.6230	2.19973
Naturalistic intelligence	61	6.0492	2.43876
Intrapersonal intelligence	61	7.1639	2.02633
Musical intelligence	61	6.2295	2.56511
Interpersonal intelligence	61	7.7213	1.72367

Descriptive Analysis of MI of female EFL learners (as shown in Table 4.2) revealed that mathematical intelligence ($\bar{X}=8.62$, $\underline{SD}=2.199$) was the most dominant intelligence and naturalistic intelligence ($\bar{X}=6.04$, $\underline{SD}=2.438$) was the least dominant intelligence.

As it is clear from table 4.1 and Table 4.2, there is no difference between MI of male and MI of female EFL learners in terms of the dominance of their intelligences.

To find out whether there is a significant relationship between MI of male and female EFL learners and their grammar knowledge, Pearson correlation analysis was conducted. The results appear below:

Table 4.3: Correlation between males' MI and their grammar knowledge

	Linguistic intel	Logical intel	Spatial intel	Bodily intel	Intra personal intel	Naturalistic intell	Musical intel	Inter personal intel
Proficiency test								
Pearson Correlation	-.042	.044	-.189	-.030	.159	-.069	-.111	.256*
Sig. (2-tailed)	.742	.731	.134	.812	.208	.588	.382	.041
N	64	64	64	64	64	64	64	64

As Table 4.3 reveals, the Sig of .04, less than .05, indicates that there is a positive relationship between interpersonal intelligence and grammar

knowledge of male EFL learners, but the other seven intelligences of male participants have low relationship with their grammar knowledge. Based on this result the first hypothesis is supported cautiously.

Table 4.4: Correlation between females' MI and their grammar knowledge

	Linguistic intel	Math intel	Spatial intel	Bodily intel	Intra personal intel	Naturalistic intel	Musical intel	Inter personal intel
Proficiency test Pearson Correlation	.066	.088	-.247	.101	.141	-.213	-.279*	-.159
Sig. (2-tailed)	.615	.501	.055	.439	.278	.100	.029	.221
N	61	61	61	61	61	61	61	61

According to Table 4.4, the Sig of .02, less than .05 and the Pearson correlation of -.279, which is negative, indicate that there is a negative relationship between the musical intelligence of female EFL learners and their grammar knowledge. The negative relationship shows that the higher the musical intelligence of female EFL learners, the lower their grammar scores and vice versa. There is observed a low relationship between the other intelligence profiles of female EFL learners and their grammar knowledge. Based on the statistical finding, the first research question is supported cautiously.

In order to verify or reject the second research hypothesis, first, a descriptive statistics of males and females' linguistic intelligence, then a descriptive statistics of their pre-test, and finally, an independent t-test for the grammar performance (post-test) of male and female EFL learners were conducted as appear below.

Table 4.5: an independent t-test for the linguistic intelligence of male and female EFL learners

	Sex	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Linguistic intelligence	female	30	8.7000	.83666	-1.044	58	.301
	male	30	9.1333	2.11291			

According to Table 4.5, the mean score (\bar{X} =8.70, \underline{SD} =.83) of female's linguistic intelligence and the mean score (\bar{X} =9.13, \underline{SD} =2.11) of male's linguistic intelligence indicate that there is no difference between male and female's linguistic intelligence who have higher grammar scores.

Table 4.6: An independent t-test for the pre-test of male and female EFL learners

According to Table 4.6, the mean scores of female and male's pre-test are less or more the same (\bar{X} =6.63, SD =3.38 and \bar{X} =6.40, SD =3.03, respectively). The mean scores and the Sig. of .78 indicate that there is no difference between the grammar scores of male and female EFL learners on their pre-test.

	Sex	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Post-test	female	30	14.90000	2.39756	2.834	58	.006
	male	30	13.1333	2.43159			

Table 4.7: An independent t-test for the grammar performance of male and female EFL learners

According to Table 4.7, the Sig. of .006 which is less than .05, the mean scores (\bar{X} =14.90, SD =2.397) of female EFL learners and the mean scores (\bar{X} =13.13, SD =2.431) of male EFL learners indicate that there is a difference between the grammar performance of male and female EFL learners whose dominant intelligence is linguistic intelligence. It is concluded that female EFL learners whose dominant intelligence is linguistic intelligence performed better than that of male EFL learners on learning grammar. So the second research hypothesis is moderately rejected.

	Sex	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test	female	30	6.6333	3.38845	.281	58	.780
	male	30	6.4000	3.03542			

Elaboration on the findings and their pedagogical relevance

To begin with, in Table 4.3, the Correlation Analysis of males' eight intelligences and their grammar knowledge was conducted. To this end, Pearson Correlation was employed. According to table 4.3, there is a positive relationship between interpersonal intelligence and males' grammar knowledge. This means that the higher the scores of interpersonal intelligence, the higher the grammar scores of language learners will be. At

the same time, the higher the scores of grammar, the higher the scores of interpersonal intelligence will be.

Since interpersonal intelligence bears a positive relationship with grammar knowledge, so, the teachers can pay attention to the activities related to this intelligence, especially in large scale classes. As a result of the analysis of data included in Table 4.3, the first hypothesis is supported cautiously.

Table 4.4 illustrates the relationship between MI of female EFL learners and their grammar knowledge. As it is clear, there is a negative relationship between musical intelligence and grammar knowledge of female EFL learners. That is to say, the higher the scores of musical intelligence, the lower the learners' grammar knowledge and vice versa.

Table 4.7 illustrates the difference between the grammar performance of male and female EFL learners' whose dominant intelligence is linguistic intelligence. T-test was used to determine the difference and the results indicated that there is a difference between the grammar performance of male and female EFL learners whose dominant intelligence is linguistic intelligence. As it is clear from Table 4.7, female EFL learners with dominant linguistic intelligence performed better than male EFL learners whose dominant intelligence was linguistic intelligence.

The end-product of the study indicated that linguistic intelligence bears a positive relationship with learning grammar and that those with dominant linguistic intelligence can perform better on learning grammar. The second research hypothesis is supported by and is compatible with Gardner's (1983) claim that those with dominant linguistic intelligence can perform better on learning grammar. Of course, as Table 4.1 and table 4.2 indicate, the first research question findings indicating that mathematical intelligence is the most dominant intelligence is practically supported by Saeidi' findings (2004). According to her research findings, in MI-based instruction, through mathematical intelligence it is successfully possible to draw the attention of the learners to form.

Gardner (1991) maintains that all intelligences, both more dominant and less dominant intelligences, can be nurtured in a variety of settings. This is practically possible in virtue of gaining perception of individual learners' differences and in the small scale classes. Since in large scale classes paying attention to and nurturing the less dominant intelligences of the learners, their individual differences, and the learners' interests may be occasionally out of the control of the teachers, understanding which intelligence is the most dominant intelligence (Table,4.1 and 4.2), can give assistance to the teachers on such occasions.

Conclusion

The present study focused on the investigation of MI model and the relationship between the eight intelligences, that is to say, mathematical, linguistic, spatial, bodily, interpersonal, intrapersonal, naturalistic, and musical intelligences and learning grammar. Since viewing intelligence as a dynamic and multifaceted phenomenon (Gardner, 2006; Gardner, 1991; Alvis et al.2004), and paying a cultural attention to intelligences (Gardner, 2006), a massive change has been observed in the educational system and pedagogy as well as in the individualized program.

Statistically put, this study proved that first, there is no difference between the dominance of the eight intelligences of male and female EFL learners. Then the study indicated that there is a significantly negative relationship between musical intelligence of female EFL learners and their grammar knowledge. This means that the higher the scores of musical intelligences, the lower the grammar scores of language learners will be. On the contrary, the higher the scores of grammar, the lower the scores of musical intelligence will be. Next, the study showed that there is a relationship between interpersonal intelligence of male EFL learners and their grammar knowledge. After that, it was revealed that the learners who had dominant linguistic intelligence performed better on learning grammar. It was finally indicated that compared to male EFL learners, female EFL learners performed better on learning grammar.

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Appendix 1

Rank each statement 0, 1, or 2. Write 0 if you disagree with the statement and write 2 if you strongly agree. Write 1 if you are somewhere in between. Then calculate your score for each intelligence type.

Interpersonal Intelligence

- a. _____ I'm often the leader in activities
- b. _____ I enjoy talking to my friends
- c. _____ I often help my friends
- d. _____ My friends often talk to me about their problems
- e. _____ I've got a lot of friends
- f. _____ I'm a member of several clubs
- _____ TOTAL FOR INTERPERSONAL INTELLIGENCE

Intrapersonal Intelligence

- a. _____ I go to the cinema alone
- b. _____ I go to the library alone to study
- c. _____ I can tell you some things I'm good at doing
- d. _____ I like to spend time alone
- e. _____ My friends find some of my actions strange sometimes
- f. _____ I learn from my mistakes
- _____ TOTAL FOR INTRAPERSONAL INTELLIGENCE

Logical - Mathematical Intelligence

- a. _____ I often do calculations in my head
- b. _____ I like to put things into categories
- c. _____ I'm good at chess and/or draughts
- d. _____ I like to play number games
- e. _____ I love to play around with Computers
- f. _____ I ask lots of questions about how things work
- _____ TOTAL FOR LOGICO-MATHEMATICAL INTELLIGENCE

Linguistic Intelligence

- a. _____ I like to read books, magazines and newspapers
- b. _____ I consider myself a good reader
- c. _____ I like to tell jokes and Stories
- d. _____ I can remember people's names easily
- e. _____ I like to recite tongue twisters
- f. _____ I have a good vocabulary in my native language

___ TOTAL FOR LINGUISTIC INTELLIGENCE

Bodily - Kinaesthetic Intelligence

- a. ___ It's hard for me to sit quietly for a long time
 - b. ___ It's easy for me to copy exactly what other people do
 - c. ___ I'm good at sewing, woodwork, building or mechanics
 - d. ___ I'm good at Sports
 - e. ___ I enjoy working with my hands - working with clay or model making, for example
 - f. ___ I enjoy physical exercise
- ___ TOTAL FOR BODILY-KINAESTHETIC INTELLIGENCE

Spatial Intelligence

- a. ___ I can read maps easily
 - b. ___ I enjoy art activities
 - c. ___ I can draw well
 - d. ___ Videos and slides really help me to learn new Information
 - e. ___ I love books with pictures
 - f. ___ I enjoy putting puzzles together
- ___ TOTAL FOR SPATIAL INTELLIGENCE

Musical Intelligence

- a. ___ I can hum the tunes to lots of songs
- b. ___ I'm a good singer
- c. ___ I play a musical instrument or sing in a choir
- d. ___ I can tell when music sounds off-key
- e. ___ I often tap rhythmically on the table or desk
- f. ___ I often sing songs

___ TOTAL FOR MUSICAL INTELLIGENCE

Naturalist Intelligence

- a. ___ I spend a lot of time outdoors
 - b. ___ I enjoy listening to the sounds created in the natural world
 - c. ___ birdsong, for example
 - d. ___ I can identify plant life and animal species
 - e. ___ I can distinguish between poisonous and non-poisonous snakes and/or between poisonous and edible mushrooms
 - f. ___ I enjoy observing plants and/or collecting rocks
 - g. ___ I've got green fingers - I keep pot plants at home and have an interest in gardening, for example
- ___ TOTAL FOR NATURALIST INTELLIGENCE

Appendix 2: Proficiency test

Name...

Choose the correct choice.

- 1) You had better to the doctor about your cough.
A) go B) going C) to go D) be going
- 2) Some plants would rather in shady places.
A) to grow B) growing C) will be grown D) grow
- 3) A good teacher would rather that the student hard.
A) works B) worked C) work D) be working
- 4) They the whole story.
A) made me repeating B) made me to repeat
C) made me that repeat D) made me repeat
- 5) Like humans, zoo animals must have a dentist..... their teeth.
A) fill B) filled C) filling D) to fill
- 6) I get Ali.....the book that is useful.
A)study B)studies C) to study D) until studies
- 7) They will not let him the country.
A) for leaving B) to leave C) leave D) will leave
- 8) If water is heated to 212 degrees. ,
A) it will boil and escape B) will boil and escape
C) it boils and escapes D) would boil and escape
- 9) If American ate fewer foods with sugar, their healthbetter.
A) had B) will be C) would be D) can be
- 10) It is necessary well in your exam.
A) do B) doing C) to do B) B and C
- 11) Some members of the congress are insisting that changes in the social security system made.
A)will be B)are C) are being D)be
- 12)Never her time.
A) a good student does waste B) a good student wastes
C) wastes a good student D) does a good student waste
- 13) When your body does not get, it can not meet its needs.

A) enough food B) food as enough C) enough as food D) the food enough

14) There are three kinds of solar eclipse: one is total, another is annular, and.....

- A) the other is partial B) the partial is other
C) other is partial D) partial is other

15) Only of the breeds of cattle have been brought to the United States.

- A) a small amount B) a little amount C) a small number D) a little number

16) If he had not gone on vacation, he in his exam.

- A) Succeeded B) would succeed
C) Would have succeeded D) had succeeded

17) She tries..... happy in life.

- A) at being B) to be C) for being D) in being

18) After finding a job, he had he had before.

- A) twice more money than B) twice as much money as
C) Two times more money than D) two times as much money as

19) It has been estimated that one thousand men took to the street.

- A) Approximate B) until C) more D) as many as

20) It is generally true that the lower the stock market falls.....,

- A) Higher the price of gold rises B) the price of gold rises high
C) The higher the price of gold rises D) rises higher the price of gold

21) His fingerprints are.....

- A) Different from those of any other person B) Different from any other person
C) Different to any other person D) Different to those of any other person

22) she is good math but weak history.

- A) in-at B) at-in C) at-at D) all choices are correct

23) I look forward from you.

- A) hearing B) to hear C) to hearing D) until hearing

24) I would like abroad.

- A) studying B) study C) to study D) that I study

25) Do we need sugar?

- A) any B) no C) some D) A and C are correct

26) She is interested music.

- A) to B) for C) in D) at
- 27) you like to come oryou rather stay here?
A) Should/ would B) Would/ had C) Would/ would D) Do/ would
- 28) does an individual seize an opportunity like this as did Gorge.
A) Not only B) Barely C) Sometimes D) Once in a while
- 29) the coffee, he washed the cup.
A) Getting drunk B) Having drunk C) Being drunk D) all choices are correct
- 30) The Titanic,.....went down at sea in 1912, was famous for having great wealth on board.
A) that B) which C) where D) when

Appendix 3:Pre-test

Name...

Choose the correct choice.

- 1) You had better to the doctor about your cough.
A) go B) going C) to go D) be going
- 2) Some plants would rather in shady places.
A) to grow B) growing C) will be grown D) grow
- 3) A good teacher would rather that the student hard.
A) works B) worked C) work D) be working
- 4) They the whole story.
A) made me repeating B) made me to repeat
C) made me that repeat D) made me repeat
- 5) Like humans, zoo animals must have a dentist..... their teeth.
A) fill B) filled C) filling D) to fill
- 6) I get Ali.....the book that is useful.
A) study B) studies C) to study D) until studies
- 7) They will not let him the country.
A) for leaving B) to leave C) leave D) will leave
- 8) If water is heated to 212 degrees. ,
A) it will boil and escape B) will boil and escape
C) it boils and escapes D) would boil and escape
- 9) If American ate fewer foods with sugar, their healthbetter.
A) had B) will be C) would be D) can be

- 10) It is necessary well in your exam.
 A) do B) doing C) to do B) B and C
- 11) Some members of the congress are insisting that changes in the social security system made.
 A) will be B) are C) are being D) be
- 12) Never her time.
 A) a good student does waste B) a good student wastes
 C) wastes a good student D) does a good student waste
- 13) When your body does not get, it can not meet its needs.
 A) enough food B) food as enough C) enough as food D) the food enough
- 14) There are three kinds of solar eclipse: one is total, another is annular, and.....
 A) the other is partial B) the partial is other
 C) other is partial D) partial is other
- 15) Only of the breeds of cattle have been brought to the United States.
 A) a small amount B) a little amount C) a small number D) a little number
- 16) If he had not gone on vacation, he in his exam.
 A) succeeded B) would succeed
 C) would have succeeded D) had succeeded
- 17) She tries..... happy in life.
 A) at being B) to be C) for being D) in being
- 18) After finding a job, he had he had before.
 A) twice more money than B) twice as much money as
 C) two times more money than D) two times as much money as
- 19) It has been estimated that one thousand men took to the street.
 A) approximate B) until C) more D) as many as
- 20) It is generally true that the lower the stock market falls.....,
 A) higher the price of gold rises B) the price of gold rises high
 C) the higher the price of gold rises D) rises higher the price of gold
- 21) His fingerprints are.....
 A) different from those of any other person B) different from any other person
 C) different to any other person D) different to those of any other person
- 22) she is good math but weak history.
 A) in-at B) at-in C) at-at D) all choices are correct
- 23) I look forward from you.

A) hearing B) to hear C) to hearing D) until hearing

24) I would like abroad.

A) studying B) study C) to study D) that I study

25) Do we need sugar?

A) any B) no C) some D) A and C are correct

26) She is interested music.

A) to B) for C) in D) at

27) you like to come or you rather stay here?

A) Should/ would B) Would/ had C) Would/ would D) Do/ would

28) does an individual seize an opportunity like this as did Gorge.

A) Not only B) Barely C) Sometimes D) Once in a while

29) the coffee, he washed the cup.

A) Getting drunk B) Having drunk C) Being drunk D) all choices are correct

30) The Titanic, ...went down at sea in 1912, was famous for having great wealth on board.

A) that B) which C) where D) when

Appendix4:Post-test

Name:

Choose the correct choice.

1) We had betternow or we'll miss the bus.

A) leaving B) to leave C) be leaving D) leave

2) She would rather than give a speech.

A) die B) to die C) dies D) dying

3) I would rather that my brother..... .

A) goes B) go C) went D) be gone

4) He made me..... .

A) be crying B) crying C) to cry D) cry

5) I had Ali.....

A) to go B) go C) goes D) went

6) I got him the needed book.

A) buy B) buying C) bought D) to buy

- 7) Let me you about the accident.
A) to tell B) tell C) telling D) I tell
- 8) If I study hard.....
A) will pass B) I will pass C) pass D) passed
- 9) If I saw the doctor, I better.
A) had B) will be C) would be D) can be
- 10) It is important hard.
A) studying B) we study C) to study D) we studying
- 11) Ali insists that she to school.
A) goes B) be going C) is going D) go
- 12) does a good teacher waste his time.
A) Sometimes B) never C) always D) often
- 13) We needto survive.
A) food enough B) enough food C) food D) all choices
- 14) To succeed we need three elements: One is purpose, is motivation is perseverance.
A) the other - another B) another - the other
C) other - another D) another - other
- 15)of people will be present at the party.
A) a small number B) small number
C) little number D) a little number
- 16) If I, I would have succeeded.
A) studied B) had studied C) was studying D) would study
- 17) We try in our life.
A) success B) succeeding C) to succeed D) succeed
- 18) I have..... I had before.
A) twice more money than B) twice as much money as
C) two times more money than D) two times as much money as
- 19) It is said that..... one hundred people took to the street.
A) approximate B) until C) more D) as many as
- 20) The more you study.....
A) more successful you will be B) will you be more successful
C) the more successful you will be D) the more successful will you be
- 21) He is his friends.
A) different to B) different from C) different in D) different of

- 22) He is good.....speaking but weak writing.
 A) in – at B) at – in C) at – at D) all choices are correct.
- 23) At the end of the letter, we usually write: I lookfrom you.
 A) toward hearing B) toward to hear C) forward to hear D) forward to hearing
- 24) I would like his book.
 A) studying B) study C) to study D)all choices are correct.
- 25) She doesn't need sugar.
 A) some B) no C) any D) A and C are correct.
- 26) I keep interestPop music.
 A) to B)for C) at D) in
- 27)you rather stay here or you like to come?
 A) Should – would B) would – had C) Would – would D) Do – would
- 28).....does he study.
 A) not only B) barely C) once in a while D) however
- 29), he fell asleep.
 A) getting studied B) having studied
 C)being studied D) all choices are correct
- 30) The book,got dirty, was famous for its content.
 A) that B) which C) when D) once