The Relationship between Iranian English Learners' Linguistic Intelligence and their Writing Ability, and Writing Assessment Criteria

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Abstract

Gardner's Multiple Intelligences Theory (MIT) specifies at least eight human intelligences, one of which is linguistic intelligence. Gardner (1983) also calls this intelligence the intelligence of words, since it is mainly concerned with written and spoken forms of language. This new theory of intelligence which gives emphasis to learner variable has been used in language learning and teaching settings. The present paper studies possible relationship between L2 learners' linguistic intelligence and their writing ability, and writing assessment criteria. 33 female homogeneous Persian speaking EFL learners participated in this study. The instruments used were the Multiple Intelligence Developmental Assessment Scales (MIDAS), designed by Shearer (1996), and the participants' two writings. The linguistic intelligence index was taken from the MIDAS and the participants' average scores on two writing tasks were used as an index of writing products. The writings were scored based on Jacobs et al.'s scale of five criteria: content, organisation, language use, vocabulary, and mechanics. The correlational analysis of the results revealed a significant relationship between participants' linguistic intelligence and their performance on writing. Furthermore, the results of regression analysis showed that among all five criteria, vocabulary shows higher correlation with linguistic intelligence. Possible implications of the findings for language teaching and teaching writing will be discussed.

Keywords: Multiple Intelligence Theory (MIT), writing, Multiple Intelligence Developmental Assessment Scales (MIDAS), linguistic intelligence (LI), English as Foreign Language (EFL), Second language (L2)

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1. Introduction

Gardner (1983) suggests the existence of eight relatively autonomous, but interdependent, intelligences rather than just one single construct of intelligence. In Gardner's (1983) point of view, intelligence is a combination of different abilities; he defines intelligence as "the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner 1993, p.15). Accordingly, he classified human intelligence into linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal and naturalistic intelligences; recently, he added existential intelligence to his theory (Gardner, 1999). Emotional Intelligence is a part of Gardner's (1993) interpersonal intelligence. Brown (2007) explains that emotional mind is pretty quicker than rational mind, without the hesitation of thinking what to do.

Since Gardner's MIT was introduced in 1983, it has rapidly been incorporated into school curricula in educational systems across the United States and other countries (Christine, 2003). Many teachers applied the MI theory to classroom activities and attempted to teach students in the manner to both enhance their dominant intelligence(s) and language abilities.

A considerable number of studies in the area of second language learning and teaching focus on individual differences of learners, and the need to develop more student-centered learning programs (See Smith 2001). This emphasis has been repeatedly confirmed by researchers who have focused on learner-based approaches and have made a significant contribution to language teaching by increasing our awareness of the need to take individual learner variations into consideration and to diversify classroom activities.

McClaskey (1995) believes it is possible to teach intelligences; he also suggests that one way to teach intelligence is to offer students opportunities to understand their own learning process. Syllabus designers offer using the MI model as a paradigm to modify language learning activities and engage all the intelligences in individuals to improve and enhance learning (Price, 2001). Dobbs (2002) goes further and asserts that when children have an opportunity to learn through their strengths, they may become more successful in learning all subjects including the "basic skills"; one of these basic (language) skills is writing.

According to Furneaux (1999), writing is essentially a social act, a means of communication; "you usually write to communicate with an audience, who has expectations about the text type (or genre) you produce" (p. 56). Harklau (2002) declares that "writing should play a more prominent role in classroom-based studies of second language acquisition" (p. 329). As such, he argues that not only should students learn to write but also they should write to learn. Then, he concludes, nowadays, "reading and writing pass from being the object of instruction to media of instruction" (p. 336).

Farhady et al. (2004) state that writing at higher levels should convey the intended meanings in the boundary of the subject matter through accurate and syntactically acceptable sentences. They also believe that the ideal type of

writing is free writing in which learners can communicate and organise their ideas; to them, free writing is the most face-valid type of writing tests. Leki (2000, cited in Harklau, 2002) specifies that it is vitally important to understand second language writing development in its own right and to consider all the traits that affect writing and empower it.

For years, teaching writing has not been thought of as it deserves (Furneaux, 1999). Although recently its importance has been realised much better, it is still seen to be less common than other skills to be measured and evaluated. However, writing is one of the productive skills along with speaking, it is among the important skills and there are a lot of cognitive and mental factors that may affect writing ability. Even, learners may be more creative in writing than in speaking, since in speaking the focus is on meaning and interlocutors try to understand each other, but in writing the focus is on both meaning and form at the same time and even meanings are affected by form (Furneaux, 1999). Furthermore, in speaking, paralinguistic means such as gestures, nodding, etc. can be used to have speakers get the intended meaning clearly, while, writing is purely linguistic based.

Language teachers need to have enough knowledge about aspects of writing and writing assessment, especially those involving more mental and cognitive processes. One of the domains of understanding these processes is studying the relationship between multiple intelligences, particularly linguistic intelligence (LI), and the L2 learners' writing skill, because, as the name implies, LI is directly related to language abilities, including writing. From among various multidimensional theories of intelligence, the theory of multiple intelligences proposed by Gardner (1983) has been one of the most influential ones and could be utilized to investigate whether learners' individual differences in terms of linguistic intelligence are related to their different writing performance or not. As such, the major concern of this paper is to determine the degree of correlation between individuals' level of LI and their writing performance, and writing assessment criteria (based on Jacobs et al.'s 1981 scale). The aim is to highlight the necessity of taking individual differences into consideration in language classrooms and L2 learners' writing skill. If it turns out that this intelligence has any positive relationship with students' writing ability and the writing assessment criteria, there would be a new trend to help students improve and develop their writing skill.

2. The Background

2.1. An Overview of Linguistic Intelligence Studies

Charles Spearman, a British educational psychologist, who was influenced by Thorndike's view of intelligence and inspired by the IQ test designed by Binet and Simon in 1923, formed a new idea known as the general factor, or "g" factor. Then, he designed some tests for measuring intelligence in a more scientific way (Gardner, 1983). Later on, Jean Piaget (1952) with his cognitive model of stages, divided human intelligence into two parts: operative

intelligence which explains how the world is understood, and figurative intelligence which is responsible for the representation of reality (See also Piaget and Inhelder, 1973).

In 1983, Gardner criticised the traditional IQ tests as being inadequate to account for all aspects of human intelligence. Instead, he proposed several intelligences to be at work simultaneously, and thus changed the perception that intelligence is a single construct to what he called Multiple Intelligences (MI) theory. Gardner (1983, 1985) also proposed that all intelligences could be enhanced through training and practice.

Based on Gardner's (1983: xii) MI theory, each intelligence has to satisfy a range of criteria in order to be accepted as an independent intelligence. The criteria are as follows:

● The potential for isolated breakdown of the skill through brain damage;
● The existence of savants, prodigies, and other exceptional individuals with this ability;
● Supports from psychological training studies and from psychometric studies, including correlations across tests;
● An evolutionary history and evolutionary plausibility;
● A distinct developmental history culminating in a definable set of end state performances;
● Having an identifiable core operation or set of operations;
● Ability to encode in a symbol system (e.g., language, mathematics, picturing, or musical notes);
● Being autonomous and independent. That is, the scores gained from a psychometric test in a single intelligence do not closely correlate with scores obtained from other intelligences. This indicates that intelligences are independent (See Gardner, 1985).
● The existence of roles that foreground the intelligences in different cultures (Gardner, 1983).

Gardner admitted that the criteria are somewhat flexible. Some intelligence "might have met all criteria, but were discarded because they were not highly valued within cultures" (cited in Visser et al. 2006, p. 488). Regarding these criteria, Gardner suggested and identifies eight intelligences in his MI theory; they are as follows:

● Linguistic/Verbal Intelligence: Gardner (1995) refers to this ability as the intelligence of words since it is mainly concerned with written and spoken forms of language and language use.
● Logical/Mathematical Intelligence: This intelligence is mainly concerned with numbers and science, and shapes a main part of the IQ test content. It involves skills in calculations, logical reasoning, and problem-solving.
● Musical/ Rhythmic Intelligence: This includes sensitivity to pitch, rhythm, and the emotional aspects of sound as related to the functional areas of musical appreciation, singing, and playing a musical instrument.
● Kinesthetic/ Bodily Intelligence: This intelligence highlights the ability to use one's body in different ways for both expressive activities (e.g. dance, acting) and goal-directed activities (e.g. athletics, working with one's hands).

● Spatial/ Visual Intelligence: It consists of the ability to perceive the visual world accurately and to perform transformations and modifications upon one's own initial perceptions through mental imagery.
● Naturalistic intelligence: This intelligence enables the individual to identify the natural phenomena, categorize them, and to satisfy his/her curiosity about them through observations and understanding the relationships between natural phenomena.
● Interpersonal and Intrapersonal Intelligence: These are presented as separate but related functions of the human brain. They are described as two sides of the same coin, whereas intrapersonal intelligence gives emphasis to self-knowledge, interpersonal intelligence involves understanding other people. In fact, these two intelligences do not easily give themselves to objective observations. Gardner (1999) equals emotional intelligence with a combination of these two.

2.3. Linguistic/Verbal Intelligence (LI)

Gardner (1983) proposes LI as the intelligence of using words appropriately to make meaningful written and spoken forms of language. To him, LI is "the capacity to follow rules of grammar, and, on carefully selected occasion, to violate them" (p. 77). This intelligence emerges early in life, and involves a number of inseparable elements including the ability for doing syntactic analyses, gaining literacy, and language learning (Gardner. 1993).

Linguistic and logical-mathematical intelligences are most often associated with academic accomplishment. The former is also important for providing explanations and descriptions. Gardner (1999) describes a poet as a person who is endowed with a high level of linguistic ability. Convergent aspects of LI assessed by standard intelligence tests include vocabulary and reading comprehension. Of activities which require both LI and logical intelligence and different thinking styles include storytelling, persuasive speech, and creative writing.

Since LI is one of the two parameters of IQ tests, it has been extensively the subject of assessment. Brauldi (1996) argues that this kind of intelligence cannot be much useful if it is not combined with other intelligences. In addition, because of this, LI instruction alone would be insufficient, since the words are in need of being connected with concepts and ideas. Thus, according to Brauldi, teaching LI should be combined with teaching other intelligences at the same time.

Armstrong (2002, 2003) recommends several activities, in classrooms, such as brainstorming on topic, tape-recording, journal writing, diary writing and storytelling that are likely to aid learners to improve, enhance, and reinforce this intelligence. Laughlin (1999) mentions the characteristics of a person with well-developed LI as:
● Listening and reacting to the sound, rhythm, and variety of the spoken words;
● Learning through listening, reading, writing, and discussion;

- Listening effectively, understanding, paraphrasing, interpreting, and remembering what has been said;
- Reading and speaking effectively, understanding, summarizing, interpreting or explaining, and remembering what has been read;
- Having the ability to learn other languages and use language skills like listening, speaking, writing, and reading to communicate and persuade others (p. 2).

2.4. LI in Education and Curriculum Achievements

The Multiple Intelligences Theory and its applications to the educational settings are growing so rapidly. Many educators such as Armstrong (2002) began to use MI-based Instruction as a way to overcome the difficulties which they encountered with their students as a result of their individual differences and their learning styles.

To Gardner (1993, 1999), intelligences can be improved, modified, trained and even changed. In fact, human ability and intelligences are flexible and can be guided. Armstrong (2003) explains the application of MI to the classroom activities and teaching language skills, and considers it as the theory of education and learning trend that can support curriculum designers and educators with opportunity to apply it to educational settings. He also states that the theory can help both learners and teachers, and suggests it is better to create an enjoyable classroom atmosphere in which students like what they learn. Using the MI Theory in the classroom can help teachers create such an encouraging atmosphere as well. The MI Theory is greatly required so as to deal with different students who have different minds. Armstrong (2002) and Dobbs (2002) also mention that many teachers and educational curriculum designers have used Gardner's theory in the teaching-learning processes and received some benefits. For example, McClaskey (1995) applied Gardner's ideas on MI as models to develop course syllabi and teaching materials. He concluded that it is not enough for teachers to recognise the types of intelligences in their students; rather, they must find ways to share that knowledge with the students themselves so that they can use their skills in situations outside classrooms. It will involve all the students with their different personalities to have more chance for learning and achieving success in spite of these differences. Gardner (1999) himself demonstrates that schools can try to prepare the situation in a way that learners can discover their intelligence spectra and use their maximum potential to make a brilliant future.

Rosenthal (1998, cited in Christine, 2003), concluded that LI is one successful instruction strategy for teachers who struggle to enhance student's self-esteem. Dobbs (2002), in his study of the relationship between multiple intelligence-based learning environment and academic achievements, found positive relationship between MI and students' performance level in subjects such as reading, writing, and mathematics.

Armstrong (2002) and Chastain (2003) provide several teaching strategies for the application of each of the eight intelligences in the classroom. They also

assume that applying such strategies can improve the performance of learners in that domain.

Pointing to the crucial role of gender in educational setting, Saricaoglu et al. (2009) investigated the relationship between students' gender and intelligence types, the relationship between particular intelligence types and students' success in grammar, listening and writing in English as a foreign language. In their study, the relationship between musical intelligence and writing was found to be significant and positive.

To investigate the effects of Gardner's theory on writing, Marefat (2007) tried to find possible relationship between students' MI profile and their writing product. The instrument she used was McKenzi's (1999) MI Inventory. The results revealed that kinesthetic, existential, and interpersonal intelligences make the greatest contribution toward predicting writing scores. In his study, Hashemi (2009) also found some positive relationships between Iranian EFL learners' emotional intelligence and their writing performance at different levels of language proficiency; that is, "those participants whose emotional intelligence scores are higher, perform better in writing" (p. 84).

Ahmadian and Hosseini (2012) also found significant relationship between the MI theory and EFL learners' writing performance. However, in their study, among the eight intelligences only linguistic and interpersonal intelligences proved statistically significant relationships with the writing performance. The results of stepwise regression analysis also revealed that linguistic intelligence can influence writing performance.

As the brief review of the related literature shows, in spite of almost thick literature, less research has been reported to take into consideration possible relationship between linguistic intelligence and language development in general and a particular language skill, say writing, in particular. For this reason, in this paper decision was made to focus on this requirement. The importance of both LI and writing makes such studies significant and necessary. The results may have implications for teaching writing in second language classroom.

2.5. The MIDAS

In order to study the use of Gardner's theory in educational settings, some questionnaires and tools have been prepared for assessing various types of intelligences which are used in the education process. Shearer, in 1996, produced a questionnaire to assess MI scores of students. Gardner himself also recommends using this questionnaire in MI studies because of its validity and reliability. This instrument is called MIDAS (Multiple Intelligences Developmental Assessment Scales), which will be explained below.

MIDAS is a self report instrument of intellectual disposition designed by Shearer (1996). This instrument consists of 119 Likert-type questions (from a to f). The questions cover eight areas of abilities, interests, skills, and activities. The scores for different intelligences are shown separately. There is no right or

wrong response, and respondents are asked to read each item and select what they perceive as the best answer at that point in their life.

It should be mentioned that MIDAS scores are not absolute and it may change during the individuals' life as s/he grows up. Users are not forced to answer or guess at every question, as each item has an "I don't know" or "Does not apply" choice, they are to select this answer whenever it is the best.

A number of studies on the reliability and validity of MIDAS (Shearer, 1996, 2006) have indicated that the MIDAS scales can provide a reasonable estimate of one's MI strengths and limitations that correspond with external rating and criteria. The MIDAS questionnaire has been completed by approximately 10,000 people world-wide. Alpha reliability of the profile scores based on the MIDAS turned out to be as follows: Musical: .70, Kinesthetic: .76, Logical-Mathematical: .73, Spatial: .67, Linguistic: .85, Interpersonal: .82, Intrapersonal: .78 and Naturalist: .82 (Shearer, 1996). Using this scale, the subjects' MI, with special focus on their LI, was measured and used for analysis.

2.6. EFL Writing and Assessment

Writing can be regarded as a fundamental skill in EFL; since it needs thinking, forces students to organise their ideas, develop the ability to summarise, analyse and criticise, it requires a good command of both linguistic knowledge and the knowledge to be written on (the content). Writing has been viewed as a discovery process; it provides opportunities for ongoing learning, and is a way of structuring, formulating, and reacting to the inner and outside worlds (Marefat, 2007). It is one way of transferring information from one person to another, one generation to the next. It is also a process of learning and education (Graham et al., 2007).

Among language abilities, writing is judged to be the most challenging skill that even native speakers may not achieve complete fluency in it. Chastain (1998) sees writing as an essential communication skill and a unique advantage in the process of learning a second language, because in the process of writing students use cognitive and affective mind in order to complete their writing task, thus writers use their feelings and emotions when writing. So, the writer's feeling is important in this process.

Vygotsky (1986) pointed out that writing and thinking are interwoven. Writing is a complex process of exploring thoughts and ideas, and making them visible and concrete. Thinking is the foundation of writing and, because thinking is central to learning, students who can make their thoughts visible through writing enhance their learning capabilities.

Writing ability is largely acquired and developed by practice and frequent writing (Harklau, 2002). While instruction is required for development of writing skills, it must be in the context of practice (students' writing) to encourage students to express their ideas and meaning in the form of whole text and to represent the learners' writing ability. According to Farhady et al.

(2004), during the writing process, learners engage in pre-writing, planning, drafting, and post-writing activities.

Concerning writing assessment, Chastain (1998) asserts that writing assessment can be divided into two categories: The analytical scoring method, and the holistic scoring method. In the analytical method, the whole is seen to be the sum of its parts; so rater considers and scores the parts and then sums up the given scores. In the holistic procedure, the rater considers the entire composition as a product rather than its parts and scores the whole composition. In this paper, both types have been focused on.

Jacobs et al. (1981) developed a guideline for writing assessment which has been widely used in the literature. In this guideline, the evaluation and assessment are based on communicative writing; there are important factors that affect learners' writing performance and should be taken into consideration in evaluation/assessment. The authors accordingly suggest a scale of five criteria for scoring writing: content of the written text, vocabulary knowledge of the writers, the way they use language, organisation of the text and mechanics. These five criteria have different scores: content has the highest score (20), the lowest score goes with mechanics (10), and the other three have the same score as (15) that totally make 75. In this study, the assessment is based on Jacobs et al.'s criteria. As the literature indicates, although studies on the MI theory in language education have increasingly developed over the previous two decades, less has been on the applications of the theory and/or its underlying intelligences to L2 writing, and writing assessment. Thus, this study aims to shed some light on this requirement.

3. The Study

3.1. Research Questions

This study attempts to find answers to the following questions:
1- Is there any relationship between EFL learners' linguistic intelligence and their writing performance?
2- Do all writing assessment criteria show equal relationship with L2 learners' linguistic intelligence?

3.2. Research Hypotheses

To answer the research questions in a systematic manner, two null hypotheses were formulated to be tested out. They are as follows:

Ho1: There is no significant relationship between EFL learners' linguistic intelligence and their writing performance.

Ho2: There is no equal relationship between EFL learners' linguistic intelligence and each writing assessment criteria.

3.3. Participants and Instrumentations

A total of 33 female Iranian Persian-speaking EFL learners studying at Elmi Karbordi (Ghotb Ravandi branch), Tehran, aged 21-29 (average 24.5, SD=2.27), were selected from a pool of 40 ones, and asked to participate in the study. They were homogeneous in their language proficiency level. To increase the possibility of selecting a more homogeneous group of learners and to identify them better, the samples were limited to senior students of the Institution. In addition, a 1997 version of the Michigan Test of English Language Proficiency (MTELP) was used to help determine the homogeneous sample group needed for the project.

Two tests were selected and used to measure and to reveal the existing relationships between the related variables: the Michigan Test and MIDAS (1996 version). For MIDAS, the participants were asked to mark their desired options on the answer sheets. The answer sheets were later sent to Shearer for scoring and the scores for linguistic intelligence were taken from the whole test scores as linguistic intelligence index (See appendix 1 for a sample of MIDAS).

The participants' writing ability was determined and measured by taking the average of their scores of two writing tasks. They were supposed to produce two free writings on two topics chosen from IELTS practice tests. Scoring was based on the profile developed by Jacobs et al. (1981). Then the participants' performances were assessed by two different raters; each scored the writing twice by 3-4 days interval without looking at the previous scores. The average scores of the two writings and the average scores of the two raters were used for final analysis.

3.4. Data Collection and Analysis

As mentioned above, the participants' homogeneity was measured through the MTELP. Based on their scores, those with one standard deviation above and below the mean score were selected as a more homogeneous group (Appendix 2). After a week interval, the MIDAS questionnaire was administered and the answer sheets were sent to the author for scoring (Appendix 3). Then, participants' scores were calculated in numerical values ranging from 0 to 100 (as defined by Shearer himself), for each intelligence. Then, the scores on LI were selected for analyses (Appendix 4).

One week later, the participants were asked to write the first composition (around 200 words); after a two-week interval, the second topic was given to them to do. Two raters were asked to score each writing twice based on Jacobs et al.'s scale. As a result, each student had four scores; the average scores were calculated for each participant (Appendix 5). Then, the average score each subject received for each of the criteria, mentioned by Jacobs et al., was calculated in order to get the index of scores for each assessment criterion (Appendix 6).

Moreover, Pearson correlation was computed to find the inter-rater reliability of the two raters' scores. The r-value of .86 indicates a high correlation between the two raters' scores (Appendix 7). Also, to determine if the mean scores of the raters were different, t-test was used; the results (Appendix 8) showed no significant difference between the scores given by the two scorers. So, based on this and the significant inter-rater reliability of the two raters' scorings, no need was felt for more raters.

The data were analysed through the Statistical Package for Social Sciences (SPSS V.16). First, using Pearson-Product Moment Correlation Formula, the correlation between the LI scores and writing scores were calculated so as to specify the extent to which they correlated. Similarly, the same procedure was applied to calculate the correlation between each criterion for writing scores and linguistic intelligence scores. Then comparisons were made between the ways the scores in LI test correlated with the scores in writing performance. In order to see which writing assessment criterion is a better predictor of the main variable of the study, multiple regression analysis was used too.

4. Results

Major statistical analyses centered on the investigation of correlation between the main variables of the study; that is, LI and writing, and writing assessment. The results presented in Table 1 demonstrate the existence of statistically significant correlation between the participants' two sets of scores on LI and writing. Based on this table, the participants' scores on LI and writing are positively correlated. This positive correlation between the two variables provides evidence against the first research hypothesis and thus rejects it. In other words, the table reveals that there is a relationship between L2 learners' LI and writing performance.

Table 1. Correlation between LI and writing

		writing	Linguistic intelligence
w	Pearson Correlation	1	.392(*)
	Sig. (2-tailed)		.024
	N	33	33

*. Correlation is significant at the 0.01 level (2-tailed)

In order to answer the second research question, the correlation coefficient between the participants' scores on each writing assessment criterion (content, vocabulary, language use, organization, and mechanics) and their LI scores were calculated via Pearson formula (Table 2). The results indicated that

among all the criteria, content and vocabulary correlate with LI scores; also, the results showed that mechanics, organisation and language use do not show any correlation with LI scores; they have weak but positive correlations. Moreover, the correlation coefficient of LI and vocabulary scores is .421; for LI and content, it is .404 (table 2). This finding can confirm the second research hypothesis that there is no equal relationship between EFL learners' LI and each writing assessment criteria.

Table 2. Correlation between linguistic intelligence and writing assessment criteria

		Linguistic intelligence	content	vocabulary	language use	organization	mechanics
linguistic intelligence	Pearson Correlation	1	.404[*]	.421[*]	.328	.319	.260
	Sig. (2-tailed)		.020	.015	.062	.070	.144
	N	33	33	33	33	33	33
content	Pearson Correlation	.404[*]	1	.848[**]	.652[**]	.559[**]	.868[**]
	Sig. (2-tailed)	.020		.000	.000	.001	.000
	N	33	33	33	33	33	33
vocabulary	Pearson Correlation	.421[*]	.848[**]	1	.739[**]	.637[**]	.839[**]
	Sig. (2-tailed)	.015	.000		.000	.000	.000
	N	33	33	33	33	33	33
language use	Pearson Correlation	.328	.652[**]	.739[**]	1	.481[**]	.725[**]
	Sig. (2-tailed)	.062	.000	.000		.005	.000
	N	33	33	33	33	33	33
organization	Pearson Correlation	.319	.559[**]	.637[**]	.481[**]	1	.556[**]
	Sig. (2-tailed)	.070	.001	.000	.005		.001
	N	33	33	33	33	33	33
mechanics	Pearson Correlation	.260	.868[**]	.839[**]	.725[**]	.556[**]	1
	Sig. (2-tailed)	.144	.000	.000	.000	.001	
	N	33	33	33	33	33	33

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

It was mentioned earlier that vocabulary and content have meaningful correlation with LI; however, there is a high correlation between vocabulary and content. To see which of these writing aspects is a better predictor of LI, multiple regressions were also used. The results (Tables 3 and 4) show that from among all five writing assessment criteria, only vocabulary remains as the

best predictor of LI, since its significance is .015 which is less than .05 (so it makes significant contribution). It can be concluded that 15% (F=5.6, p<0.05) of variance of LI scores can be explained by vocabulary scores, and 85 percent (1-0.15=0.85) of LI variance can be due to the other factors.

Table 3. Model summary of stepwise multiple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.421[a]	.177	.150	9.57141

a. Predictors: (Constant), vocabulary

Table 4. Summary of coefficients for the stepwise multiple regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.082	9.036		3.661	.001
	vocabulary	1.924	.746	**.421**	2.580	**.015**

a. Dependent Variable: linguistic intelligence

This finding is hardly surprising since among different types of intelligences measured by MI, the linguistic one seems to be the most appropriate for acting as the predictor of L2 learners' writing ability.

5. Discussion

The results show that there is a statistically significant relationship between learners' LI and writing performance. This finding is what was expected to be observed due to the fact that many aspects of LI correspond to certain aspects of writing. As mentioned before, such a close correlation had been found between general MI and writing ability in previous studies. For example, some researchers such as Dobbs (2002), Fahim and Nejad Ansari (2006), Marefat (2007), and Ahmadian and Hosseini (2012) found that L2 learners' overall MI scores correlate positively with their writing scores. Thus the findings of this analysis provide more support for such correlation, particularly the correlation between L2 learners' LI and their writing ability.

The results also show that vocabulary highly correlates with LI. Gardner (1983) refers to LI as a kind of ability to use words, both written and spoken, because it follows the rules of grammar (p.77). So, word knowledge is one important and basic part of written language form; thus it is significant in L2 learners' both linguistic knowledge and their LI. The correlation between vocabulary knowledge and LI also indicates that the higher the learners' LI the better development of their vocabulary span, and vice versa. Vocabulary is thus a core component of language proficiency and provides the basis of how well

learners speak, listen, read and write (Richards & Renandya, 2002). Mahdavi (2008) also came to a similar conclusion that among all eight intelligences LI is a better predictor of TOEFL and IELTS listening proficiency, and a large part of listening ability is due to learners' vocabulary knowledge. Moreover, the positive relationship between writing in English as a foreign language LI provides support for the claim made earlier by Richards and Rodgers (2001) that language learning and use closely relate to LI.

In short, to explain the relationship between LI and L2 learning in general and L2 writing in particular, one can say that as soon as one accepts the existence of such a construct as LI, it indicates accepting that such intelligence has a direct relationship with verbal and linguistic abilities. Based on Richards and Rodgers (2001), "language learning and use are obviously closely linked with what MI theorists label Linguistic Intelligence" (p. 117).

6. Conclusions, Implications and Suggestions

The present study intended to investigate whether there is any relationship between EFL learners' LI and writing performance, and writing assessment criteria. The findings indicate that such a relationship does exist, and LI and second language writing are related, but from among the five writing assessment criteria (according to Jacobs et al., 1981) only vocabulary and content have statistically significant relationships with the writing performance; vocabulary is the only predictor of LI scores.

This study may increase interest in and develop the applications of multiple intelligences to EFL writing courses with a goal toward self-directing, autonomous learning/learners. The results also provide quantitative evidence in support of the idea that students with a high level of LI have higher development of writing skill. Teachers can provide English language learners of lower levels of LI with further assistance and support and motivate them to perform more linguistic tasks so that they can better improve their writing skills. In fact, the findings of this study can contribute to the existing body of literature on the MI theory and writing, on the one hand, and can take the necessity of MI and LI, as a psychological construct, into account in educational programs, particularly in EFL domain, on the other.

Armstrong (2002, p.51) suggests some strategies for the application of each of the eight intelligences to the classroom activities. To him, LI is the easiest intelligence to use strategies to enhance its development. Then the author mentions five strategies to be used in the classroom to improve LI: storytelling, tape recording, brainstorming, journal writing, and publishing, on the assumption that LI development leads to development of language skills, particularly writing.

Richards and Rodgers (2001) contend that accounting for MI is in line with learner-based theories in education, language teaching and learning. Gardner's theory can have implications for such language education activities as teaching and assessment in general, and writing in particular (See Sharifi, 2008 and Kezar, 2001).

According to Chastain (1998), vocabulary knowledge is one important part of writing performance. The findings of this study are in line with Chastain. Language learners should improve their vocabulary knowledge and their world knowledge in order to have something to write and be able to put their thoughts on the paper by using the right words.

Competencies related to LI are likely to contribute to aspects of language learning, writing ability and writing assessment, with some practical advantages for language teachers. So, there might be the possibility for the existence of a degree of overlap between abilities related to LI and writing performance of English L2 learners. However, more studies will provide more evidence for generalization.

This research was conducted by female participants; hence, replication of the research is suggested with male participants or a comparison between male and female LI indices. Other studies can examine the relationship between LI and other language skills, learning strategies, etc. Finally, in this study, participants were intermediate level of English language learners and therefore the results might rarely be generalised to the learners of other levels of language proficiency, like beginners or advanced.

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Appendices

Appendix 1. Samples of the MIDAS Questionnaire (1996)

Adult - linguistic

60. You enjoy telling stories or talking about favorite movies or books?
    a. Not at all   b. Rarely   c. Sometimes
    d. Often   e. Almost all the time   f. I'm not sure

61. Do you ever play with the sounds of words like making up jingles, or rhymes? For example, do you give things or people funny sounding nicknames?
    a. Never   b. Rarely   c. Sometimes
    d. Often   e. All the time   f. I don't know

62. Do you use colorful words or phrases when talking?
    a. No   b. Rarely   c. Sometimes
    d. Often   e. All the time   f. I don't know

63. Have you ever written a story, poetry or words to songs?
    a. Never   b. Maybe once or twice   c. Occasionally
    d. Often   e. Almost all the time   f. I don't know

64. Are you a convincing speaker?
    a. Not at all   b. Every once in a while   c. Sometimes
    d. Often   e. Almost all the time   f. I don't know

Appendix 2. The Michigan Test Scores and Analysis

Table 2.1. Reliability of the Michigan test

N of items	Cronbach's Alpha
100	.82

Table 2.2. Accepted participants' score on the Michigan test

	N	Minimum	Maximum	Mean	Std. Deviation
Michigan	33	44.00	60.00	51.3030	5.64848
Valid N (listwise)	33				

Table 2.3. Test of normality on the Michigan scores

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Michigan	.143	33	**.084**	.902	33	.006

a. Lilliefors Significance Correction

Appendix 3. The MIDAS Questionnaire Scores and Analysis

Table 3.1. Descriptive statistics of participants' score on MIDAS

intelligences	N	Minimum	Maximum	Mean	Std. Deviation
linguistic	33	36.00	75.00	56.00	10.38
mathematical	33	30.00	76.00	51.30	10.29
spatial	33	20.00	78.00	47.78	15.17
musical	33	.00	65.00	36.12	13.55
interpersonal	33	34.00	89.00	59.45	12.78
intrapersonal	33	31.00	74.00	53.06	10.22
kinesthetic	33	.00	83.00	42.87	17.77
natural	33	9.00	77.00	43.48	17.36
Valid N (listwise)	33				

Table 3.2. Test of normality on the MIDAS scores

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MIDAS	.104	33	**.073**	.972	33	.541

a. Lilliefors Significance Correction

Appendix 4. The Linguistic intelligence scores and Analysis

Table 4.1. Frequency of participants' score on the linguistic intelligence

		Frequency	Percent	Valid Percent
Valid	36	1	3.0	3.0
	37	1	3.0	3.0
	38	1	3.0	3.0
	39	1	3.0	3.0
	41	1	3.0	3.0
	44	1	3.0	3.0
	49	2	6.1	6.1
	50	1	3.0	3.0
	51	1	3.0	3.0
	52	1	3.0	3.0
	54	3	9.1	9.1
	55	3	9.1	9.1
	59	2	6.1	6.1
	61	1	3.0	3.0
	62	4	12.1	12.1
	63	1	3.0	3.0
	64	2	6.1	6.1
	66	1	3.0	3.0
	67	2	6.1	6.1
	71	2	6.1	6.1
	75	1	3.0	3.0
	Total	33	100.0	100.0

Table 4.2. Descriptive statistics of participants' score on linguistic intelligence

	N	Minimum	Maximum	Mean	Std. Deviation
linguistic intelligence	33	36.00	75.00	56.0000	10.38328
Valid N (listwise)	33				

Table 4.3. Test of normality on the linguistic intelligence scores

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
linguistic intelligence	.112	33	.200[*]	.961	33	.270

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Appendix 5. The Writing Scores and Analysis

Table 5.1. Frequency of participants' score on writing

Subjects' Score		Frequency	Valid Percent
Valid	38.00	2	6.06
	43.00	1	3.03
	49.00	1	3.03
	50.00	1	3.03
	51.00	1	3.03
	53.00	2	6.06
	54.00	1	3.03
	55.00	1	3.03
	57.00	2	6.06
	59.00	1	3.03
	60.00	2	6.06
	61.00	1	3.03
	62.00	1	3.03
	63.00	1	3.03
	64.00	3	9.09
	65.00	4	12.12
	66.00	2	6.06
	67.00	1	3.03
	68.00	2	6.06
	69.00	1	3.03
	70.00	1	3.03
	71.00	1	3.03
	Total	33	100.0

Table 5.2. Descriptive statistics of participants' score on the writing

	N	Minimum	Maximum	Mean	Std. Deviation
Writing	33	38.00	71.00	59.393	8.732
Valid N (listwise)	33				

Table 5.3. Test of normality on writing scores

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Writing	.156	33	**.071**	.906	33	.008

a. Lilliefors Significance Correction

Appendix 6. The Writing Assessment Criteria Scores and Analysis

Table 6.1. Descriptive statistics of participants' writing assessment criteria score

		content	vocabulary	language use	organization	mechanics
N	Valid	33	33	33	33	33
	Missing	0	0	0	0	0
Mean		15.8485	11.9091	12.5455	11.8485	6.6667
Std. Deviation		2.34682	2.26886	2.13733	1.48158	1.49304
Minimum		10.00	6.00	6.00	9.00	3.00
Maximum		19.00	15.00	15.00	14.00	9.00

Table 6.2. Test of normality on writing assessment criteria scores

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
content	.162	33	.028	.901	33	.006
vocabulary	.200	33	.002	.915	33	.013
language use	.311	33	.000	.743	33	.000
organization	.177	33	.010	.927	33	.028
mechanics	.194	33	.003	.912	33	.011

a. Lilliefors Significance Correction

Appendix 7. The Inter-rater Reliability

Table 7. Inter-rater Reliability Coefficient

		Wa	Wb
w1	Pearson Correlation	1	.868(**)
	Sig. (2-tailed)		.000
	N	66	66
w2	Pearson Correlation	.868(**)	1
	Sig. (2-tailed)	.000	
	N	66	66

** Correlation is significant at the 0.01 level (2-tailed).

Appendix 8. T-Test

Table 8. T-Test results of two raters' scores

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
					Lower	Upper
			Test Value = 0			
wa	39.086	33	.001	60.31818	57.1747	63.4616
wb	38.111	33	.001	58.16667	55.0578	61.2755