World Academy of Science, Engineering and Technology
International Journal of Cognitive and Language Sciences
Vol:9, No:9, 2015

The Relationship between Iranian EFL Learners' Multiple Intelligences and Their Performance on Grammar Tests

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Open Science Index, Cognitive and Language Sciences Vol:9, No:9, 2015 publications.waset.org/10002285/pdf

***Abstract*—**The Multiple Intelligences theory characterizes human intelligence as a multifaceted entity that exists in all human beings with varying degrees. The most important contribution of this theory to the field of English Language Teaching (ELT) is its role in identifying individual differences and designing more learner-centered programs. The present study aims at investigating the relationship between different elements of multiple intelligence and grammar scores. To this end, 63 female Iranian EFL learner selected from among intermediate students participated in the study. The instruments employed were a Nelson English language test, Michigan Grammar Test, and Teele Inventory for Multiple Intelligences (TIMI). The results of Pearson Product-Moment Correlation revealed a significant positive correlation between grammatical accuracy and linguistic as well as interpersonal intelligence. The results of Stepwise Multiple Regression indicated that linguistic intelligence contributed to the prediction of grammatical accuracy.

***Keywords*—**Multiple intelligence, grammar, ELT, EFL, TIMI.

I. Introduction

THE second half of the twentieth century can be called the age of individualism, when individual values and differences were recognized and respected. This shift of attention has left its mark on the way education is viewed and practiced. Individual differences are now an important part of any debate related to teaching/learning and the professional literature is filled with terms and phrases which try to capture the elusive concepts that distinguish one person from another [6], [8], [12]. Cognitive variables represent a multi-dimensional system of factors that have an important role in understanding the second language learning process. An awareness of these factors will help teachers consider individual differences in their learners and take a big step towards learner-centered instruction. Gardner's theory of Multiple Intelligences (MI) is one of student-centered learning theories that implicate changes in traditional teaching methods in the classroom to accommodate various types of learners [7].

Reference [9] put forward a manageable description of what constitutes intelligence. In his theory of Multiple Intelligences, he identifies eight discrete categories of skills and abilities which he believes operate together in complex ways: Linguistic intelligence (word smart), Logical-Mathematical intelligence (number/reasoning smart), Spatial intelligence (picture smart), Bodily kinesthetic intelligence (body smart), Musical intelligence (music smart), Interpersonal intelligence (people smart), Intrapersonal intelligence (self-smart), and Naturalist intelligence (nature smart). Gardner argues that all people have these intelligences but in varying degrees and combinations. Although Gardner did not have any educational goals in mind [18], his MI theory has attracted the interest of many educators, such as [2] who used MI as a framework for rethinking school education. Accordingly, some schools in the United States have remade their educational programs around the MI model. The implication of MI theory in second language teaching is more recent. It has had an impact on second language learning programs because it offers a rationale by which the cognitive, affective, and socio-cultural variables which affect proficiency in second language learning can be explained. Proponents of using MI theory in language classes such as [5] and [17] tried to establish a link between MI and language teaching activities by considering language as being integrated with music, bodily activities, interpersonal relationships, and so on.

In the past few years, investigating the relationship between multiple intelligences and various language skills and sub-skills has become the focus of researchers in the field of language teaching. The primary purpose of such studies is to find out what type of intelligence is the best predictor of successful acquisition of a certain skill and sub-skills. By the same token, the present study is an attempt to investigate the relationship between Iranian EFL learners' multiple intelligences and their performance on grammar tests.

II. MI Studies in the Context of Iran

Along with the universal interest of scholars in the field of Applied Linguistics and English language teaching to run more and more learner and teach centered classes, Iranian researchers also conducted a number of studies with a focus on multiple intelligences and their effect on different aspects of language learning as an important factor in recognizing individual differences. Some of these studies and their results are explained in this part.

References [3], [10], and [20] explored the relationship between Iranian learners' language learning styles and their multiple intelligences and found a number of statistically significant positive and negative relationships between different types of learning styles and multiple intelligences.

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In a comprehensive study it is examined the strength of the relationship between language proficiency in English and the nine types of intelligences [16]. The results indicated that there is not a significant relationship between language proficiency and the combination of intelligences in general and the types of intelligences in particular. Moreover, none of the intelligence types was diagnosed as the predictor for language proficiency. The results of this investigation point to no significant relationship between Multiple Intelligences and English language proficiency in the Iranian context.

TABLE I
ONE-WAY ANOVA FOR EQUALITY OF GROUPS

	SS	df	MS	F	Sig.
Between Groups	59.10	3	19.70	.82	.49
Within Groups	1420.61	59	24.07		
Total	1479.71	62			

Regarding different language skills and subskills, Reference [1] conducted a study to examine the relationship between Iranian learners' multiple intelligences and their performance on writing and concluded that linguistic intelligence has the greatest contribution toward predicting writing score. Reference [14] found that existential, kinesthetic, and interpersonal intelligences are the best predictors of writing performance in a similar study. Reference [13] investigated the role of multiple intelligences in listening proficiency and found that musical and spatial intelligence types affect listening scores significantly. In another study, however it is found no significant relationship between components of multiple intelligences and listening proficiency [4]. Reference [15] explored the relationship between multiple intelligences and grammar knowledge and concluded that there is a significant relationship between the two elements but that learners with dominant linguistic intelligence type did not differ with other learners with respect to their grammar knowledge. Reference [11] examined the role of multiple intelligences in the performance of Iranian learners in vocabulary tests and concluded that musical and kinesthetic intelligence types have the highest correlation with learners' scores on vocabulary tests.

III. RESEARCH QUESTIONS

As the results of the studies mentioned above show, the body of literature which has been generated is inconclusive. Therefore, conducting new research studies with different populations and in different settings seems necessary in order to provide a clear picture of the possible relationship between multiple intelligences and different language skills and sub-skills. Accordingly, the present study aims at answering the following research questions:

1. Is there a significant relationship between intermediate female EFL Learners' Multiple Intelligences and their performance in grammar tests?
2. Which of the MIs is a better predictor of grammatical accuracy of Iranian English learners?

IV. PARTICIPANTS

The participants for this study were 63 female Iranian adult language learners ranging in age from 16 to 35 selected from among intermediate learners of Safir Language Academy who were grouped based on the oral placement and written achievement tests administered by the institute and were expected to enjoy the same proficiency level. Nevertheless, in order to double check the homogeneity of the participants a Nelson English language test was administered to a total number of 70 students enrolled in four separate classes of intermediate level. Based on the results of the descriptive statistics, the participants whose scores were two standard deviations above and below the mean were excluded and that left 63 students as the participants of the study. In order to assess significance of the differences among the mean scores of the four groups a one-way ANOVA was run. The results, tabulated in Table I, reveal that there was no statistically significant difference among groups concerning their level of proficiency $F(3,59)= .82$, $p=.49$.$p < .05$

V. INSTRUMENTS

The instruments employed in this study were a Nelson English language test, Michigan Grammar Test, and Teele Inventory for Multiple Intelligences (TIMI).

The *Nelson English language test*, which was used in order to determine the homogeneity of the groups, consisted of 50 multiple-choice items including 37 structure questions, 7 vocabulary and 5 pronunciation questions. The total score of the test was 50 and the time allocated for answering the questions was 40 minutes.

The *Michigan Grammar test* has four parts but only the first three parts were chosen for the purpose of the present study since part four was more suitable for upper intermediate and advanced level students. The test consisted of 60 multiple choice items which aim at testing students' grammar knowledge. The total score of the test was 60 and the time allocated for answering the questions was 70 minutes.

The *Teele Inventory of Multiple Intelligences* (TIMI), an instrument Sue Teele created in 1992 and further revised in 1993-1994, 1995, 1997 and 2002, is a forced-choice pictorial inventory that contains 56 numbered pictures of panda bears that represent characteristics of each of the seven intelligences and that provides individuals with 28 opportunities to select between two choices. The inventory kit includes a booklet containing 28 numbered pictures, the teachers' manual, and separate answer sheets for each individual taking the inventory, and a scoring transparency. It takes a maximum 10 minutes to complete for adult learners. The seven intelligences that are presented in the inventory are:

- Linguistic
- Logical-Mathematical
- Spatial
- Musical
- Bodily kinesthetic
- Intrapersonal
- Interpersonal

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The different intelligences are matched with one another and participants have the chance to select each of the seven intelligences eight different times in the inventory. Participants are asked to select one of the two choices that they feel most like. There is no right or wrong answers in this inventory. Each picture selected by the participants represents a score for the intelligence associated with that picture. After marking the responses, the scores are tallied up and finally the intelligence or intelligences that were more frequently selected yield the dominant intelligence of the participants.

Reference [19] claims that when Howard Gardner added the naturalistic intelligence as the eighth intelligence, she "struggled with the placement of this additional intelligence because it did not seem to fit with the other seven". She also believes that because the characteristics of this type of intelligence overlap the characteristics of the other intelligences, it would have been extremely hard to create "specific drawings for the naturalistic intelligence" [19]. Fortunately, this type of intelligence is not directly related to the language teaching context therefore, the fact that it was not included in the inventory would not affect the results negatively. The TIMI has been used in more than 450 different public and private schools throughout the United States and in other countries throughout the world [19].This indicates the popularity of this questionnaire among educators and researchers.

VI. Data Collection Procedure

After the sample was selected, the arrangements for conducting the study were made and fortunately the teachers accepted to allocate two sessions of their class time to the completion of the questionnaires and tests. The researcher had obtained the required information on the schedule of intermediate classes as well as the number of students in each class and had made copies accordingly.

During the first session, the Nelson English language test was administered to ensure the homogeneity of the participants to a total number of 70 students in 4 different classes. After the analysis of data, 7 students whose scores were far above or below the mean were and excluded. The results obtained from the one-way ANOVA revealed that the participants were homogeneous. At the beginning of the second session, the questionnaires and the Michigan Grammar Test were given to the participants simultaneously. They were asked to complete the tests and the questionnaires in class meticulously after detailed instructions were given by the researcher on how to respond to them. The participants were ensured that the results of the test was not involved in teachers' evaluation of them and were guaranteed that their responses would be highly confidential and would merely serve for the research purpose. Although some seemed a bit reluctant at first, most of them showed more enthusiasm when they were informed that they would be sent the results upon their request.

VII. Data Analysis

After calculating the descriptive statistics such as means, standard deviations, a one-way analyses of variance (ANOVA) was applied to check the homogeneity of participants before the data collection procedures began.

To answer the first research question, the Pearson Product-Moment Correlation (*r*) was applied to determine the strength of relationship between each intelligence type and the participants' performance on grammar tests. Moreover, in order to see which intelligence is a better predictor of the learners' performance on grammar tests; multiple regression analysis was used as well. All these statistical analyses were done using *Statistical Package for the Social Sciences* (SPSS) version 17.0 with alpha set at .05.

VIII. Results

The Pearson Product-Moment Correlation was computed to determine whether there were statistically significant relationships between the participants' dominant intelligence types and their scores in the grammar test. The results, tabulated in Table II, indicated that correlation indexes range from weak to moderate.

As shown in Table II, linguistic intelligence was significantly correlated with the participant' grammar scores (r = .58), p = .00. In addition to that, interpersonal intelligence was also positively correlated with grammar scores (r = .42), p = .00. Therefore, the correlation coefficients for these relationships accounted for 33.64 % and 17.64% of the variance, respectively. Moreover, the results revealed a statistically significant negative relation between logical-mathematical intelligence and grammar scores (r = -.43) at p = .00 as well as musical intelligence and the participants' performance on the test (r = -.29) at p = .01. The correlation coefficients of these relationships explained 18.49% and 8.41% of the variation, respectively.

TABLE II
Correlations between MI and Grammar Score

	Multiple Intelligences						
Grammar	Ling	Log	Kin	Mus	Spa	Intra	Inter
Pearson Correlation	.58**	-.43**	.09	-.05	.13	-.29*	.42**
Sig. (2-tailed)	.00	.00	.47	.65	.32	.01	.00
N	63	63	63	63	63	63	63

In order to see which intelligence is a better predictor of learners' grammatical accuracy, a Stepwise Multiple Regression Analysis was run. Results of the model summary indicate that among all seven types of intelligence, linguistic intelligence types remained as the predictor of grammar score and accounts for 34% of the variance in grammar test (Table III).

TABLE III
Model Summary of Stepwise Multiple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.58	.34	.33	6.60

a. Predictors: (Constant), Linguistic

Afterwards, to test whether the model is significant or not, the ANOVA procedure is run. The results of ANOVA, tabulated in Table IV, indicate that $F(1,61) = 31.50$, $p = .00$ which is significant and shows a high predictability.

TABLE IV
ANOVA FOR STEPWISE MULTIPLE REGRESSION

	Model	SS	Df	MS	F	Sig.
1	Regression	1373.09	1	1373.09	31.50	.00[a]
	Residual	2659.79	61	43.60		
	Total	4032.89	62			

a. Predictors: (Constant), Linguistic

Table V shows the results of the Stepwise Multiple Regression Analysis. As it can be seen in the Table V, tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern (Tolerance = 1.00, VIF = 1.00). Based on the results, it can be argued that linguistic intelligence makes significant contribution in the participants' performance on grammar tests t (63) = 13.16, p = .00andfor every one standard deviation change in one's linguistic intelligence, there will be .58 standard deviation change in one's grammar accuracy.

TABLE V
COEFFICIENTS FOR STEPWISE MULTIPLE REGRESSION

Model		Unstan. Coef		Stan. Coef	t	Sig.	Colli. Statistics	
		B	Std. Error	Beta			Tole	VIF
1	Cons.	35.42	2.69		13.16	.00		
	Lin	2.73	.48	.58	5.61	.00	1.00	1.00

IX. DISCUSSION

The results of the study indicated that interpersonal intelligence type was significantly more common than linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, and intrapersonal intelligences. In addition, bodily-kinesthetic intelligence was significantly more common than linguistic, logical-mathematical, spatial, musical and intrapersonal intelligences. On the other hand, participants showed more tendency toward musical intelligence compared to intrapersonal and logical-mathematical intelligences. Moreover, linguistic intelligence was significantly more common than merely logical-mathematical intelligence. In other words, interpersonal intelligence was the most common and logical-mathematical was the least common types of intelligences.

The dominant intelligence of the learners suggests that the participants of the present study enjoyed being around people, participated in social activities, created and maintained long-term relationships, and learnt best by relating and participating in collaborative group environments. Moreover, the fact that the logical-mathematical intelligence was the least common type shows that they disfavored working with numbers, making inferences, classification, and categorization.

In terms of the relationship between different types of multiple intelligences and grammatical accuracy, the results revealed that there was a statistically significant relationship between grammar scores and linguistic as well as interpersonal intelligence. It means that the higher one's linguistic or interpersonal intelligence, the higher their scores. There were also significant negative relations between grammar scores and intrapersonal as well as logical mathematical intelligence. Reference [15], however, found positive correlation between grammar and interpersonal.

X. CONCLUSION

Many educators and psychologists believe that people's success and failures are attributable mainly to individual differences in abilities. It is believed that individuals differentially and selectively attend to and process learning materials based on their prior knowledge, attitudes, styles, and motivation. Therefore, effective learning takes place when instructional programs and designs take into account developmental and individual characteristics of the learners. The main implication of this study is that psycholinguistic issues have an important role in both teaching and learning a second or foreign language. Therefore, teachers, educators, teacher trainers, curriculum developers, materials writers, and syllabus designers need to pay attention to these factors that influence the process of learning.

REFERENCES

[1] M. Ahmadian,&S. Hosseini,2012.A study of the relationship between Iranian EFL learners Multiple Intelligences and their performance on writing. *Mediterranean Journal of SocialSciences*, *Vol. 3* (1), 111-126.
[2] T. Armstrong, 1994. *Multiple intelligences in the classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.
[3] S. Baleghizadeh, & R. Shayeghi, 2014. The relationship between perceptual learning style preferences and Multiple Intelligences among Iranian EFL learners, *Innovations in Education and Teaching International*, *51*(3), 255-264.
[4] M. BemaniNaeini,,&A. Pandian, 2009. On the relationship between Multiple Intelligences, listening proficiency, and motivational orientation among Iranian TEFL university students. *Iranian EFL Journal*, 4, 41-70.
[5] M. Christison, 1998. An introduction to multiple intelligence theory and second language learning. In Reid (Ed.), *Understanding learning styles in the second language classroom* (pp. 1-14). Englewood Cliffs, N.J.: Prentice Hall/Regents.
[6] R. W. Crozier, 1997. *Individual learners: Personality differences in education*. London: Routledge.
[7] S. J. Denig, 2004. Multiple intelligences and learning styles: Two complementary dimensions. *Teacher College Record, 106*(1), 96-111.
[8] D. Fontana, 1988. *Psychology for teachers.* Hampshire: Macmillan.
[9] H. Gardner, 1983. Frames of mind: The theory of multiple intelligences. New York: Basic Books.
[10] N. Haghighi, 2006. *The relationship between Iranian language learners' multiple intelligences and their learning styles.* Unpublished master's thesis, AllamehTabataba'i University, Tehran, Iran.
[11] Y. Javanmard, 2012. On the relationship between Multiple Intelligences and their performance on vocabulary tests among Iranian EFL learners. *Global Journal of Human Social Science, 12*(12), 61-73.
[12] G. R. Lefrancios, 1991. *Psychology for teachers*. CA: Wadsworth Publishing Company.
[13] B. Mahdavi, 2008. The role of Multiple Intelligences (MI) in listening proficiency: a comparison of TOEFL and IELTS listening tests from an MI perspective. *Asian EFL Journal, 10* (3), 1-14.
[14] F. Marefat, 2007. Multiple intelligences: voices from an EFL writing class. *Pazhuhesh-e Zabanha-ye Khareji, 32*, 145-162.
[15] A.Panahi, 2011. Relationship between Multiple Intelligences and learning grammar. *Iranian EFL Journal*, *7*(5), 139-163.
[16] S. A.Razmjoo, 2008. On the relationship between multiple intelligences and language proficiency. *The Reading Matrix, 8*(2), 155-174.

Open Science Index, Cognitive and Language Sciences Vol:9, No:9, 2015 publications.waset.org/10002285/pdf

[17] J. M. Reid, 1997. *Understanding learning styles in the second language classroom*. Englewood Cliffs, N.J.: Prentice Hall/Regents.
[18] T. Richards, J. C. & Rodgers, 2001. *Approaches and methods in language teaching* (2nd Ed.). Cambridge: Cambridge University Press. pp.115-120.
[19] S. Teele, 2000. *Rainbows of intelligence: Exploring how students learn.*Thousand Oaks, CA: Corwin Press. pp.1-10
[20] H. Zare-ee, A. &Shahi, 2010. The relationship between learning styles and multiple intelligences. *INTED2010 Proceedings*, 2495-2504.

Open Science Index, Cognitive and Language Sciences Vol:9, No:9, 2015 publications.waset.org/10002285/pdf