

On the Relationship Between Multiple Intelligences and Their Performance on Vocabulary Tests among Iranian EFL Learners

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Abstract

MI theory refers to a learner-based philosophy that characterizes human intelligence as having multiple dimensions that must be acknowledged and developed in education. It developed in mid 1983s by Gardner. MI theory includes the concepts that intelligence is pluralistic, encompassing at least eight intelligences. One of the greatest applications of the theory of MI is in education in that it identifies the differences among people regarding their intelligence preferences and the role it might play in learning environment. Not many studies have concerned the role of MI in language learning. The present study investigated the relationship between participants' MI and their performance on vocabulary tests. The participants were 100 junior students at Khoramabad Azad University majoring in English Language Teaching. They were asked to answer the MIDAS developed by Shearer (1996). Then, they answered four different formats of vocabulary tests, namely, antonym, gap filling at sentence level, gap filling at context level, and matching formats.

Index terms— Intelligence; Multiple intelligences; Vocabulary test format.

1 Introduction

Multiple Intelligences (MI) Theory is one of the most compelling approaches to education. The ideas inherent in multiple intelligence theory were proposed in the early 1980s by Gardner in which he suggests that "the traditional notion of intelligence as measured by I.Q testing is far too limited, and there are not just two ways to be intelligent, but many ways" (Gardner, 1983, p. 51). According to this theory, people are different in their different aspects of intelligence. This difference causes differences in people's performance on different tasks, as well as different aspects of a special task.

The heart of MI theory rests on individualization and recognition of divergent abilities and personal differences. Gardner, viewed "intelligence as the ability to solve problems, or to create products that are valued in one or more cultural setting". (Gardner & Hatch, 1989, pp. 4-9). This definition challenged the traditional psychological view of intelligence as a single capacity that drives logical and mathematical thought. He asserts that the intelligences are 8 types and they are not meant to be reflections of emotions, personality or sensory acuity, rather, each of the intelligences considered as computational capacity -the ability to process certain kinds of information in the process of solving a problem or fashioning a product.

Vocabulary learning is central to language acquisition, whether first, second, or foreign. The role of vocabulary in language learning and communication is pointed out by psychologists, linguists and language teachers (Aliva & Sadoski, 1996; aufer & Hulstijn, 2001).

According to Seal (quoted in Celce-Murcia, 1991, p. 296), "words are perceived as the building blocks upon which knowledge of the second language can be build. In the same direction, on the importance of vocabulary, Sener (2005) reiterated Wilkin's famous saying that without grammar, very little can be conveyed, without vocabulary nothing can be conveyed.

4 REVIEW OF THE RELATED LITERATURE

The form of a test refers to its appearance, it means the way a test should look. There are many formats to test vocabulary, among them, the focus of this study is on antonym, cloze, matching, and gap filling at sentence level.

2 II.

The Eight Intelligences Gardner's (2006) Gardner's (, 1991) eight intelligences and their explicit implications are explained in brief below. 1. Linguistic Intelligence: The capacity to use words effectively, whether orally or in writing. This intelligence includes the ability to manipulate the syntax or structure of language , the phonology or sounds of language, the semantics or meanings of language and the pragmatic dimensions or practical uses of language. 2. Logical/Mathematical Intelligence: The capacity to use number effectively and to reason well. This intelligence includes sensitivity to logical patterns and relationships, statements and propositions, functions and other related abstractions. The kinds of processes used in the service of logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing. 3. Spatial Intelligence: The ability to perceive visual-spatial world accurately and to perform transformations on those perceptions. This intelligence involves sensitivity to color, line, shape, form, space, and the relationships that exists between these elements. It includes capacity to visualize, to graphically represent visual or spatial ideas, and to orient oneself appropriately in a spatial matrix. 4. Bodily-Kinesthetic Intelligence: expertise in using one's whole body to express ideas and feelings and facility in using one's hands to produce or transform things. This intelligence includes specific physical skills such as coordination, balance, dexterity, strength, flexibility, and speed, as well as tactile and haptic capacities. 5. Musical Intelligence: The capacity to perceive , transform, and express musical forms. This intelligence includes sensitivity to the rhythm, pitch or melody, and timbre or tone color of a musical piece. One can have a figural or "top-down" understanding of music, a formal or "bottom-up" understanding or both. 6. Interpersonal Intelligence: The ability to perceive and make distinction in the moods, intentions, motivations, and feelings of other people. This can include sensitivity to facial expressions, voice, gestures. The capacity for discriminating among many different interpersonal kinds of interpersonal cues, and the ability to respond effectively in some pragmatic way. 7. Intrapersonal Intelligence: Self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself, one's awareness of inner moods, temperaments and desires, and the capacity for self-discipline, self-understanding and self-esteem. 8. Naturalist Intelligence: Expertise in the recognition and classification of the numerous species -the flora and the fauna -of an individual's environment. Remarkably, Gardner(1991) has conducted a great deal of discussion as to the inclusion of other intelligences such as spiritual intelligence and existential intelligence. Despite the proposal of these intelligences, Armstrong(2000) echoes doubt about the nature of these two intelligences and claims that they are not perfect in terms of Gardner's(2006) practical criteria.

3 III.

4 Review of the Related Literature

In a study entitled on the relationship between multiple intelligences and International English Language Testing System(IELTS) reading scores of Iranian learners that have done by Motallabzadeh and Manoucheri(2009), 98 participants from 130 persons who received the MIDAS, filled out the MIDAS questionnaire. Participant's performance in the reading and comprehension section of IELTS and MIDAS were compared. In this research data analyzed by descriptive analysis methods and Pearson's correlation. The results of this study showed that there is no significant relationship between multiple intelligences and reading and comprehension section of IELTS, except for logical-mathematical intelligence which showed a positive relation with reading scores. It seems that reading section contains logical tasks which could be due to the similar nature of this type of intelligence and operations needed while reading.

Albert, Brown, Eliason, and Wind(1997) in a study entitled improving reading through the use of multiple intelligences found that by using activities of multiple intelligences in classroom, the scores of reading and comprehension skills of language learners effectively would promote. Mahdavi(2007), in his thesis investigation of the role of multiple intelligences in listening proficiency, investigated the role of MI by giving 155 senior and junior English language students an actual TOEFL listening comprehension test and a MIDAS questionnaire, and 117 of the same participants also took a Specimen IELTS listening. The results suggest that there is little positive correlation between each of the eight intelligences and performance on both TOEFL and IELTS listening. The results of t-test also shows more proficient participants on either of the test have a higher level of the total MI. Differences in the linguistic intelligence of both IELTS and TOEFL high and low listening proficiency groups is highly significant. Spatial intelligence and musical intelligence significantly affect the TOEFL listening scores and the effect of logical-mathematical intelligence in listening proficiency is positive although low. Farati(2007), in her thesis on the relationship between multiple intelligences and strategies of language reading in Iranian language learners found that there is no significant relationship between multiple intelligences and strategies of language reading in Iranian language learners.

Mettetal, Jordan and Harper(1997) investigated the impact of a MI curriculum in an elementary school. They used observation and survey for data collection. On the basis of their analyses of the data, three themes emerged

" (a) students, teachers, and parents had very positive about the concept of MI; (b) they had positive with regard to school -wide implementation, including flow time, activity room, and enrichment clusters; and (c) classroom implementation of MI concepts was uneven across classroom" (p. 115). The researchers highlighted Kornhaber (1999) investigated three alternative assessments for identifying students who are different in terms of their gift. Each of these assessments was based on the MI theory. The analysis of qualitative data indicated that "no assessment met all eight criteria; each met a different subset of the eight" (p. 143). Kornhaber concluded that enhancing equity for under-served students is a very important goal. Snyder(2000) sought to determine the relationship between learning styles and academic achievement of high school students. The result of the study suggested that the majority of high school students benefited from Tactile-Kinesthetic intelligence and were global learners. The researcher concluded that an awareness of how students learn is in fact indispensable to successful classroom. Chan(2001) conducted a study to "assess the variability of the use of a self-report checklist identifying aspects of giftedness in a sample of 192 Chinese secondary students from a multiple intelligences perspective" (p.215). In order to compare the students, their IQs, creativity, and leadership characteristics were also assessed. It was found that participants perceived the seven intelligences almost as distinct abilities. However, "the self-estimates of the various intelligences did not generally predict the conventional measures provided independent and possibly complementary information on aspects of giftedness" (p. 251). Finally, the significance of developing profiles of strengths and weaknesses from an MI perspective for programming and identification purposes was discussed. Kallenbach and Viens(2002) conducted a study across different adult literacy contexts. The data were collected through (1) observations, qualitative interviews, and lead to high levels of adult learner engagement; (2) choice-based activities increase students' confidence regarding learning; and (3) connecting MI reflections activities to broader learning goals is important. Looori (2005) conducted a study in which the differences in intelligences preferences of ESL male and female students are investigated. Ninety international students at three American universities took part in this study. The results showed that "there were significant differences between males' and females' preferences of intelligences. Males preferred learning activities involving logical and mathematical intelligences., whereas females preferred learning activities involving intrapersonal intelligence" (p. 77).

Razmjoo, Sahragard, and Sadri (2009) in a study attempted to identify the relationship between MI, vocabulary knowledge and vocabulary learning strategies among the Iranian EFL learners. The participants were senior students at Shiraz Azad University majoring in English Language Teaching. Three kinds of instruments were used in this study: Nation's Levels Tests(2001), Schmitt's vocabulary learning strategies (1997), and an MI questionnaire whose construct validity was checked through principal factor analysis. The data were analyzed both descriptively and inferentially. The findings of the study revealed that there is a relationship between MI and vocabulary learning knowledge. Furthermore, among different domains of intelligence, linguistic and natural intelligences make statistically significant contribution to the prediction of vocabulary learning knowledge. Moreover, stepwise multiple regression analysis confirmed the same finding. Concerning the relationship between MI and vocabulary strategies, the results indicate that among 5 categories of strategies, determination, social, and memory strategies have a significant relationship with several domains of MI. Seemingly, the results are context-bound not universal.

According to Campbell (1990), during the 1989-1990 school years, an action research project was undertaken to investigate students' reaction to the multiple intelligences-based model. The analysis of data indicated the students' independence, co-operative skills, and multimodal skills. Weber (2005) experimented five-phase study of MI to solve the problems of higher education students who were reserved and did not participate in the classroom. Upon practical application of MI, he drew the conclusion that students were motivated and encouraged to participate in the classroom.

Application of MI theory in the spelling of highfrequency words is remarkably eye-catching, too. Brecher et al.(1998) have conducted a program for improving the spelling of high -frequency words. A program was developed for improving the spelling of high frequency words in daily writings across the curriculum through the use of MI. the population consisted of second and third grade students. The problem was tackled by parent surveys; teacher interviews, observations, and writing samples. Analysis of data revealed that students performed well on weekly spelling tests, yet did not transfer this knowledge to spelling high frequency words in daily writing. Teachers reported inconsistent instruction in basic spelling. Based on the presentation and analysis of results, students showed significant improvement in spelling and transferring 100 high frequency words. The students were able to spell the words correctly and to internalize the words in writings.

A study related to MI and Focus on Form (FonF) was conducted by ??aedi(2004 ??aedi(, 2006)), in Tabriz, Iran. In this study three different treatments were used in three experimental groups: MI FonF provided focus on form, meaning and use, along with focus on learners' strengths and interest in language learning. Two In another study by Rahimian (2005), the relationship between MI and learner types was examined. The study was observed whether there is any relationship between learner types and MI. To conduct the study, 122 male and female subjects were chosen from Kish Institute. The participants sat through the multiple intelligence development scale and Reid's learning style inventory via correlation, descriptive statistics and stepwise regression showed that: (a) all of the scores in MIDAS correlated with the scores obtained from the learner type test, (b) subjects from opposite sexes performed differently in all tests. What is more, the variable gender correlated with MI and

learner styles, (c) participants' dominant intelligences correlate with their age, (d) subjects' language proficiency correlated with their dominant learning styles.

In another study by Panahi(2011), the relationship between MI and learning grammar in EFL setting was examined. The current investigation employing some instruments i.e. a questionnaire, a pretest and a post-test, was tackled in two phases. In phase one, the problem aimed at testing hypothesis that if the learners' dominant intelligence is linguistic intelligence, their grammar scores will be higher. To this end, first, 64 male and 61 female EFL learners as hypothetical grammar learners were asked to participate in the research project. After rapid prototyping and field testing, 30 male and 30 female EFL grammar learners who had both high grammar scores and dominant linguistic intelligence were selected and ultimately a t-test was run to observe the result. In phase two, the relationship between MI of male and female EFL learners in terms of the dominance of their intelligences was explored. Based on the statistical findings, it was found that there is significant relationship between MI of male and female EFL learners and their grammar knowledge. It was also found that there is no difference between the grammar performance of male and female EFL learners whose dominant intelligence is linguistic intelligence.

Reid (1998) contributes to the research in the area of individual differences by investigating the role of MI, among other learning styles. She refers to some of the affective changes like "higher interest and motivation in the learning process, increased students responsibility for their own learning, and greater lassroom community ?" (p. 300). She states such changes will ultimately lead to more effective learning.

Among a plethora of pedagogical manifestation of MI theory, there lies an action research conducted by Albero, et al. (1997) who looks with favor upon the point that MI has met with considerable success. The report describes a program for increasing reading test scores and the result leads pedagogically to some rich findings.

In another study by BemaniNaeini and Pandian (2009), the relationships between MI, listening proficiency and motivational orientation among Iranian TEFL university students were examined. In this study, using Christison's (1999) MI inventory, 60 Iranian TEFL university students' preferred intelligences were identified. As for measuring the participants' listening comprehension proficiency, the listening section of a retired test of TOEFL was administered. Also, a modified Likert-scale questionnaire was employed to elicit the data about participants' motivational orientation. The results indicated no significant relationship among these variables. Moreover, listening and motivation were not significantly correlated. As for relationship between any of MIs and the variables of the study, there was no indication of a significant correlation.

IV.

5 Statement of the Problem

Not many studies have so far investigated the role of multiple intelligences in language learning and teaching. It can be argued that MI might have a role in different aspects of language proficiency and communicative competence. It appears that there is a gap in examining the relationship between Multiple Intelligences and their performance on vocabulary tests, and which type of intelligences contribute to better performance on various forms of vocabulary tests.

V.

6 Objectives of the Study

The present study attempts to investigate the relationship between two Variables(MI and performance on vocabulary tests) and whether there is any significant difference between the performances of the participants with different intelligence preferences. It is also hoped that the findings of this study can help the researcher discuss the role of MI in vocabulary learning and performance on different test formats.

7 VI.

Research Questions

8 Methodology a) Participants

The participants of this study were the junior students between the ages of 20 to 24, majoring in English language in the Islamic Azad University, Khoramabad Branch. Four tests of vocabulary and an MI questionnaire were administered in order to elicit the participants' responses. The researcher managed to involve 115 participants who had answered both vocabulary tests and MI questionnaire.Fifteenof the students who did not return the MI questionnaire and vocabulary tests were excluded from the data analysis. Finally, the responses of 100 participants constituted the data set of this study.

9 b) Instrumentation

The instruments used in this study consisted of four different formats of vocabulary tests and a Multiple Intelligences questionnaire. The items of all four types were selected from different standardized tests and standard vocabulary books like 504 words and the like. The tests were appropriate for intermediate level. Each test format consisted of 15 items.The first test to be administered was vocabulary in the form of

antonym(Appendix 1).The second vocabulary test was a cloze test (Appendix 2).The third type of vocabulary test was a gap filling test at sentence level (Appendix 3). The fourth test was a matching test (Appendix 4).

An MI questionnaire was also administered to the participants in this study. In 1996 Shearer developed the Multiple Intelligence Development Assessment Scale(MIDAS). A Persian translation of the questionnaire which was equivalent to the original one and consisted of 119 items in Likert format was utilized in this study.

10 c) Procedure

The data were collected from the participants in five sessions. The Multiple Intelligence questionnaire was the first to be administered by the researcher. All participants were asked to study the MIDAS questionnaire carefully and choose their answers from among the six options provided in the answer sheet.

One week after the collection of MIDAS questionnaire, the first test of vocabulary was administered. The other three tests were administered in three successive sessions.They were also allowed to ask their questions about the test. The reason for the administration of vocabulary tests in different sessions was to prevent any interference of different test formats on performance on other formats.

11 d) Design

No treatment was used in this study and no causal relations were intended to be established. No variable was manipulated to cause a change and therefore it can be said that the design of this study is ex post facto.(Farhady,1995,p.155)

12 e) Statistical Analysis

The first and second questions were concerned with the relationship between intelligence preferences and performance on vocabulary tests. Therefore, the correlation between multiple intelligences score and vocabulary test once as a whole and another time the score on each test format were calculated. The third question was intended to find out which intelligence type is a better predictor of the performance on vocabulary tests. In this regard, a multiple regression analysis was run to find out which intelligence types contributes to better performance on vocabulary tests.

13 IX.

14 Result and Discussion

a) Investigating the first question:

15 Discussion

The finding of a study that done by Razmjoo, Sahragard, and Sadri(2009), revealed that there is a relationship between MI and vocabulary learning knowledge. Furthermore, among different domains of intelligence, the linguistic and natural intelligences make statistically significant contribution to the prediction of vocabulary learning knowledge, while findings of this study do not support such a relationship between MI and performance in tests of vocabulary. Moreover, among different domains of intelligence, only musical and bodily-kinesthetic intelligences contribute more to a better performance on different vocabulary test formats. It seems that such contradictory findings are due to utilizing two different MI questionnaire in these studies. Razmjoo, et al.(2009), used an MI questionnaire (containing 90 multiple choice items) which is a combination of two MI tests, including Nail's (2002) MI tests of Ned production and MI inventory ??McKenzie, 1999), but in the present study Shearer's MI questionnaire (MIDAS) which contains 119 multiple choice items was used. However, the results of the present study are somehow in agreement with a study done by Razmjoo (2008), as he found no significant relationship between MI and English language proficiency.

As it was mentioned in the literature (e.g. Armstrong, 2000 ??rmstrong, , 2003)), the theory of Multiple Intelligences argues for individualized education. The purpose of individualized education is to find out each person's intelligence preferences and fine tune the educational practices in order to cater for individual differences regarding intelligence. One major reason for lack of relationship between MI and participants' performance in this study can be attributed to the fact that the participants did not match the prerequisite of individualized education as favored by MI theory. They were not trained to use their intelligences in performing different tasks including linguistics tasks. It can be argued that they all vaguely used the same strategies in learning vocabulary and taking vocabulary tests.

16 XI.

17 Conclusion

The result of this study indicated that there is no significant relationship between intelligence preferences of participants of this study and their scores on different formats of vocabulary tests as well as their total vocabulary score. Although, it seems that linguistic intelligence should be a better predictor of performance on tests of

vocabulary, it was found that only musical and bodily -kinesthetic intelligences from eight intelligences are better predictors of the participants' performance on vocabulary tests.

The most surprising finding of this study is that most of the intelligences have a negative correlation with vocabulary test scores. In other words, the higher that specific intelligence, the lower the vocabulary test score will be.

The results of correlation analyses and multiple regression analyses showed that the only intelligence which correlates positively with vocabulary test scores is bodily -kinesthetic intelligence, although the correlation is very low.

On the basis of the findings of this study, it can be argued that there may be other factors that play a role in vocabulary learning. Although it is an established fact that personal differences play a role in performance on different linguistic tasks, this study indicated that participants' intelligence preferences do not play a significant part in their performance on vocabulary test. The participants' performance on vocabulary tests can be attributed to individuals difference other than their intelligence preferences, such as the styles and strategies that they employ when learning vocabulary or taking a test on vocabulary it can be argued that their performance can be attributed to their ability in memorizing words or their test taking strategies which are not part of their vocabulary knowledge.

The finding of this study also suggests that we can not predict a person' success or failure in learning vocabulary or taking a test on vocabulary on the basis his/her scores on different intelligences.

18 XII.

19 Pedagogical Implications

The findings of this study have important implications both for language teaching and language testing. MI model has provided us with the opportunity to look differently at curriculum, instruction, and assessment. MI pedagogy provides opportunities for authentic learning based on student's needs, interests, and talents. The multiple intelligence classroom acts like the real world. Students become more active and involved learners. Students should be standing up, moving around and discussing with each other what they are learning while learning it.

Based on this study it is hoped that teachers become more aware of the differences among students, so that they can take into account these differences and the materials should be taught in different ways. If these conditions are fulfilled, the students have more opportunities to learn and to understand the materials being taught. If they do not comprehend the material in one way, they might comprehend it in another way, thus their achievement is likely to improve.

The utilization of activities which engage different intelligences in the classroom will give this opportunity to language learners with different intelligence preferences to make use of the classroom environment and learning activities. Language teachers should be made familiar with their students' strengths and weaknesses regarding intelligence to make learning environments appropriate for them. Because it was found that there is meaningful relationship bodilykinesthetic intelligence and performance in tests of vocabulary, teacher can use more activities like roleplay, movement, sports and physical games in their classroom, since students with bodily-kinesthetic intelligence need such activities in order to learn best.

In the case of language testing, utilizing the implications of MI leads to more authentic language testing, that is, the testing situation and the test materials will be more meaningful to language learner. Language tests should be developed in a way that it allows test takers with different intelligence preferences to use their intelligences in test taking.

20 XIII. Suggestions for Further Research

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Figure 1:

1

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1. Is there a relationship between types of intelligence and language learner's performance on vocabulary test? To investigate this question a correlation analysis of each intelligence and vocabulary total score was performed which is presented in table 1.

[Note: EYear]

Figure 2: Table 1 :

1

b) investigating the second question:

2. Is there any relationship between types of intelligence and language learner's performance on different formats of vocabulary tests?

To investigate this question a correlation analysis of each intelligence and each vocabulary test score was performed which is presented in table 2.

Figure 3: Table 1

2

Intelligence	Antonio	Matching
context level sentence level		
Musical	- .260	.001
Bodily-kinesthetic	- -	.548 .331
Logical-mathematical -.228	-	.083
Spatial	- -	.453 .131
Linguistic	- .018	.363
Interpersonal	- -	.401 .016
Intrapersonal	- -	.231 .169
Naturalistic	- -	.183 .100

As the table shows, almost all intelligences have a low negative correlation with performance on different vocabulary test formats. Most of them correlate negatively with vocabulary test scores. The few positive rel

Figure 4: Table 2 :

3

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	.651	.424	.373	11.26102

Multiple regression coefficients reported in table 4.implythat musical intelligence accounts more for changes in vocabulary test score. In other words, for one standard deviation of change in musical intelligence score, there will be -.039 of a standard deviation

Figure 5: Table 3 :

4

Figure 6: Table 4 :

5

Figure 7: Table 5 :

6

variable: matching format test score)
Table 6 implies that interpersonal variable, if there is 1 standard deviation change in this intelligence is the most related predictor of performance intelligence, vocabulary test score will be changed to - on matching format of vocabulary test. According to this .36 standard deviation.

Figure 8: Table 6 :

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Figure 9: Table 7 :

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Figure 10: Table 8 :

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English at higher levels of language proficiency. System 33, 547-562.

Scientists used to believe that our 24-hour cycle of sleeping and waking was governed entirely by external factors, the most notable of these, they thought, were the rising and setting of the sun. but they have now found that there is a daily rhythm to a wide range of biological functions-including temperature, digestion and mental functions-which are regulated internally by a special time-keeping mechanism within the brain. The main function of this "body clock" is to anticipate and respond for external changes so that, for example, our body temperature starts to rise at dawn, gearing us up for the day, and begins to fall in the early evening, wining us down for sleep. some people's body clock is poorer time than others, which can greatly disturb their lives and even their health. Insomnia, depression, poor work performance, and even accidents can all be or aggravated by inaccurate body clocks. severe problems can result from the difficulties of to different time zones and working by night instead of by day. Shift workers are known to run a higher-than-average of having a number of health problems and the disruption of normal body rhythms is one possible for this.

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