

A Study of Relationship between Multiple Intelligences and Writing Ability of Iranian Female and Male Students

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Abstract

The present study aims at investigating the relationship between multiple intelligences (MI) and writing ability of Iranian female and male students. It also seeks to compare female and male students in terms of MI profile. To achieve this goal, a group of forty students studying English language and literature at Azerbaijan Shahid Madani University were asked to participate in the study. They were chosen without random assignment on the basis of non-probability sampling procedure. Twenty of the participants were female and twenty of them were male, and their age range was 19-26. The participants were given Armstrong's MI questionnaire as well as a writing test. The results indicated no significant relationship between female and male students' MI and their writing score. There was also no relationship between components of MI and writing ability of Iranian female and male students. Descriptive analysis of data indicated that although female and male students showed different preferences in each intelligence type, gender is not a significant factor in level of MI possessed by students. Regarding components of MI, there was difference between female and male students in intrapersonal intelligence; male students scored higher in this intelligence type. It is suggested that language teachers accommodate for individual differences in different phases of language teaching process.

Keywords: Multiple intelligences, writing ability, gender, Iranian EFL students.

1. Introduction

The modern views of individualism are based on the basic idea that each individual acts on his/her own, and makes his/her own choices. The view emphasizes individuals' independency in each aspect of life including education. During the history, the educational systems deprived students of their right to be involved in deciding what kind of education better accommodates their talents and preferences. Learners were depicted as passive agents who were mere receivers of teacher knowledge and were treated as being the same and learn in the same way with priority given to those who possessed linguistic and mathematical intelligences. Students were assessed based on their performance in these two intelligences which created injustice on the part of learners who possess other talents and preferences.

With emergence of Gardner's influential theory of MI which questioned the appropriateness of making decisions according to traditional views of intelligences, educators came to understand the importance of accommodating individual differences and meeting student needs to help them perform their highest potential. Current educational systems all over the world emphasize the importance of life-long learning. In many European countries education aims to support the development of whole person rather than merely one aspect of cognitive domain. Holistic approach to teaching and learning includes the whole learning profile of learners with their multiple intelligences, preferences and their personality. It tries to help students grow as learners and human beings (Tirri & Nokelainen, 2011). An important aspect of this kind of education is consideration of one's strengths and weaknesses (Tirri & Nokelainen, 2011).

Differences between individuals are described in a number of ways which categorizes each person on the basis of his/her prominent intelligence types (Yenice & Aktamis, 2010). Gardner (1983) argued that traditional view of intelligence employed in educational and psychological settings needed reform. He suggested that the concept of a "pure"

intelligence measured by a single IQ score is flawed. In his view intelligence is not a singular phenomenon but rather it is a plurality of capacities (Armstrong, 2003). Gardner (1983) defined intelligence as "the ability to solve problems or to create products that are valued within one or more cultural settings" (XIV). Later he defined it as "a biopsychological potential to access information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (p. 33-34).

For Gardner intelligence comes in varieties and develops within contexts in which different ideologies have different values and intelligences develop in accordance with cultural conditions the person faces. Gardner (1983) proposed his theory of Multiple Intelligences (MI) as a reaction to the monolithic and static view of intelligence. The theory of MI addresses the deficiencies of many theories that do not take individual differences into consideration as the basis for intelligence rather focus on intelligence as consensus-driven concept (Gardner & Moran, 2006). MI approach to education demands a change of minds on the part of educators; it requires an interdisciplinary perspective, cultural sensitivity, and better explains the wide variety of intelligent performances among learners depending on the level of training, context and culture (Gardner & Moran, 2006).

Gardner (1983) suggested the existence of seven relatively independent intelligences. They are linguistic/verbal, logical/mathematical, musical, spatial, bodily/kinesthetic, intrapersonal, interpersonal, later he added naturalist intelligence to his list. The intelligences are described below:

- **Linguistic/verbal intelligence** is intelligence of words since it is mainly concerned with written and spoken forms of language use and includes the mastery of phonology, syntax, semantics and pragmatics.
- **Logical-mathematical intelligence** is the capacity to use numbers effectively and to reason well, and includes sensitivity to logical patterns and relationships, statements, propositions, functions and other related abstractions.
- **Musical intelligence** is the capacity to perceive and appreciate pitch and melody. It has also to do with tonal patterns and sensitivity to sounds from the environment and human voice.
- **Spatial intelligence** is the ability to understand the visual-spatial world accurately and to perform transformations upon those perceptions. It also includes sensitivity to color, line, shape, form, space and the relationships which exist between the elements.
- **Bodily-kinesthetic intelligence** deals with ability to use one's body to solve problems,
- express feelings or desires. Physical movement is an important factor in thinking process and helps cultivating the intellectual power
- **Intrapersonal intelligence** includes possessing an accurate self-image, awareness of inner moods, intentions, and motivations. It is also reflected in capacity for self-discipline, self-understanding and self-esteem.
- **Interpersonal intelligence** is the ability to work cooperatively with others in a group as well as communicating verbally and non-verbally with others. It is the capacity to understand others intentions, motivations and desires.
- **Naturalist intelligence** is the capacity to recognize and classify the numerous species of flora and fauna in one's environment, and the ability to care for, tame and interact with living creatures or with whole ecosystems.

(Gardner 1983, Armstrong 2003, and Arnold & Fonseca 2002).

Studies of gender differences in cognitive abilities stem from debate on biological vs. social determinism. The biological perspective on differences between female and male in terms of cognitive performance considers social factors less relevant. It stresses biological factors like brain structures. Lynn (1994, cited in Lynn 1998, 1999) advocated the view that males are smarter than females. His results were based on the brain size data which showed that males' brain was larger than females' brain. According to Harpern & LaMay (2000) Lynn's conclusions were flawed because sex differences in brain size do not imply a smarter sex; brain size does not mean that males are intelligent than females because females and males brains are different in several aspects.

Jenson (1969, cited in Harpern & LaMay, 2000) argued for the existence of race difference in intelligence. In his study, he analyzed data from tests that did not ensure equal overall scores for males and females. He used five different tests that included a full range of ability in general population (known as g in literature). He reported that " No evidence was found for sex differences in the mean level of g or in the variability of g... males on average excel on some factors, females on others" (pp.531-532, cited in Harpern & LaMay, 2000). He concluded that there is no evidence to suggest that either sex is more intelligent.

Regarding the difference between male and female in possessing different intelligence types; the dominant view is that males outperform females in mathematics and science. According to Reis (1998) the reason for slow success rate for girls in mathematics is not any lack of ability or effort; it is because girls are not expected to succeed in those areas. A great deal of stereotype and prejudice affects girls and boys in their studies.

2. Writing Skill

According to Chastain (1988) "writing is a basic communication skill and a unique tool in the process of second language learning" (p.244). It is a complex activity which requires different kinds of mental processes and skills on the part of language learner. Writers not only need to generate and organize their ideas using the available tools of syntax, vocabulary, paragraph organization, but also they are required to turn their ideas into a coherent text (Richards & Renandya, 2002). "Writing requires complex, integrated process in order to compose a logical, coherent text suited for its purposes" (Yan, 2011. p.5). Nunan (1999) describe it as an "enormous challenge to produce an elaborated text" (p.271). "Writing is not an innate natural ability but is a cognitive ability" (Harris, 1993, p.78) and is acquired through years of training. Dealing with the difficulties of teaching writing is made possible through understanding the nature and dynamics of writing skill. Understanding the cognitive process and factors involved in L2 writing has attracted scholars' attention from different disciplines such as second language acquisition, teaching English as foreign language, discourse analysis and narrative psychology.

Writing and especially writing for academic purposes is a challenging task for students of foreign languages since it is an integrated knowledge which requires creative process on the part of writers. The skills needed to write range from making the appropriate graphic marks, utilizing the resources of the chosen language, to anticipating the reactions of the intended reader. In accomplishing the task of writing, writers face three main problems. The first category of problems is psychological which stems from lack of interaction and feedback between writer and reader, the reader is not present in the act of communication. The second category relates to linguistic problems which requires the writers to compensate for the absence of certain devices that spoken medium has, such as pitch and intonation. The third category involves cognitive problems, in contrast to speech which can develop in natural way; writing requires formal instruction to develop (Byrme, 1988).

3. Literature Review

Over the past decades, MI theory with its radical change in educational systems all over the world has been focus of studies in different fields including language teaching. Educators and researchers have tried to investigate the possibility of application of MI theory in classrooms and its effect on students' achievement level. Snyder (2000) sought to determine the relationship between learning styles and academic achievement of high school students. The result of the study indicated tactile-kinesthetic intelligence was beneficial for the majority of high school students. It was suggested that awareness of how students learn is in fact indispensable to successful classroom language learning.

Botelho (2003) investigated the application of MI theory in English language teaching in terms of textbooks and materials, and teachers' perceptions of issues related to MI theory. He analyzed six English textbooks to know to what extent did they respond to the theory and whether the activities in the books develop students' intelligences. For the purpose of this study, two groups of Brazilian and International teachers were asked to answer the survey related to their teaching contexts, teaching experience, selection of textbooks, and MI theory. The results of the study showed that ELT teachers were familiar with the principles of MI theory and tried to apply it in their language classrooms. The findings also suggested that the activities in the textbooks were designed in way that included 4 intelligence types: linguistic, intrapersonal, spatial, and interpersonal intelligences.

Gogamakan (2003) aimed to investigate how students' MI differed according to their grade level and gender. This research was conducted at Middle East Technical Development Foundation School. To this aim, a number of 321 students from first grade, third grade, fifth grade, and eighth grade levels were given Pictorial Teele Inventory for MI. Results of this study showed that students' MI differed according to their grade levels. For example, students at first grade preferred linguistic and logical-mathematical intelligences followed by special and bodily kinesthetic intelligences. While third grade level students' main preference was interpersonal, spatial, logical-mathematical, and linguistic intelligences. The fifth and eighth grade level students preferred interpersonal, bodily kinesthetic intelligences.

Sarıcaoğlu & Arkan (2009) studied 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 and the relationship between parental education and students' types of intelligences. 144 students

attending Erciyes University's School of Foreign Languages were given Multiple Intelligences Inventory. Analysis of the data revealed no significant gender differences in the intelligence types possessed by the participants except for that between gender and linguistic intelligence which was positive. But significant relationships were found between success in students' test scores in grammar and bodily-kinesthetic, spatial, and intrapersonal intelligences whereas the relationship between musical intelligence and writing was found to be significant and positive. Finally, no significant relationship was found between parental education and students' intelligence types.

Saadatmanesh (2014) examined the correlation between EFL learners' multiple intelligences and their English achievement. To achieve this objective, 200 high school students were given Multiple Intelligence Developmental Assessment Scales (MIDAS). The results showed that there is a relationship between the combination of Multiple Intelligences and students' final English tests and also there is a relationship between linguistic intelligence and students' final English tests.

Despite growth in number of studies, there have been few studies to investigate the relationship between MI and writing ability of students and compare female and male students in terms of MI possessed. So the present study aims to answer the following questions:

1. Is there any relationship between female & male students' MI and their writing ability?
2. Is there any relationship between components of MI and writing ability of female & male students?
3. Do female and male students differ in terms of MI level?

4. Method

4.1 Participants

The participants of the study were undergraduate (sophomore) students from Azerbaijan Shahid Madani University. Twenty of the participants were male and twenty of them were female, and they were chosen without random assignment on the basis of non-probability sampling procedure. Their age range was 19-26 and 90% of them were Turkish speakers, 7% were Kurdish speakers, and 3% were Farsi speakers.

4.2 Instrumentation

In order to assess students' MI, I used Armstrong's MI questionnaire. This questionnaire was designed and validated by Armstrong; it includes 40 items representing Gardner's MI theory. The items were in Likert scale format and consisted of five statements, 1) strongly disagree, 2) disagree, 3) somewhat agree, 4) agree, 5) strongly agree. The participants were asked to choose the item that best described them. The reliability of the questionnaire is 0.7 and its validity is 0.72 (Armstrong, 1995).

For the test of writing the participants were asked to write about one of 3 topics they were given in final exam of their essay writing course at university. The topics were chosen from writing section of IELTS test and were rated according to the following criteria: layout, organization, content, coherence, unity, grammatical accuracy, vocabulary, spelling, punctuation and overall quality. The writing products were rated by two raters and inter rater reliability of 0.8 was achieved. Students' writings were scored by two raters and inter-rater reliability of 0.8 was obtained for scores.

4.3 Procedure

The study was conducted in June and July 2012. In the first phase of the study the participants were given Armstrong's MI questionnaire, they were informed about the objectives of the study, and the instructions were given about the process of answering the questionnaire. It took them about 15 minutes to respond to the questionnaire. One month later they took part in final exam of their essay writing course at university.

4.4 Data Analysis

To analyze data of the present study I used Statistical Package for Social Sciences (SPSS) version 16. We also applied Pearson r to data in order to find the correlation between independent and dependent variables and the relevant hypothesis was tested at the probability level of 0.05. And independent t-test analysis was used to compare significance of means.

5. Results & Discussion

To answer first research question: *Is there any relationship between MI and writing ability?* Pearson r was utilized to find the correlation between MI scores and writing scores. As it is shown in table 1, the significance value for correlation between MI scores and writing scores of females is (.341) and it is (.230) for male's scores. We can conclude that there is no significant relationship between Iranian female/male students' MI and their writing ability since the values of significance are greater than p-value ($\alpha=0.05$).

Table 1: Symmetric measures: MI and writing ability of students (female & male)

Interval by Pearson r	N	Female		Male	
		Value	Approx Sig	Value	Approx Sig
MI		.225	.341	.281	.230

To answer the second research question: *Is there any relationship between components of MI and writing ability of female & male students?* I applied Pearson r to students' score in each intelligence type and their writing score to detect any possible correlation between them. As results in table 2 show, there is no significant relationship between different types of intelligences and writing performance of female and male students since the significance value for correlation in different intelligences is more than p-value ($\alpha=0.05$).

Table 2: Symmetric measures: components of MI and writing ability of female and male students

Interval by Pearson r	N	Female		Male	
		Value	Approx Sig	Value	Approx Sig
Verbal Linguistic	20	.293	.209	.176	.457
Logical Mathematical	20	.064	.787	.324	.163
Musical Rhythmic	20	.285	.223	.102	.667
Visual Spatial	20	.085	.720	.236	.316
Body Kinesthetic	20	.374	.105	.238	.312
Intrapersonal	20	.079	.904	.154	.516
Interpersonal	20	.175	.461	.177	.457
Naturalistic	20	.080	.738	.116	.626

Regarding the third research question: *Do female and male students differ in terms of MI level?* Descriptive statistics of students' MI scores was found. As it is shown in table 3, there is small difference in male and female students' scores. In males' group the M of scores is (135.60), and in females' group it is (135.30). To test significance of gender in differences in level of MI, Independent t-test analysis was applied to data (table 4). The results indicated that the difference between female and male students in MI score was not statistically significant.

Table 3: Descriptive statistics of MI of students (female & male)

	Female			Male		
	N	M	S.D	N	M	S.D
MI	20	135.30	14.69	20	135.60	16.62

Table 4: Independent t-test analysis for MI

Equal variances assumed	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
MI	2.215	.115	.060	38	.632	.300	4.962	10.346	9.746

Regarding the components of MI, female and male students showed different preferences. As it is indicated in the table 5, female students possessed higher degree of naturalistic intelligence with score of (17.70). Scores in other intelligences are as follows: musical rhythmic (17.65), logical mathematical (17.10), interpersonal (17.00), verbal linguistic (16.85), visual spatial (16.75), body kinesthetic (16.15), and intrapersonal (16.10). In males' group the highest score is for musical rhythmic intelligence (18.70) and scores in other intelligences are as follows: intrapersonal (17.95), logical mathematical (17.00), interpersonal (16.85), verbal linguistic (16.60), body kinesthetic (16.25), naturalistic (16.20) and visual spatial (14.95).

If we compare female and male students' scores based on results of descriptive statistics, we notice that female students scored higher in verbal linguistic, logical mathematical, visual spatial, interpersonal, naturalistic intelligences. Accordingly male students achieved higher scores in musical rhythmic, body kinesthetic and intrapersonal intelligences. To test the significance of gender in differences in scores of different intelligence types, we applied independent t-test analysis to data. As results presented in table 6 show the difference between female students and male students' scores is only significant in intrapersonal intelligence with significant value of (.030) being less than p value $\alpha=.05$.

Table 5: Descriptive statistics of components of MI test of students (female &male)

	N	Female		Male	
		M	S.D	M	S.D
Verbal Linguistic	20	16.85	2.92	16.60	3.33
Logical Mathematical	20	17.10	3.59	17.00	3.81
Musical Rhythmic	20	17.65	3.73	18.70	4.20
Visual Spatial	20	16.75	3.76	14.95	3.88
Body Kinesthetic	20	16.15	3.75	16.25	3.23
Intrapersonal	20	16.10	2.55	17.95	2.64
Interpersonal	20	17.00	3.32	16.85	4.15
Naturalistic	20	17.70	3.09	16.20	3.51

Table 6: Independent t-test analysis for components of MI

	Levene's Test for Equality of Variances	t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Intrapersonal	.506	.481	2.251	38	.03	1.850	.822	3.514	.186
Interpersonal	1.520	.225	.714	38	.480	.850	1.190	3.260	1.560
Body Kinesthetic	.486	.490	.210	38	.834	.200	.950	2.124	1.724
Verbal Linguistic	.071	.792	.252	38	.802	.250	.991	1.757	2.257
Logical Mathematical	.094	.761	.085	38	.932	.100	1.172	2.272	2.472
Musical Rhythmic	1.573	.217	.835	38	.409	1.050	1.257	3.595	1.495
Naturalistic	.112	.740	1.431	38	.161	1.500	1.048	.622	3.622

6. Discussion

The present study aimed at investigating the relationship between multiple intelligences and writing ability of Iranian female and male students. It also tried to compare female and male students in terms of MI profile. According to results of the study there is no significant relationship between MI and writing ability of female and male students. There was also no relationship between components of MI and writing ability. Descriptive statistics of study demonstrated that female and male students possessed different level of different intelligence types. In contrast to dominant view that female students'

perceived logical mathematical intelligence is lower than that of male students, results revealed that there is no difference in female and male students' perceived mathematical intelligence since in both groups mathematical intelligence is third preferred intelligence among students, even in females' group the mean of score for this intelligence is higher than males' score for this intelligence. In terms of whole MI level, results showed no difference between female and male students, and among components of MI there was only difference in intrapersonal intelligence; male students scored higher in this intelligence.

The results of the study are in line with the findings of Sadeghi and Farzizadeh (2011) who found no relationship between students' MI and their writing performance. The results of the study also confirm the results obtained by Razmjou (2008), in his study Razmjou (2008) did not find any significant relationship between language proficiency and the combination of intelligences in general and types of intelligences in particular. Contradicting my findings, Ahmadian & Hosseini (2012) found significant relationship between participants' MI and their writing proficiency. The results obtained from my study also contrasted the findings of Hosseini & Akbari (2008) who found a significant relationship between use of language learning strategies and IQ scores, however between components of MI, musical intelligence did not correlate with any aspect of strategy use, and Kinesthetic intelligence correlated only with memory learning strategies.

Although this study failed to establish a correlation between MI and students' writing ability, the importance of MI should not be ignored in current educational systems. Educators should try to implement MI theory in their classes since individual students (female & male) bring unique types of intelligences to the classroom and prefer learning through their dominant intelligence areas. Traditionally the school system has relied on the IQ test, and has stressed the importance of verbal-linguistic and mathematical logical intelligences, MI theory does not reject the importance of these two intelligences, it provides teaching strategies to help students develop these and other intelligences (Nicholson-Nelson, 1998). It is believed that by implementing the theory of MI in the classroom, educators will be able to change their teaching and learning strategies and cater for individual differences of learners (Baum, Viens, Statin, 2005, cited in Gous, 2008). The theory of MI provides a new lens with which to view students as individual learners; combining the use of independent student projects with MI theory has been one of the motivating teaching techniques (Nicholson-Nelson, 1998). Gardner (1993, cited in Chen, 2005) has recommended the use of integrated education in the classroom; integrated education is the system that uses different educational approaches such as games, music, stories, and images. If materials are taught and assessed in only one way, it will be suitable for certain students, students who are not good at linguistic and logical skills can learn with other methods. It is important that our classrooms apply MI theory and the materials and classroom activities are developed in a way to cater the needs of individual learners. Teachers also should make the appropriate choices in terms of approaches, methods and techniques to use in their classrooms and try to help students enhance their different intelligences and find the suitable styles and strategies of learning.

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