



THE RELATIONSHIP BETWEEN INTELLIGENCE ABILITY TYPES AND LEARNERS' FOREIGN LANGUAGE ACHIEVEMENT

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ABSTRACT

The current study set out to find out the relationship between language learners' multiple intelligence abilities and their foreign language achievement. With regard to the above mentioned aim, 112 EFL learners participated in the research. Further, in this study, the researcher made use of the following measuring instruments: 1) the Persian version of McKenzie's Multiple Intelligence (MI) Inventory; and 2) participants' final term scores as the measure of their language learning achievement. Analyzing the data employing some independent -samples t-tests, it was explored that there was a statistically significant difference [$t(104) = 2.100, p(\text{two-tailed}) = .035$] in the mean of verbal intelligence scores of the low and high achievers, which was larger among the high achieving group. Accordingly, it can be concluded that higher achieving EFL learners have a higher verbal intelligence, implying that more proficient EFL learners may be more intelligent 'verbally' than their less proficient counterparts. Moreover, verbal and visual intelligences—with the highest mean scores—were the two mostly used types of intelligences by both high and low achieving groups.

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Keywords: Multiple intelligence abilities, EFL learners, High and low achieving groups.

Contribution/ Originality

This study is one of very few studies which have investigated the relationship between language learners' multiple intelligence abilities and their foreign language achievement at the institute level with learners from different educational background. Further, the study highlighted the fact that some of the difference in learners' grades (i.e. achievement) is due to difference in their intelligence abilities.

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1. INTRODUCTION

Foreign and/or second language teachers have always experienced a wide range of performance in their language classrooms; some language learners attain high levels of proficiency, while others fail to attain perfectly or underachieve. This issue has raised the attention of scholars to shed more light on the factors that may affect foreign/second language attainment.

In recent decades, the relationship between language learning and cognitive abilities has been controversial in a sense that there are two opposing views on the above relationship. First view posits that there is a special talent for language learning (i.e. learning a language is different from other skills) (Skehan, 1998; Sparks and Artzer, 2000). Second view argues that language learning ability is the same as other skills such as learning how to drive or solve a problem (Sparks *et al.*, 2011).

Support for the first perspective arises from students who favor a high IQ, but are very weak in learning a language (Ganschow and Sparks, 2001) or students who have a low IQ, but are good language learners (Sparks and Artzer, 2000). Proponents of the first idea maintained that this special ability for language learning may be called 'language aptitude' which is different from general cognitive ability. Language aptitude refers to a special talent for language learning which includes a number of other factors consisting of auditory ability, linguistic ability, and memory ability((Skehan (1989), cited in Ellis (2008)).

Several factors have been identified to affect foreign/second language attainment among them are cognitive, affective, and personality variables (e.g. Onwuegbuzie *et al.* (2000)). However, one factor, namely intelligence has received less attention in the area of L2 (foreign/second language) learning (e.g. Pishghadam (2009)). The theory of multiple intelligences posited by Gardner (1983) is a model of intelligence that categorizes human's intelligences into different modalities; the different intelligences are conceptualized as personal tools and a person may be more talented in some intelligences than in others (Mirzazadeh, 2012). Accordingly, through the MI theory, Gardner (1983) postulates that every human has some levels of intelligence and therefore has an exclusive, unique cognitive profile; Gardner (1983) theory defines intelligence as "the capacity to solve problems or to fashion products that are valued in one or more cultural setting" (Gardner and Hatch, 1989).

More, Gardner (1983) argues that the intelligence groups— firstly seven, later eight, and then nine intelligences with the addition of naturalistic intelligence— are rather independent of each other. In Gardner's view, all humans have at least nine intelligences though not to the same degree and intelligences can develop and interacts with each other in all types of learning and life.

Gardner (1993) maintains that intelligences can be educated and improved through schooling and they also are to be developed by encouragement, reinforcement, and instruction. Therefore, the nine intelligence groups include: Verbal/linguistic (sensitivity to the meaning and syntax), logical-mathematical (ability to reason and recognize patterns and order), visual/spatial (ability to perceive the world accurately), bodily kinesthetic (ability to use the body skillfully), musical (sensitivity to pitch, melody, rhythm, stress and tone), interpersonal (the ability to understand people and relationships), intrapersonal (having a skill of knowing *self* and developing it), naturalist (skill and

interest in the environment and nature), and existential (capacity to deal with deep questions, questions about the existence of human beings) which are described in detail below.

Verbal-linguistic Intelligence: This intelligence is defined by Gardner (1993) as sensitivity to the spoken and written language and using the language to achieve goals. Gardner and Chapman and Freeman (1996) also claim that the people who are strong in verbal-linguistic intelligence usually have a good vocabulary potential which allows them to read books and to be absorbed in the books and perform well in English classes.

Logical-Mathematical Intelligence: According to Gardner (1983), the people with strong logical-mathematical abilities have a keen sense about objects and order. Armstrong (2009) says this intelligence is “the understanding and use of logical structures, including patterns and relationships and statements and propositions, through experimentation, quantification, conceptualization, and classification” (p.1 3).

Visual-Spatial Intelligence: Mckenzie (2009) defines visual- spatial intelligence as the ability to learn visually and organize ideas spatially. To put it another way, People who favor this type of intelligence see the concepts in action in order to understand them. Further, they have the ability to “see” things in one’s mind in planning to create a product or solve a problem. Therefore, those with a high level of this intelligence have the ability to use shapes, colors, graphics, and space and use their mental imagery in order to discern the space orientation.

Musical-Rhythmic Intelligence: This intelligence is considered by Lazear (2004) as the knowing which occurs through hearing sounds, vibrational patterns, rhythm and tonal patterns, including the full range of potential sounds produced with the vocal chords. The mode to utilize this intelligence is through singing, musical instruments, environmental sounds, tonal associations, and the rhythmic possibilities of life.

Bodily-Kinesthetic Intelligence: The people with such talent are sensitive to time and are skillful at using the whole body movement in a coordinated way and also good at manipulating objects by using their hands. Such people have control of the motions of their body and are able to handle objects in skillful ways. Mckenzie (2009) maintains that this intelligence allows us to learn through interaction with one’s environment and he states that it is not the realm of “overly active” learners and it promotes understanding through concrete experience.

Interpersonal Intelligence: Armstrong (2009) considers this as the ability to notice and make distinctions among other individuals with respect to moods, temperaments, motivations, intentions and to use this information in pragmatic ways, such as to persuade, influence, manipulate, mediate, or counsel individuals or groups of individuals toward some purpose. It is also worthy to mention that this intelligence will result in cooperative collaboration and working with others.

Intrapersonal Intelligence: Such ability empowers the individuals to understand their feelings, panics, and motives and is chiefly based on the individual’s examination and knowledge of their own feelings. Weber (2005) says this intelligence includes accurate self knowledge, access to one’s feelings and the ability to discriminate among them and the ability to draw on one’s feelings to direct behavior.

Naturalist Intelligence: Mckenzie (2009) asserts that this intelligence enables one to select subtle differences in meaning. Armstrong (2009) defines this intelligence as “the capacity to

recognize and classify the numerous species of flora and fauna in one's environment and the ability to care for, tame, or interact subtly with living creatures, or with whole ecosystems" (p. 2). Further, having such intelligence indicates our talent to differentiate among the living things (plants, animals, etc.) and also our sensitivity to the other features of the world like configuring the clouds and the rocks (Mckenzie, 2009).

Existential Intelligence: By having such a talent which is the capacity to deal with deep questions, questions about the existence of human beings will come to mind like seeking the meaning of life, the reason of death, and our role in the world (Mckenzie, 2005). Mckenzie (2009) states that this intelligence allows us to see the "big picture": "Why are we here?" "What is my role in the world?" "What is my place in my family, school and community?" (p. 15).

As far as literature shows, few studies have investigated the correlation between intelligence and foreign language learning achievement. Among the studies done on finding the relationship between intelligence and learning in general or more exclusively second language learning (L2), intelligence variable has been found to be a strong predictor of learning (Chamorro-Premuzic, 2007; Primi *et al.*, 2010). In a study, Chamorro-Premuzic and Furnham (2005) explored that the correlation between intelligence quotient (IQ) and learners' grades is not stable and it lowers as students continue their formal education from primary school to tertiary education. According to Pind *et al.* (2003), the reason for this decrease is because of the fewer number of students who registered in upper educational level. Further, research shows that there is a positive relationship between L2achievement and language aptitude (Ganschow and Sparks, 2001; Sparks, 2001; Sparks *et al.*, 2008). Some researchers postulated that language aptitude is the best predictor of L2 attainment (Sparks and Ganschow, 1991; Gardner and MacIntyre, 1992; Sparks *et al.*, 1995).

Sasaki (1993) in another study, tried to find out the relationships between second language proficiency, foreign language aptitude, verbal intelligence, and reasoning ability. The results of the study revealed that 42% of the variance in second language proficiency was accounted for the general cognitive factor. The other 58% of the variance in second language proficiency was accounted for by something other than general cognitive ability. Genesee (1976) study detected that intelligence is correlated with second language French reading and usage skills, but it was not correlated with productive and interpersonal communication grades.

Fahim and Pishghadam (2007) reported a low-level correlation between IQ and foreign language achievement. Also, some other studies showed significant associations between multiple intelligences (Pishghadam and Moafian, 2008), emotional intelligence (Pishghadam, 2009) and L2 achievement. So, all of these studies revealed the fact that intelligence, whether it is psychometric, multiple, or emotional can predict to some extent success inL2 achievement.

1.1. Research Questions

The study was undertaken to find the answers to the following research questions:

- 1) Are there any significant differences between EFL learners of high and low proficiency in terms of multiple intelligence abilities?
- 2) What are the common intelligent ability types which are mostly used by Iranian EFL learners?

2. METHODOLOGY

2.1 Research Design

This study utilized a descriptive, ex-post facto research design to address the research questions of the present study.

2.2. Subjects

One hundred and twelve EFL learners of an English institute in Sirjan (Iran) took part in the study. All the female subjects were chosen randomly via clustered random sampling method. Moreover, all the participants had already studied English as a foreign language in Iran's EFL context at least for 7 years.

2.3. Instruments

The Persian version of [McKenzie \(1999\)](#) MI Inventory: This inventory includes 90 Likert-type statements arranged to measure the nine intelligence types of the respondents; the indicators of the nine intelligences were determined in [Gardner \(1983\)](#) MI theory.

2.4. A Demographic Questionnaire

Learners' final term grades: Foreign language achievement was assessed by using learners' average of reported final term grades. Final term grades are the most common measuring way of the students' foreign language achievement rate in Iranian English language institutes. Further, final term grades were constructed from overall scores based on both attainment measures (i.e. quizzes and exams) and proficiency measures (oral interviews, compositions) ([Bailey et al., 2000](#)). Also, final term scores were calculated on a scale of 100 with four categorical values assigned: below 75 (Fail), 75 to 85 (Pass), 86 to 96 (Pass with distinction), and 97 to 100 (Pass with merit).

2.5. Procedure

To determine the type (s) of intelligence ability that EFL learners mostly use, the researcher distributed the [McKenzie \(1999\)](#) MI Inventory among 112 English language students at Sirjan Zaban Saraa Language Institute in the first term of Summer 2014.

In order to ensure that respondents could easily understand and follow the 90 Likert-type statements of the inventory, the Persian version of [McKenzie \(1999\)](#) MI Inventory was employed in this study. Further, the students were asked to write down their last term final grades as a measure of their foreign language achievement.

3. RESULTS

In this part, the results of the study are presented. The data was coded and entered into the SPSS (version 16) for statistical analyses. Several independent- samples t-tests were conducted in order to determine the significant differences between the mean scores of high achievers and low achievers in terms of the learners' type of multiple intelligence abilities. [Pallant \(2005\)](#) argues that 'an independent-samples t-test is used when you want to compare the mean score, on some continuous variables, for two different groups of subjects' (p. 205). The descriptive analysis of the

subjects' language performance scores (based on participants' final term grades) are shown in Table 4.

Table-4.1. Descriptive Statistics of the participants' language performance scores

	N	Minimum	Maximum	Mean	Std. Deviation
Grade	112	73.00	99.00	84.9732	7.05060
Valid N (list wise)	112				

As presented in the Table 4.1, the participants of the study were 112 EFL learners at a private language institute called Zaban Saraa in Sirjan, Iran. The minimum and maximum grades are 73 and 99 respectively. Also, the total mean score is 84.97 with the standard deviation of 7.05. Further, the subjects of the study were divided into two ability groups namely high achievers (Group 1) and low achievers (Group 2) based on the overall mean score 84.97. Table 4.2 presents the descriptive statistics of the two above-mentioned groups.

Table-4.2. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Performance	High Achievers	58	90.8276	3.81082	.49843
	Low Achievers	54	78.6852	3.27122	.45770

As the data in Table 4.2 reveals, out of 112 participants, 58 language learners (with the standard deviation of 3.81) belong to high achieving group while 54 (with the standard deviation of 3.27) belong to low achieving group.

Table-4.3. Independent- Samples T-Tests for the Multiple Intelligences & Language Proficiency

Variables	Group	N	Mean	Std. Deviation	t	Sig (2-tailed)
Performance	High Achievers	58	90.5000	3.66266	17.50	.000
	Low Achievers	54	78.6346	3.30050		
Naturalistic intelligence	High Achievers	58	71.11	18.497	1.553	.123
	Low Achievers	54	65.77	16.844		
Musical Intelligence	High Achievers	58	76.67	15.419	1.219	.226
	Low Achievers	54	72.50	19.591		
Logical Intelligence	High Achievers	58	67.04	17.335	1.374	.172
	Low Achievers	54	62.31	18.108		
Existential Intelligence	High Achievers	58	76.30	17.079	1.523	.131
	Low Achievers	54	71.15	17.674		
Interpersonal Intelligence	High Achievers	58	60.56	15.712	1.051	.296
	Low Achievers	54	57.31	16.102		
Kinesthetic Intelligence	High Achievers	58	74.81	17.128	.601	.549
	Low Achievers	54	72.88	15.884		
						<i>Continue</i>

Verbal Intelligence	High Achievers	58	71.11	16.330	2.100	.035
	Low Achievers	54	63.85	19.215		
Intrapersonal Intelligence	High Achievers	58	82.96	14.618	-.796-	.428
	Low Achievers	54	85.00	11.462		
Visual Intelligence	High Achievers	58	77.41	16.844	.755	.452
	Low Achievers	54	75.19	13.059		
Total Intelligence	High Achievers	58	658.5185	89.78817	1.947	.054
	Low Achievers	54	625.3846	85.20935		

Note: N=106; $p < .05$

Some independent- samples t-Tests were run in order to determine the significant differences between the mean scores of high achievers and low achievers in terms of the type of multiple intelligence abilities. Concerning the data presented in table 4.3, we conclude that there is a statistically significant difference [$t(104) = 2.100$, p (two-tailed) = .035] in the mean verbal intelligence scores between the low and high achieving groups.

Further, intrapersonal intelligence owns the highest mean scores both in high achieving ($M=82.96$) and low achieving group ($M=85$). Moreover, visual intelligence type, in both ability groups, has the second highest means (i.e. $M= 77.41$ for high achievers and $M= 75.19$ for low achievers). As such, verbal and visual intelligences are those intelligences that EFL learners mostly employ in their second language learning process.

4. DISCUSSION AND CONCLUSION

This study aimed at finding out the relationship between language learners' multiple intelligence abilities and their foreign language achievement. To reach to the above mentioned goal, some independent-samples t-tests were run and the findings revealed that there is a statistically significant difference between the EFL learners of high and low achieving groups with respect to their verbal intelligence abilities.

The findings showed that the mean verbal intelligence grade for high achieving group ($M=71.11$) was larger than the mean score for low achieving group ($M=63.85$); this implies that more proficient EFL learners have a higher verbal intelligence, meaning that more successful learners may be more intelligent 'verbally' than their less proficient counterparts. To this extent, the findings of this study is in tandem with Gardner (1983) description of those people who use their verbal intelligence as having sensitivity to spoken and written language and the capability to use language to accomplish educational goals, as well as the ability to acquire new languages more successfully.

Further, the results of the present study confirm with findings of studies like Gardner and MacIntyre (1992), Sparks *et al.* (2008), and Primi *et al.* (2010) which reported a significant difference in learners' grades in terms of their different intelligence abilities. However, some other studies (e.g., Sasaki (1993)) found no or low correlation between Multiple Intelligence types and students' second language proficiency, and maintained that much of the variance in students' performance is due to factors other than intelligence and/or general cognitive abilities. To answer the second research question, the findings of this study revealed that the two most common

intelligence types employed by learners were intrapersonal and visual intelligence types respectively; this implies that most learners have the ability of learning visually, accessing to their feelings, and drawing on their feelings to direct behavior.

In conclusion, due to the variability and, to some extent, controversy of the research findings in this area we suggest that further research is needed to be conducted in order to confirm the findings of the present study and achieve more congruent results.

REFERENCES

- Armstrong, T., 2009. Multiple intelligences in the classroom. 3rd Edn., Alexandria, VA: The Association for Supervision and Curriculum Development.
- Bailey, P., A.J. Onwuegbuzie and C.E. Daley, 2000. Using learning style to predict foreign language achievement at the college level. *System*, 28: 115–133. Available from [http://dx.doi.org/10.1016/S0346-251X\(99\)00064-0](http://dx.doi.org/10.1016/S0346-251X(99)00064-0).
- Chamorro-Premuzic, T., 2007. Personality and individual differences. Oxford: Blackwell.
- Chamorro-Premuzic, T. and A. Furnham, 2005. Personality and intellectual competence. New Jersey: Lawrence Erlbaum Associates.
- Chapman, C. and L. Freeman, 1996. Multiple intelligence: Centers and projects. Arlington Height, IL: IRI/Skylight Training and Publishing.
- Ellis, R., 2008. The study of second language acquisition. Oxford: Oxford University Press.
- Fahim, M. and R. Pishghadam, 2007. The role of emotional, psychometric, and verbal intelligences in academic achievement of university students majoring in english. *Asian EFL Journal*, 9(4): 240-253.
- Ganschow, L. and R. Sparks, 2001. Learning difficulties and foreign language learning: A review of research and instruction. *Language Teaching*, 34: 79–98.
- Gardner, H., 1983. Frames of mind: The theory of multiple intelligences. New York: Basic Books.
- Gardner, H., 1993. Multiple intelligences: The theory in practice. New York: Basic Books.
- Gardner, H. and T. Hatch, 1989. Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. *Educational Researcher*, 18(8): 4-9.
- Gardner, R.C. and P.D. MacIntyre, 1992. A student's contributions to second language acquisition. Part 1: Cognitive variables. *Language Teaching*, 25: 211–220.
- Genesee, F., 1976. The role of intelligence in second language learning. *Language Learning*, 26: 267–280.
- Lazear, D.G., 2004. Multiple intelligence approaches to assessment solving the assessment conundrum. UK: Crown House Publishing.
- McKenzie, W., 1999. Multiple intelligences survey. Available from <http://surfaquarium.com/MI/>.
- Mckenzie, W., 2005. Multiple intelligences and instructional technology. *International Society for Technology in Education*.
- Mckenzie, W., 2009. Walking the walk: Multiple intelligences in educator professional development. *Massachusetts Computer Using Educators*: 11-29.
- Mirzazadeh, M., 2012. Impacts of multiple intelligences on learning english in the ESL classroom. *American Journal of Scientific Research*, 60: 64-74.

- Onwuegbuzie, A.J., P. Bailey and C.E. Daley, 2000. Cognitive, affective, personality, and demographic predictors of foreign language achievement. *The Journal of Educational Research*, 94: 3–15.
- Pallant, J., 2005. *SPSS survival manual: A step by step guide to data analysis using SPSS for windows (Version 12)*. 2nd Edn., Maidenhead: Open University Press.
- Pind, J., E.K. Gunnarsdo Ttir and H.S. Johannesson, 2003. Raven's standard progressive matrices: New school age norms and a study of the test's validity. *Personality and Individual Differences*, 34: 375–386.
- Pishghadam, R., 2009. A quantitative analysis of the relationship between emotional intelligence and foreign language learning. *Electronic Journal of Foreign Language Teaching*, 6(1): 31–41.
- Pishghadam, R. and F. Moafian, 2008. The relationship between Iranian EFL teachers' multiple intelligences and their successful teaching in language institutes. *Oloome Ensani Daneshgahe Alzahra*, 18: 102–121.
- Primi, R., M.E. Ferrão and L. Almeida, 2010. Fluid intelligence as a predictor of learning: A longitudinal multilevel approach applied to mathematics. *Learning and Individual Differences*, 20: 446–451.
- Sasaki, M., 1993. Relationships among second language proficiency, foreign language aptitude, and intelligence: A structural equation modeling approach. *Language Learning*, 43: 313–344.
- Skehan, P., 1989. *Individual differences in second language learning*. London: Edward Arnold.
- Skehan, P., 1998. *A cognitive approach to language learning*. Oxford: Oxford University Press.
- Sparks, R., 2001. Foreign language learning problems of students classified as learning disabled and nonlearning disabled: Is there a difference? *Topics in Language Disorders*, 21: 38–35.
- Sparks, R. and M. Artzer, 2000. Foreign language learning, hyperlexia, and early word recognition. *Annals of Dyslexia*, 50: 189–211.
- Sparks, R. and L. Ganschow, 1991. Foreign language learning difficulties: Affective or native language aptitude differences? *Modern Language Journal*, 75: 3–16.
- Sparks, R., L. Ganschow and J. Patton, 1995. Prediction of performance in first-year foreign language courses: Connections between native and foreign language learning. *Journal of Educational Psychology*, 87: 638–655.
- Sparks, R., L. Ganschow and J. Patton, 2008. L1 and L2 literacy, aptitude, and affective variables as discriminators among high- and low-achieving L2 learners with special needs. In J. Kormos, & E. Kontra (Eds). *Language learners with special needs*. Bristol: Multilingual Matters. pp: 11-35.
- Sparks, R., J. Patton, L. Ganschow and N. Humbach, 2011. Subcomponents of secondlanguage aptitude and second-language proficiency. *Modern Language Journal*, 95: 253-273. Perspective. London: Multilingual Matters. pp: 11-35.
- Weber, E., 2005. *MI strategies in the classroom and beyond: Using roundtable learning*. USA: Pearson Education, Inc.

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