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The Relationship between Multiple Intelligences and Vocabulary Learning Strategies of Intermediate EFL Learners at Bandar Abbas Institutes

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Abstract

The present study was conducted to investigate the existence of any possible relationship between multiple intelligences (MI) and vocabulary learning strategies. The participants in this study were 90 students of Bandar Abbas English language Institutes. The instruments for data collection consisted of MI questionnaire and Vocabulary learning strategies questionnaire. After gathering the data, correlation and regression analyses were done on the obtained data. The results indicate that among 5 categories of strategies (determination, social, memory, cognitive, and metacognitive), determination, social and memory strategies can be strongly predicted by bodily, natural and interpersonal intelligences, respectively; while the natural intelligence is found to be a negative predictor of social strategies. More specifically, there is a significant relationship between several categories of strategies and different domains of intelligences. Moreover, among 5 categories of strategies, there is a significant relation between determination, memory and social strategies on the one hand, and several domains of MI on the other.

Keywords: Vocabulary Learning Strategies, Multiple Intelligences, Determination, Memory, Social Strategies

1. Introduction

The second half of the twentieth century can be called the age of individualism, when individual values and differences were recognized and respected. After a prolonged preoccupation with the physical aspects of man, the focus turned to the human being as a totality of physical, cognitive and affective variables. This shift of attention has left its mark on the way education is viewed and practiced. Individual differences now occupy an important position in any debate related to teaching, learning and the professional literature is full of terms and phrases which try to capture the elusive concepts that distinguish one person from another (Fontana, 1988, Lefrancios, 1991 and Crozier, 1997). In recent years, there has also been a substantial amount of interest in individual differences. Although there are many ways in which learners can vary, intelligence is often thought to be one of the most significant predictors of language learning success (Littlemore, 2001).

The concept of Multiple Intelligences (MI) refers to a theory of intelligence put forth by the American psychologist, Gardner, who viewed "intelligence as the ability to solve problems or to create fashion products that are valued in one's own culture or society" (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, proposing that all individuals possess at least seven independent ways that in combinations enable people to understand and to perceive the world and to express themselves (Gardner, 1999, pp. 41-43). Gardner (1983) suggested that all individuals have personal intelligence profiles that consist of a combination of seven different intelligence types (linguistic/verbal, Logical/mathematical, Visual/spatial, Musical/rhythmic, Bodily/Kinesthetic, Intrapersonal and Interpersonal intelligences) that enable them to perceive and understand the world. In 1997, Gardner added an eighth intelligence type to the list, namely, natural intelligence, and

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two years later a ninth type, existential intelligence. He claimed that different intelligences rarely operate independently; they are used at the same time and tend to complete each other, though he does not believe the list is necessarily complete (Gardner, 1999, pp. 41-43).

The theory of multiple intelligences is believed to be a major strategy to improve student's achievement across the curriculum. The student will become more developed and efficient when teachers motivate them through techniques that meet the individual values, needs, or desires of the learner. Furthermore, Vocabulary learning is central to language acquisition, whether first, second, or foreign. Today's psychologists, linguists and language teachers come to understand the role of the vocabulary in language learning and communication (Avila & Sadoski, 1996, Laufer & Hulstijn, 2001).

On the importance of vocabulary, Sener (2005) reiterates Wilkin's famous saying that "without grammar, very little can be conveyed, without vocabulary nothing can be conveyed". Schmitt (1997, p203) admits the fact that "his statement holds especially true for vocabulary learning strategies is strikingly illustrated by the lack of any comprehensive list or taxonomy of strategies in this area."

In choosing vocabulary learning strategies, the frequency of occurrence of a word is also relevant; Nation (1994, p27) suggests that teaching students strategies is especially important when it comes to dealing with low-frequency words. He argues that vocabulary can be considered from a cost/benefit viewpoint: high frequency words are so essential that the cost of teaching them is justified by the resulting benefit, but low frequency words will not generally be met often enough to merit individual explicit teaching. Since teaching time is not justified on these low frequency words, he suggests teaching three strategies to help students deal with them: guessing from context, using mnemonic techniques, and using word parts. In the present study, the relationship between multiple intelligences and learners' vocabulary learning strategies is investigated.

The first objective of the current study is to investigate whether or not there is any relationship between MI and vocabulary learning strategies among Intermediate EFL learners. The second objective is whether or not there is any relationship between any of the multiple intelligence types and vocabulary learning strategies used by Intermediate EFL learners in Bandar Abbas Institutes. Thus, the following research question was posed.

Research Question One: Is there any relationship between any category of strategies and any of the multiple intelligence type used by Intermediate EFL learners in Bandar Abbas Institutes?

2. Background to the Study

Intelligence might be defined broadly as a means of solving problems. Clearly, such a means is related to the competencies described in Cognitive Social Theories. Intelligence (also called intellect) is an umbrella term used to describe a property of the mind that encompasses many related abilities, such as the capacities to reason, to plan, to solve problems, to think abstractly, to comprehend ideas, to use language, and to learn.(Acton, 2oo8, p.11).

2.1. Intelligence Quotient

An Intelligence Quotient or IQ is a score derived from one of several different standardized tests attempting to measure intelligence." (Wikipedia, Encyclopedia, 2009). IQ tests can be described as ones that aren't concerned with "passing" or "failing." It should be explained that the test aims to achieve a better understanding of a child's unique abilities in a wide variety of areas.

2.2. Criticism of Psychometric Approach

Although intelligence plays an important role in many valued life outcomes; but, critics of the psychometric approach point out that people in the general population have a somewhat a

different and broader conception of intelligence than what is measured by IQ tests (Gottfredson, 2005). The biggest problem with standardized tests and the IQ model, however, is that they measure intelligence narrowly. Only a few of student's abilities, chiefly the linguistic and logical ones are assessed, while people still have unique strengths and weaknesses in specific areas (Horrer, 2005).

2.3. Multiple Intelligences Theory

Howard Gardner has spent years investigating human's thinking and learning. He believes that all people have different abilities or different ways of being smart. He calls these different capacities "Multiple Intelligences" (MI). Gardner (1983) suggested that all individuals have personal intelligence profiles that consist of combinations of seven different intelligence types. In 1999, Gardner added an eighth intelligence type to the list, i.e. Natural Intelligence, and two years later a ninth type, Existential Intelligence (Gardner, 1999, p. 41-43).

Linguistic/Verbal Intelligence: Gardner has described Linguistic intelligence as the ability to use words and language, and as sensitivity to meaning and order of words. Moreover, it is the capacity to use language to express one's ideas and opinions, and to accomplish certain goals as well as the ability to master a foreign language.

Logical/Mathematical Intelligence: Gardner described logical/mathematical intelligence as the ability to think and to analyze problems logically, as well as to understand logical patterns, categories, cause and effect relationship in the world and to use inductive and deductive reasoning. Those who have high logical-mathematical intelligence are curious about the world and how things work. They learn best through reasoning and problem solving processes.

Visual/Spatial Intelligence: Gardner identified visual intelligence as the ability to think in images or pictures and visualize objects from different dimensions. People with high visual intelligence picture ideas and solutions to problems in their mind. They have the ability to understand relationship between images and meaning and to recognize the relationships of objects in space, and they are good in visual arts, sculpture, architecture, geometry and photography.

Musical/rhythmic intelligence: Musical intelligence is the ability to recognize tones, rhythms and musical patterns, as well as the capacity to understand and express oneself musically. This capacity involves not only auditory learning but also the identification of patterns through all the senses.

Bodily/Kinesthetic Intelligence: It is the ability of using one's body or parts of the body to solve problems. People with high bodily intelligence, express themselves through body, use body language to communicate, walk or travel around classroom or home, have a good sense of balance and eye-hand coordination. Such people believe that "action speak louder than words."

Naturalist Intelligence: Naturalist intelligence is the ability to recognize and classify objects. This intelligence has to do with nature, nurturing and classification. Such people learn through classifications, categories and hierarchies

Intrapersonal Intelligence: Intrapersonal intelligence is the ability of feelings, values and attitudes, which means having an understanding of yourself, of knowing who you are, what you can do and where you are. People with intrapersonal intelligence have a realistic sense of their own strengths, weaknesses, moods, goals and motivations.

Interpersonal Intelligence: This intelligence is concerned with perception of other people's feelings and it is the ability to understand other people's motivations, intentions, desires and their interactions with others. Interpersonal individuals are usually extroverts. They typically learn best by working with others and often enjoy discussion and debate. According to

Gardner, "in the day-to-day world, no intelligence is more important than the interpersonal intelligence."

Existential Intelligence: Gardner (1999) considered existential intelligence as the intelligence of understanding in a large context. It is the capacity to tackle deep questions about human existence, such as the meaning of what life is, why we die, what my role in the world is; this intelligence seeks connections to real world and allows learners to see their place in the big picture, see their roles in the classroom, society and the world or the universe. Table 1 summarizes eight types of intelligences.

Table 1: Summary of the Eight Intelligences (Giles, Pitre, Womack, 2003)

Intelligence Area	Strengths	Preferences	Learns best through	Needs
Verbal / Linguistic	Writing, reading, memorizing dates, thinking in words, telling stories	Write, read, tell stories, talk, memorize, work at solving puzzles	Hearing and seeing words, speaking, reading, writing, discussing and debating	Books, tapes, paper diaries, writing tools, dialogue, discussion, debated, stories, etc.
Mathematical/ Logical	Math, logic, problem-solving, reasoning, patterns	Question, work with numbers, experiment, solve problems	Working with relationships and patterns, classifying, categorizing, working with the abstract	Things to think about and explore, science materials, manipulative, trips to the planetarium and science museum, etc.
Visual / Spatial	Maps, reading charts, drawing, mazes, puzzles, imagining things, visualization	Draw, build, design, create, daydream, look at pictures	Working with pictures and colors, visualizing, using the mind's eye, drawing	LEGOs, video, movies, slides, art, imagination games, mazes, puzzles, illustrated book, trips to art museums, etc.
Bodily / Kinesthetic	Athletics, dancing, crafts, using tools, acting	Move around, touch and talk, body language	Touching, moving, knowledge through bodily sensations, processing	Role-play, drama, things to build, movement, sports and physical games, tactile experience4s, hands-on learning, etc.
Musical	Picking up sounds, remembering melodies, rhythms, singing	Sing, play an instrument, listen to music, hum	Rhythm, singing, melody, listening to music and melodies	Sing-along time, trips to concerts, music playing at home and school, musical instruments, etc.
Interpersonal	Leading, organizing, understanding people, communicating, resolving conflicts, selling	Talk to people, have friends, join groups	Comparing, relating, sharing, interviewing, cooperating	Friends, group games, social gatherings, community events, clubs, mentors/ apprenticeships, etc.
Intrapersonal	Recognizing strengths and weaknesses, setting goals, understanding self	Work alone, reflect pursue interests	Working alone, having space, reflecting, doing self-paced projects	Secret places, time alone, self-paced projects, choices, etc.
Naturalistic	Understanding nature, making distinctions, identifying flora and fauna	Be involved with nature, make distinctions	Working in nature, exploring living things, learning about plants and natural events	Order, same/different, connections to real life and science issues, patterns

2.4. Multiple intelligences and Education

Traditionally schools have emphasized the development of logical intelligence and linguistic intelligence (mainly reading and writing). While many students function in this environment well, there are those who do not. Gardner's theory argues that students will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to address all students, not just those who excel at linguistic and logical intelligence. The theory suggests that, rather than relying on a uniform curriculum, schools should offer

"individual-centered education", with curriculum tailored to the needs of each child (Wikipedia, free encyclopedia, 2009).

2.5. Vocabulary

Vocabulary is simply defined as the collection of words in a language. There are many theories of how vocabulary is acquired. Vocabulary acquisition is one of the significant issues to which great importance has been attached in recent years. Seal maintains that "words are perceived as the building blocks upon which knowledge of the second language can be built" (cited in Clece-Murica, 1991, p.296). Teachers have never doubted the value of learning vocabulary: they know how communication stops when learners lack the necessary words. They do not believe that learning of vocabulary should be delayed until the grammar is mastered. In the best class, neither grammar nor vocabulary is neglected (Allen, 1983)

The learners bring to the language-learning situation a wide spectrum of individuals' differences. Moreover, learners employ different strategies when dealing with language learning in general and vocabulary acquisition in particular. Learning strategies are steps taken by the learner to aid the acquisition, storage and retrieval of information (Oxford, Crookall, 1989). As Oxford and Nyikos (1989) pointed out, learners enhance their autonomy, independence and self-correction by means of using appropriate learning strategies, including vocabulary ones, which enable them to take responsibility for their own learning.

Oxford (1990) has classified vocabulary learning strategies as follows: social strategies (SOC) are employed to improve language learning by interaction with other people. Social strategies of this category include cooperating through group learning, asking the teacher for help and using native speaker contact. Memory strategies (MEM) relate new materials to the existing knowledge. Memory strategies include using imagery, loci method, grouping words, and the keyword method. Cognitive strategies (COG) refer to manipulating or transforming the target language by the learner. Cognitive strategies include word cards, lists of vocabulary notebooks, and reviewing techniques. Finally, metacognitive strategies (MET) involve a conscious learning process of planning, monitoring or evaluating one's own learning. Metacognitive strategies include using L2 media, testing oneself with word tests, using spaced word practice, skipping/passing new word, and continuing to study over time.

The last twenty years have seen growing interest in the notion of learner autonomy. The ideas and beliefs underpinning this development as well as the historical events shaping it have been summarized by Gremmo and Riley (1995). Alongside these developments, there has been increasing awareness that “it is essential to the development of autonomy that learners become aware of themselves, familiar with the learning techniques they instinctively favor and capable of judging how effective those techniques are (Little, 1994: 86). Studies of the “techniques” or strategies used by proficient language learners (reviewed in Skehan, 1989, P92) suggest that they have a wider range of strategies and employ them more frequently than their less successful peers. A major outcome of the research into the strategies used by successful language learners was the conclusion that learners should be taught not only the language but also the strategies they need. As Rubin (1990: 282) pointed out, "Often poor learners don't have a clue as to how good learners arrive at their answers and feel they can never perform as good learners do."

3. Method

This section introduces the participants by specifying how, where and in what ways they were selected. Moreover, the instruments used for data collection, including the vocabulary learning strategies questionnaire and the multiple intelligences questionnaire, are presented. In addition, the data analyses along with the procedures made use of will be elucidated.

3.1. Participants

The sample of participants in the present study was initially 100 both male and female intermediate students, studying English in Bandar Abbas Institutes. All the learners were at the same level of proficiency. The participants were studying New Interchange 2, written by J.C. Richards, and Steps to Understanding, written by L.A Hill. All students participated voluntarily in the study. Ten students did not cooperate in answering questionnaire and they did not deliver the two questionnaires. The final test-takers were ninety (37 males and 53 females) students.

3.2. Instruments

Multiple Intelligences Questionnaire: It is based on Gardner's nine domains (linguistic, logical, visual, music, bodily, interpersonal, intrapersonal, natural, and existential intelligences) was used in this study. After revising different tests, this questionnaire which is a combination of two MI tests, including Nail's (2002) MI tests of Ned production (that have been translated into French, German, Italian, Portuguese and Spanish) and multiple intelligences inventory (Mckenzie, 1999), was used in this study.

This questionnaire contains 90 items with five-Likert Scale ranging from (1=this is not like me at all, to 5=definitely I'm always like this) that covers 9 categories of Gardner's Multiple Intelligences theory. The original English version was translated into Persian to ensure that the participants easily follow its items. The reliability of the test was calculated using Cronbach alpha. The index of reliability (above 0.90) indicates that the test is reliable. To indicate the construct validity of the questionnaire and to determine the underlying variables that account for the correlations among the observed variables, principal factor analysis was used. The results of factor analysis demonstrate that there are 9 factors or constructs, or in other words, 9 segments of intelligence.

Vocabulary Learning Strategies Questionnaire: This was designed by Schmitt (1997) to recognize the type and frequency of the strategies was used in this study. This test includes 5 categories, including (Determination, Social, Memory, Cognitive and Metacognitive), consisting of 58 items with five-Likert Scale, ranging from (1= never used, to 5= always used). The answers were assigned numerical values from 1 to 5 indicating the degree of the participants' preferences towards the items of the questionnaire. The participants were asked to mark only one choice for each item. The reliability of the test was calculated using Cronbach alpha. The index of reliability (0.81) indicates that the test is reliable.

3.3. Data Collection Procedures

The data were collected in two sessions. In order to motivate students to take the tests seriously, the objectives of the study were explained to them, which can avoid any misunderstanding. In the first session, the strategy questionnaire with five-Likert Scale to determine the type and frequency of the strategies was administered to the students. In the second session, the Likert Scale MI questionnaire, measuring 9 domains (linguistic, logical, visual, music, bodily, interpersonal, intrapersonal, natural, and existential intelligences) of the participants' intelligence, was administered in this study.

The participants were asked to mark only one choice for each item, and all students voluntarily participated in the study. After collecting the data, a number of descriptive (mean + Standard Deviation, the Skewness and Kurtosis values) and inferential analyses (Correlation + Multiple Regressions) were conducted on the data.

4. Results and Discussion

4.1. Descriptive Statistics

The descriptive analysis of the participants' multiple intelligences and vocabulary strategies are presented in Table 2.

Table 2: Descriptive Statistics

Factors	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Multiple Intelligences	90	223	375	319.74	33.945	-.461	-.005
Strategies	90	134	262	181.55	27.396	.650	-.274

This table provides information regarding mean, standard deviation (STD), skewedness and kurtosis. The Skewedness value provides an indication of the symmetry of the distribution. Kurtosis, on the other hand, provides information about the peaked-ness of the distribution. Skewedness and kurtosis value of 0 or near 0 is normal. The Skewedness value of MI is negative; this indicates a clustering of scores at the high end (right-hand side of a graph**).** The Skewedness value of strategies is positive, indicating positive skewedness (scores are clustered to the left at the low values). The Kurtosis value of MI and strategies is negative, indicating a distribution that is relatively flat.

4.2. Regression Analyses Between MI and Strategies

Schmitt (1997) classified vocabulary learning strategies into 5 categories (determination, social, memory, cognitive, and metacognitive). In order to predict the relationship between dependent variable (each category of strategies) from a number of independent variables (multiple intelligences) and to see which variable (MI) is the best predictor of dependent variable (strategies), stepwise multiple regression analyses were used.

Table 3: Stepwise Multiple Regression Between MI & Determination Strategies

Variables	Beta	t	Sig.
Bodily Intelligence	.310	2.191	.034
Excluded variables			
Variables	Beta In	t	Sig.
Linguistic Intelligence	.217	1.552	.128
Logical Intelligence	.177	1.184	.243
Spatial Intelligence	-.143	-.879	.384
Musical Intelligence	.129	.766	.448
Interpersonal Intelligence	.160	1.061	.295
Intrapersonal Intelligence	.176	1.250	.218
Naturalistic Intelligence	.142	.992	.326
Existential Intelligence	.176	1.202	.236

Predictors: Bodily Intelligence Dependent Variable: Determination Strategies

As Table 3 illustrates, among different segments of MI, bodily intelligence makes the largest unique contribution (beta = .310) to the prediction of determination strategies, thus other intelligence types were excluded.

Table 4: Stepwise Multiple Regression Between MI & Social Strategies

Variables	Beta	t	Sig.
Naturalistic Intelligence	-.296	-.2.076	.044
Excluded Variables			
Variables	Beta In	t	Sig.
Linguistic Intelligence	.001	.010	.992
Logical Intelligence	.004	.026	.979
Spatial Intelligence	-.083	-.517	.608
Musical Intelligence	.148	1.029	.309
Bodily Intelligence	.191	1.339	.188
Interpersonal Intelligence	-.027	-.183	.855
Intrapersonal Intelligence	.217	1.511	.138
Existential Intelligence	.024	.112	.911

Predictors: Natural Intelligence Dependent Variable: Social Strategies

As Table 4 illustrates, among different segments of MI, natural intelligence makes the largest contribution (beta = .296) to the prediction of social strategies (in negative direction); hence, other intelligence types that cannot predict social strategies were excluded.

Table 5: Stepwise Multiple Regression Between MI & Memory Strategies

Variables	Beta	t	Sig.
Interpersonal Intelligence	.288	2.015	.050
Excluded Variables			
Variables	Beta In	t	Sig.
Linguistic Intelligence	-.061	-.381	.705
Logical Intelligence	-.113	-.777	.442
Spatial Intelligence	-.158	-1.073	.289
Musical Intelligence	.163	1.021	.313
Bodily Intelligence	.145	.956	.344
Intrapersonal Intelligence	.171	1.176	.246
Naturalistic Intelligence	-.021	-.142	.888
Existential Intelligence	.045	.299	.766

Predictors: Interpersonal Intelligence Dependent Variable: Memory Strategies

As Table 5 shows, among different segments of MI, interpersonal intelligence makes the largest contribution (beta = .288) to the prediction of memory strategies, hence other intelligence types were excluded. In summary, the results indicate that among 5 categories of strategies, namely, determination, social, memory, cognitive, and metacognitive ones, three of them (determination, social and memory strategies) have stronger relationship with bodily, natural and interpersonal intelligences, respectively. Despite the fact that the "r" value is not that high, the significance correlation cannot be ignored. Moreover, the results indicate that none of the intelligence types can predict cognitive and metacognitive strategies. Finally, correlations were run in order to find the amount of relationship in terms of vocabulary learning strategies and each type of multiple intelligences (Table 6). Since there are so many tables, they are included in appendix A.

Table 6: Pearson Correlation Between MI & Strategies

Strategies		S2	S14	S51
LING I	Pearson Correlation	.332	-.275*	.298*
	Sig. (2-tailed)	.022	.047	.044
	N	90	90	90

To find the answer to the question of study, Pearson product moment correlation was used. The results of the above tables indicate that there are significant correlations among different strategies types and each segment of MI. Linguistic intelligence has stronger relationship with determination and cognitive strategies. Logical intelligence has a significant relationship with determination strategies. Visual, bodily and interpersonal intelligences have stronger relationships with memory strategies. Natural and existential intelligences have stronger relationships with social strategies. Musical and intrapersonal intelligences have stronger relationship with determination and memory strategies.

The results of regression indicate that among 5 categories of strategies (determination, social, memory, cognitive, and metacognitive) determination, social and memory strategies have stronger relationship with bodily, natural and interpersonal intelligences respectively; Even though the "r" value is not that high, the significant correlation cannot be ignored. Moreover, the results indicate that none of the intelligence types can predict cognitive and metacognitive strategies. The results show that there are significant correlations between strategies and each segment of multiple intelligences. "Language learning and use of strategies are obviously closely linked to what MI theorists label *Linguistic Intelligence*" (Richards and Rodgers, 2001, 117). Moreover, in this study linguistic intelligence has stronger relationship with determination and cognitive strategies.

As for interpersonal intelligence, research has shown (Larson-Freeman and Long, 1991) that extroverts are better language learners and they are consequently capable of using learning strategies more efficiently than poor language learners. This can justify the predictability of interpersonal intelligence for learning strategy use. Assuming that people with higher interpersonal intelligence are more extroverted, then we can also assume that they know how to make use of social encounters to improve their language learning prospects. The same assumption can be extended to natural intelligence, regarding nature-conscious people as those who are socially more active and verbal. The advocacy aspect of natural intelligence will make such people more conscious of the way language works, and consequently, is learned. Also, in this study interpersonal intelligences have stronger relationships with memory strategies, and natural intelligence has stronger relationship with memory strategies.

The results are compatible with those of Bremner (1999) who found some evidence of a progression in strategy as the learner became more experienced. Also, they corroborate those of Mettetal, Jordan and Harper (1997) investigating the impact of a MI curriculum in an elementary school. On the basis of their analyses of the data, three themes emerged "(a) students, teachers, and parents had very positive about the concept of multiple intelligences; (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 classrooms" (p. 115). Oxford and Nyikos (1989) pointed out that learners enhance their autonomy, independence and self-correction by means of using appropriate learning strategies, including vocabulary ones, which enable them to take responsibility for their own learning. Moreover, MI model has provided us with the opportunity to look differently at curriculum, instruction, and assessment.

5. Conclusion

In this present study, we have argued that teachers at all stages of education need to reflect on their practices and beliefs about Multiple intelligences in order to optimize opportunities for learners to utilize and develop these intelligences. Furthermore, we reasoned that specific opportunities for the development of Multiple Intelligences should be provided in early education settings.

The analysis of the data showed that the null hypothesis raised at the beginning of the research project was rejected. There is a relationship between determination, social and

memory strategies with different domains of MI. Some strategies were used more frequently than others. Also, some strategies show no relationship with different domains of intelligences; furthermore, the relationship of social strategy with MI indicates negative direction. It is thus concluded that learners don't use most of the strategies and they are not aware of the importance of these strategies.

Stepwise multiple regressions indicate that among 5 categories of strategies (determination, social, memory, cognitive, and metacognitive), determination, social and memory strategies can be strongly predicted by bodily, natural and interpersonal intelligences, respectively; i.e. bodily and interpersonal intelligences are found as positive predictors of determination and memory strategies, while the natural intelligence is found to be as a negative predictor of social strategies. Although the "r" value is not high, the significant correlation cannot be ignored. Moreover, the results indicate that none of the intelligence types can predict cognitive and metacognitive strategies.

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Appendix A: List of Correlation Tables

Table A1

Strategies	S2	S5	S14
LOG I Pearson Correlation	.315*	.290*	-.346*
Sig. (2-tailed)	.038	.047	.015
N	90	90	90

Table A2

Strategies	S32
VIS I Pearson Correlation	-.403**
Sig. (2-tailed)	.005
N	90

Table A3

Strategies	S2	S3	S7	S19	S29
MUS I Pearson Correlation	.300*	.415**	-.308*	.352*	.358*
Sig. (2-tailed)	.041	.004	.037	.011	.017
N	90	90	90	90	90

Table A4

Strategies	S4	S10	S29	S32	S36	S39	S45
BOD I Correlation	.298*	.298*	.294*	-.298*	.354*	.342*	.294*
Sig. (2-tailed)	.040	.040	.043	.040	.018	.027	.043
N	90	90	90	90	90	90	90

Table A5

Strategies	S3	S21	S29	S51
INTER I Correlation	.354*	.366*	.283	
Sig. (2-tailed)	.012	.017	.044	
N	90	90	90	

Table A6

Strategies	S2	S3	S7	S19	S23	S27	S28	S56
INTRA I Correlation	.357*	.290*	-.321*	.297*	.353*	.469**	.479**	.348*
Sig. (2-tailed)	.014	.049	.029	.039	.015	.001	.001	.013
N	90	90	90	90	90	90	90	90

Table A7

Strategies	S4	S13	S14	S32
NAT I Pearson Correlation	.306*	-.312*	-.321*	-.360*
Sig. (2-tailed)	.037	.034	.025	.013
N	90	90	90	90

Table A8

Strategies	S1	S13	S14
EXI I Pearson Correlation	.292*	-.316*	-.295*
Sig. (2-tailed)	.046	.032	.044
N	90	90	90

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).