# RELATIONS BETWEEN LANGUAGE LEARNING STRATEGIES, LANGUAGE PROFICIENCY AND MULTIPLE INTELLIGENCES

**Karim Hajhashemi[1], Alireza Shakarami[2], Neil Anderson[3],
Seyed Yasin Yazdi-Amirkhiz[4], Wuying Zou [5]**

[1, 3, 5] School of Education, James Cook University, Cairns, AUSTRALIA.
[2] Department of English, Islamic Azad University, Kazerun Branch, IRAN.
[4] Institute of Research Management and Monitoring, University of Malaya, MALAYSIA.

[1] karim.hajhashemi@my.jcu.edu.au

## ABSTRACT

*The theory of multiple intelligences (MI) developed by Gardner, proposes at least nine different human intelligences that are distinct and relatively autonomous human intelligences through which people learn. It has been theorized that knowing our MI profile assists us to learn and use this awareness to obtain necessary information and knowledge from a lesson. Characterizing learners' personal MI profiles thus may enhance learning. Language learners' learning process, on the other hand, can be facilitated through the use of language learning strategies, particularly if the strategies have been explicitly developed by instructors who possess knowledge about individuals' learning styles. This paper presents data from an exploratory study to investigate any possible relationship between ESL students' MI profiles and their use of language learning strategies and hence their proficiency level, as measured by the MUET (Malaysian University English Test).*

**Keywords:** Multiple intelligences, language learning strategies, language proficiency

## INTRODUCTION

Unitary general intelligence 'g' or general factor was believed to be a firm quality of human beings in the past (Williams, Zimmerman, Zumbo, & Ross, 2003) and this was understood to be fixed at birth. Among the scales used to measure general intelligence memory, language skills, reasoning, digit span (the ability of a child to recall a sequence of numbers just spoken), and psychological judgment were outstanding (Williams et al., 2003). After World War II, attempts were made to revise and improve the measures of general intelligence. General intelligence, operationally defined as the ability to answer questions on an IQ test (Gardner, 2006) left some questions unanswered, especially in school settings. For instance, it failed to account for low IQ test scores of the children who had excellent leadership skills. This failure to account for the human performance led many educators and psychologists to believe that individuals can be conceptualized as having multiple abilities (Chan, 2006; Karolyi, Ramos-Ford, & Gardner, 2003; Sternberg, 1997, 2000, 2005). Gardner's multiple intelligences (MI) theory (1983) was a useful alternative in that it could address individual needs.

To Gardner, the purpose of schooling was "to develop intelligences and to help people reach vocational and a vocational goals which are appropriate to their particular spectrum of intelligences" (Gardner, 2006a, p. 50). Accordingly, people would feel more engaged, competent, and more inclined to serve the society in a constructive way. Hence, he proposes two assumptions to designate his ideal school of the future; that is "not all people have the same interests and abilities; not all of us learn in the same way, and nowadays no one person can learn everything there is to learn" (2006a, p. 50).

Lazear (2004) also summarizes the theoretical foundation of the MI theory and links it to learning. He states that the theory presents us with a new understanding of human intelligence and learning and thus is a pivotal point for a dramatically new understanding of the potential of students. In addition, he claims that intelligence is not fixed or static at birth, it can be learned, taught, and enhanced, and it is a multi-dimensional phenomenon that is present at multiple levels of our brain, mind, and body system.

According to Gardner (1983), the previous models of intelligence have focused too much on language and logic and have ignored other abilities of the individuals. He defined intelligence as "the ability to respond successfully to new situations and the capacity to learn from one's past experience" (1983, p. 21). It is in this regard that he developed the theory of MI. To Gardner, the theory proposes that there are a number of distinct forms of intelligences that each individual owns to varying degrees. Seven of the intelligences were introduced in 1983 as: (a) *verbal-linguistic* as understanding the phonology, syntax, and semantics of language, and its pragmatic uses to convince others of a course of action, help one to remember information, explain or communicate knowledge, or reflect upon language itself Armstrong (2003); (b) *musical-rhythmic* intelligence defined by Armstrong (2003) as the ability to understand and express components of music, including melodic and rhythmic patterns, through figural or intuitive means (the natural musician) or through formal analytic means (the professional musician. McKenzie (2009) believes this intelligence allows us to "learn through patterns, rhythms, and music which include not only auditory learning but also the identification of patterns through all the senses"(p. 12). People with such a talent usually think in sounds, rhythms, melodies as well as rhymes and are sensitive to pitch, rhythm, timbre and tone. (c) *logical-mathematical*, as "the ability to recognize significant problems and then to solve them" (Gardner, 1983, p. 143). This intelligence is also defined by Weber (2005) as the capacity to discern logical or numerical patterns, and the ability to handle long chains of reasoning, (d) *Visual-spatial intelligence* that is divided into three components by Thurstone (Gardner, 1983) which are:

> the ability to recognize the identity of an object when it is seen from different angles, the ability to imagine movement or internal displacement among the parts of a configuration, and the ability to think about the spatial relations in which the body orientation of the observer is an essential part of the problem. (p. 175)

Armstrong (2003, p. 13) believes that this intelligence is the ability to perceive the visual world accurately, to perform transformations and modifications upon one's initial perceptions, and to be able to re-create aspects of one's visual experience (even in the absence of the relevant physical stimuli), (e) *bodily-kinesthetic*, that includes the ability to control one's bodily motions and the capacity to handle objects skillfully (Armstrong, 2003, p. 13). The people with such talent usually think in movements and use their bodies in skilled and difficult ways for the activities which are meaningful and goal-directed, and (f) *intrapersonal intelligence* that entails "the ability to access one's own emotional life through awareness of inner moods, intentions, motivations, potentials, temperaments, and desires, and the capacity to symbolize these inner experiences, and to apply these understandings to help one live one's life" (Armstrong, 2003, pp. 13-14). Individuals with such talent know their strengths and weaknesses and are able to be self-aware and in tune with their inner feelings. and (g)interpersonal, includes the capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people (Weber, 2005, p. 4).

Later on, two more intelligences, were added as: (a) *Naturalist intelligence* that according to McKenzie (2009), allows us to learn through classification, categories, and hierarchies. He proposes that a child who is interested in sorting leaves by different attributes among them

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can be considered as a good example of one with this intelligence as she/he tries to sort them according to their color, size and texture as such classification makes sense to her/him. Later the child will glue them all on a paper to be presented or displayed in the classroom environment. Such a classification system is a matter of concern for the students to compare or contrast their strategies and they learn through classifications, categories, and hierarchies. The second recently formed intelligence is "*Existential intelligence*" which was added to the list in 1999, and is still under consideration (see e.g. Armstrong, 2009; Gardner, 1999a, 1999b, 2006b; Nevin, Villa, & Thousand, 2009; Viens & Kallenbach, 2004). Existential intelligence is defined by Armstrong (2009) as:

> the capacity to locate oneself with respect to the furthest reaches of the cosmos - the infinite and infinitesimal - and the related capacity to locate oneself with respect to such existential features of the human condition as the significance of life, the meaning of death, the ultimate fate of the physical and the psychological worlds and such profound experiences as love of another person or total immersion in a work of art. (p. 182)

Meanwhile, with the decline of behaviorist psychology and the emergence of cognitive psychology, the student is considered not as the absolute receiver of information but as the creator of his/her cognitive structures (Prawat & Floden, 1994). They also claim that the student needs to process the data while receiving it. Such data will be related to his/her previous experiences and accordingly his/her learning will be organized. Thus, the new data will be used in new conditions in order to solve real life issues and different complex problems. On the other hand, the introduction of constructivism concentrates on the individual construction of knowledge using the receiving data from different sources of information, including social interaction. Processing of the incoming data could be enhanced through factors such as; the type of the individual learner's superior intelligence, the kind of learning strategy s/he is using, learning styles, and the personality traits of the learners in general and language learners in particular.

Walker (2004) says that "our strengths lie in our individual differences" (p. vi). Thus, she mentions that there is a need to nurture these individual differences within the instructional programs that should be built on the students' unique strengths. She also recommends that these strengths be used in order to expand the conceptual knowledge of the students so as to create intelligent citizens (Walker, 2004). In this regard, Moallem (Brunton, Cleary, Doyle, O'Mahony, & Trant, 2006) suggests that considering the learning styles of each individual and matching them with teaching or instructional style will help the information to be kept longer and make its application more effective. Further, Moallem concludes that such students have "more positive attitudes towards the subject of the course than those who are subjected to clashes in teaching/learning styles" (n.p.).

As a teacher, what we know and what we do in the classroom should have significant influence on the thoughts, achievement and behaviors of the students. McMahon, Rose, and Parks (2004, p. 42) also state that "achievement is the primary yard stick that schools use to assess learning". Thus, the "teachers must help students use their combination of intelligences to learn whatever it is they want to learn, as well as what the teachers and society believe they have to learn" (Brunton et al., 2006). The students who are "aware of their most productive mode of learning meet with greater success in both education and in the workforce than those people who attempt to learn and work through a mode with which they are incompatible" (Brunton et al., 2006). Thus, aiding the students to be self-aware can be facilitated by investigating their prior learning, their learning styles and their MI strengths (Nolen, 2003).

The cognitive competence of the human being is better described in the MI theory in terms of a set of abilities, talents or mental skills which are called intelligences. The MI theory

provides a framework of the students' dominant styles, preferences and areas of talents. Such knowledge can be used to enhance the experience of the learners toward the goal of higher proficiency. By raising students' awareness of their preferred cognitive modality, the teacher is raising their interest in learning and helping them gain understanding of what method suits them best (Brunton et al., 2006). It is important that students are aware of their weaknesses as well as their strengths. Understanding where effort needs to be put in is also essential. The ability to control the individual's cognitive processes has been linked to intelligence. For example, Sternberg (Brunton et al., 2006) says that these processes are responsible for "figuring out how to do a particular task or set of tasks and then making sure that the task or set of tasks are done correctly" (n.p.).

In recent years there has been a shift from the teacher (teaching improvement) to the learner in the learning of a foreign or second language, as much of the responsibility for success at learning a language rests with the individual learner and with his or her capability to take full advantage of the opportunities. Thus, training learners to use strategies is a role for language teachers. Hence, there is a need to identify learners' strategies, and conduct training regarding their learning strategies in order to help them become more independent. Strategies are usually used by language learners at different levels of language proficiency. Studies (e.g., Chamot & Kupper, 1989; Oxford & Crookall, 1989) have shown that the effective use of learning strategies usually leads to more effective language learning. In the English as a Second/Foreign language (ESL/EFL) context, learning strategies are defined by Oxford (1990, p. 1) as the steps or actions taken by language learners to increase any aspect of their learning. Table 1 summarizes the various definitions of learning strategies given by some researchers.

**Table 1. Definitions of Language Learning Strategies**

| Source | Definition |
|---|---|
| Oxford (1990, p. 8) | Learning strategies are specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed and more transferable to new situations. |
| Wenden (1991, p. 18) | Learning strategies are mental steps or operations that learners use to learn a new language and to regulate their efforts to do so. |
| Scarcella & Oxford (1992, p. 63) | Learning strategies are specific actions, behaviors, steps, or techniques such as seeking out conversation partners, or giving oneself encouragement to tackle a difficult language task-used by students to enhance their own learning. |
| Richards & Platt (1992, p. 209) | Learning strategies are intentional behavior and thoughts used by learners during learning so as to help them understand, learn, or remember new information. |
| Ellis (1994, p. 530) | This relates directly to language learning strategies which are described as attempts to develop linguistic and sociolinguistic competence in the target language. |

According to Oxford (1989, p. 243), most of the teachers are not generally aware of their students' learning strategies. It is also mentioned that the students are not aware of their strategies either; thus, they cannot take advantage of the full range of available strategies.

In this regard, efforts have been made to classify different learning strategies identified by second language researchers (O'Malley, Chamot, Stewner-Manzares, Kupper, & Russo, 1985; Oxford, 1990; Rubin, 1981; Stern, 1992; Willing, 1989). For example, in O'Malley et

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al. (1985, pp. 582-584), language learning strategies are divided into three major categories namely, metacognitve, cognitive, and socio-affective strategies. In another classification, Stern (1992, pp. 262-266)divided language learning strategies into five main types. These are management and planning strategies, cognitive strategies, communicative-experiential strategies, interpersonal strategies, and affective strategies. However, Ellis (1994, p. 539) states that the most comprehensive classification of learning strategies to date is the one provided by Oxford (1990), who classified language learning strategies into two major classes namely, direct and indirect strategies which are further divided into six strategy groups. According to Oxford (1990), direct strategies consist of "strategies that directly involve the target language" in the sense that they "require mental processing of the language" (p. 37), while indirect strategies "provide indirect support for language learning through focusing, planning, evaluating, seeking opportunities, controlling anxiety, increasing cooperation and empathy and other means" (p. 151).

Although numerous studies on language learning strategies (LLS) and their importance have been done in the field of ESL (English as a Second Language) in different countries, including Malaysia (e.g., Ghee, Ismail, & Kabilan, 2010; Lau, 2006), studies on MI and LLS which both deal with the concept of problem and problem solving and deeply affect the learning of new languages have not been intensively carried out and are still a new area of ESL research in Malaysia. It is hoped that the results of this study might provide ESL teachers with insights into how the use of language learning strategies is related to ESL learners' MI profiles.

## AIM OF THE STUDY

The aim of this study is to find out the relationship between MI profiles of the Malaysian tertiary students and their use of LLS. We were moving under the shade of the following research questions:

1. Is there any relationship between the MI profiles and the type of language learning strategies Malaysian tertiary ESL learners' use?

2. Which language learning strategies are more frequently used by students with different MI profiles?

3. Which of the strategy types is significantly correlated with Malaysian tertiary ESL students' MI profiles?

4. Does the use of different strategies by different MIs necessarily lead to different learners' English proficiency?

## METHODOLOGY

This section discusses the participants, instruments and data collection procedures of the study.

### Participants

The participants for this study were 132 Malaysian university tertiary students of English as a second language (aged19 to 23 years old) of both genders (26 males, 106 females) studying at a local public university in the academic year 2008-2009. They were from the main ethnic groups of the country (18 Indians, 40 Chinese, and 74 Malays).

### Instruments

Two instruments were utilized in this study namely, McKenzie's MI inventory and SILL. The MI inventory was utilized to identify the intelligence profiles of the students. The term "MI

inventory" is defined by Armstrong (2009) as a form designed to assess the strengths of the individual as determined by each of the intelligences. Some researchers have found the overall internal consistency of the questionnaire to be in a range between 0.85 and 0.90 (see e.g. Al-Balhan, 2006; Hajhashemi & Wong, 2010; Razmjoo, 2008; Razmjoo, Sahragard, & Sadri, 2009). It includes 90 Likert-type statements related to each of the nine intelligences proposed by Gardner (1999a, 1999b).

To determine the learners' strategy use, the SILL (Strategy Inventory for Language Learning) was used. The SILL was developed by Oxford (1990) and includes 50 Likert- type items in six subscales of LLS, i.e. memory, cognitive, compensation, meta-cognitive, affective, and social strategies.

In addition, a demographic questionnaire designed by the researchers was used to elicit the participants' background information on their academic level, age, gender, MUET band score and so on.

### Procedure

In order to check the internal consistency of the questionnaires, the Cronbach's alpha for the MI questionnaire and also the SILL were calculated in a pilot study taken from 30 Malaysian students. The **overall reliability coefficient** for the MI questionnaire was found to be $r = 0.89$. **This indicates the large magnitude of reliability coefficient ($r$) of the questionnaire as well as the homogeneity of the items within the scales. This reliability is considered "very good", according to the guidelines provided by George and Mallery (2003).** The **overall reliability coefficient** for the SILL questionnaire was also found to be $r = 0.75$ which is acceptable as well.

### RESULTS AND DISCUSSIONS

The background information of respondents including gender and ethnicity are presented in Table 2 in the following.

**Table 2. Frequency and Percentage of Respondents' Age and Ethnicity**

|  |  | *Frequency* | *Percent* |
|---|---|---|---|
| *Gender* | Male | 26 | 19.7 |
|  | Female | 106 | 80.3 |
| *Ethnicity* | Malay | 74 | 56.1 |
|  | Chinese | 40 | 30.3 |
|  | Indian | 18 | 13.6 |
|  | Total | 132 | 100.0 |

Table 3 summarizes the descriptive statistics of the instruments used in the study. According to the data, out of the total of 5 marks, the range of the scores is from a minimum of 1.68 to a maximum of 4.76 for the SILL. The mean score for the SILL is $M=3.36$ and the standard deviation is $SD=.51$. The raw scores of the MI were also subjected to descriptive analysis. The results reveal that the range of scores for the Malaysian tertiary students are from a minimum of 8.11 (out of 100), to a maximum of 67.78 with the mean score of $M= 41.14$ and a standard deviation of $SD=13.11$.

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**Table 3. Descriptive Statistics of the Questionnaires used in the Study**

| Questionnaire | Minimum | Maximum | Mean | S.D. |
|---|---|---|---|---|
| SILL | 1.68 | 4.76 | 3.36 | .51 |
| MI | 8.11 | 67.78 | 41.14 | 13.11 |

Note: *N*=132

To answer the first question, the subjects' use of strategies was examined. The descriptive statistics of the results indicate that Malaysian tertiary students sampled in the study mostly use meta-cognitive strategies followed by social strategies (see Table 4). The findings of the study support those who have reported extensive use of meta-cognitive strategies in their studies(Ghee et al., 2010; Hong-Nam & Leavell, 2006; Lau, 2006; Saricobn & Saricaoglu, 2008; Sheorey, 1999).

**Table 4. Descriptive Statistics of Respondents' Performance on SILL Categories**

| SILL Categories | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Metacognitive | .67 | 5.00 | *3.5926* | .73250 |
| Social | .00 | 5.00 | *3.4899* | .79432 |
| Cognitive | 1.57 | 4.79 | *3.3929* | .58433 |
| Compensation | .00 | 5.00 | 3.3384 | .72251 |
| Memory | 1.67 | 4.89 | 3.1936 | .61896 |
| Affective | .00 | 5.00 | 3.1048 | .70573 |

Note: N=132

The second question, that is, the relationship between MI and LLS among the Malaysian tertiary students was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure there was no violation of the assumptions of normality, linearity and homoscedasticity. There was a low, positive correlation between the two variables, $r = .26$, *n*=132, $p<0.01$.

To further analyze the data, the researchers investigated the correlation between MI and the strategy types, as well as the correlation between types of intelligences and individuals' strategy use. Therefore, Pearson product-moment correlation coefficient was utilized. There was a low, positive correlation between MI and four types of strategies (see Table 5). The results in table 7 show that the highest correlation can be seen between meta-cognitive strategies and MI ($r = .316$, $p<0.01$), followed by compensation and cognitive strategies.

**Table 5. Pearson Product-Moment Correlation between MI and different types of learning strategies**

| | Memory | Cognitive | Compensation | Metacognitive | Affective | Social |
|---|---|---|---|---|---|---|
| *MI* | .181[*] | .202[*] | .207[*] | *.316[**]* | .050 | .152 |

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

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

Among the intelligences, verbal-linguistic intelligence showed significant correlation with all strategies except compensation strategies (see Table 6). Naturalist and logical-mathematical intelligences did not show significant correlation with any strategy type.

**Table 6. Pearson Product-Moment Correlation between MI & SILL categories**

|  | *Memory* | *Cognitive* | *Compensation* | *Metacognitive* | *Affective* | *Social* |
|---|---|---|---|---|---|---|
| Naturalist | .038 | -.017 | .065 | .087 | -.164 | -.068 |
| Musical-rhythmic | .152 | .193[*] | .264[**] | .260[**] | .119 | .089 |
| Logical-mathematical | .130 | .068 | .140 | .185[*] | -.125 | -.025 |
| Existential | .072 | .133 | .134 | .250[**] | -.008 | .111 |
| Interpersonal | .179[*] | .196[*] | .189[*] | .287[**] | .145 | .255[**] |
| Bodily-kinesthetic | .177[*] | .142 | .193[*] | .233[**] | .007 | .135 |
| Verbal-linguistic | .275[**] | .323[**] | .042 | .359[**] | .289[**] | .261[**] |
| Intrapersonal | .092 | .198[*] | .211[*] | .265[**] | .034 | .150 |
| Visual-spatial | .279[**] | .193[*] | .276[**] | .346[**] | .154 | .145 |

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

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

Finally the relationship between the use of language learning strategies and the learners' overall MUET scores was examined. MUET measures the English language proficiency level of pre-university students among Malaysians. Students who wish to pursue their degree courses in public institutions of higher learning in Malaysia are required to take this test which is administered by the Malaysian Examinations Council or *Majlis Peperiksaan Malaysia*. For this study, the researchers recorded the students' overall MUET band scores. Using Pearson product-moment correlation coefficient, no significant relationship was found between the two variables ($r = -.096$). Therefore, the findings of the study support the findings of the study carried out by Roehr (2004) and Ziahosseini and Salehi (2008). These findings are contrary to the ones who reported a significant relationship between language proficiency and LLS (Hong-Nam & Leavell, 2006; Lachini, 1997; Mochizuki, 1999; Sheorey, 1999).

**CONCLUSION**

This study set out with the aim of assessing whether MI profiles of Malaysian tertiary students would show any relationship with their use of LLS as two important determining factors in the language learning task. The findings indicate that there is a low, positive correlation between the two variables ($r = 0.26$). As stated by Akbari and Hosseini (2008, p. 150) "many aspects of MI correspond to certain aspects of language use, such as communication skills (linguist, interpersonal), metacognition (intrapersonal) and general cognitive abilities (mathematical)". In addition, perceiving the intelligence as an ability to solve problems, one can assume that intelligence and learning strategies are of the same

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nature: one dealing with the perception of the problems at a broad level (intelligence) and the other tackling learning problems (LLS) and the tactic to attack the encountered problems.

It was also found that there is a low, positive correlation between the MI profiles of the students and the different strategy types they use. The highest correlation can be seen between meta-cognitive strategies and their MI profiles. This is followed by compensation and cognitive strategies. The results indicate that MI is of a rather cognitive nature and successful learning results from consciousness in planning and storing information.

In addition, the study also compared the relationship between the language learning strategies used and learners' overall MUET band scores. The data of the study revealed no significant relationship between the students' English language proficiency and their use of language learning strategies. In other words, the strategies used by the students did not depend on whether they are proficient in the target language or not. Furthermore, the findings reveal that Malaysian tertiary students mostly use meta-cognitive strategies followed by social strategies which suggests that they are conscious of organizing and planning activities in their learning and the focus of the educational system is on cognitive changes. However, the importance of affective learning strategies is largely ignored among them, which shows a lack of training on the influence of affective elements on their learning.

To the researchers' knowledge, no such research has been conducted on this topic among tertiary students in Malaysia. Thus, it is recommended that more studies should be conducted in different settings to ascertain if the same trends appear or that the trends observed here are specific only to the surveyed tertiary students. Further research with other learners from different levels of education and from more diverse disciplines may shed light on the findings and add to the data already obtained.

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