Relationship Between Iranian University EFL Students' Language Learning Aptitude and Language Learning Strategy Use

Zainab Abolfazli Khonbi[1] *& Karim Sadeghi*[2]

[1]Corresponding author, Urmia University, z.abolfazli1986@gmail.com
[2]Urmia University, k.sadeghi@urmia.ac.ir

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Abstract

This study investigated the relationship between language learning aptitude (LLA) and the use of language learning strategies (LLSs) among a cohort of Iranian EFL students at Urmia University, Iran. The adapted versions of the Modern Language Aptitude Test (MLAT; Carrol & Sapon, 1983) and Oxford's (1990) Strategy Inventory for Language Learning (SILL) were distributed among the participants (i.e., 6 males and 32 females). A strong positive relationship was found between aptitude and the use of all the categories of LLSs. Pearson product-moment correlation also indicated a strong positive relationship among components/categories within MLAT and SILL. Furthermore, the application of *t* test showed no significant differences between the males and females on their overall LLA test scores, but a one-way ANOVA indicated significant differences between the two genders regarding the cognitive and metacognitive strategies in favor of the males. One-way ANOVA also revealed significant differences between high versus low-aptitude students on LLSs use in favor of the former group.

Keywords: Iranian EFL Students; Language Learning Aptitude (LLA); Language Learning Strategies (LLSs); Strategy Training

1. Introduction

Research studies in the area of L2 have repeatedly examined the significant role that learners can play in the language learning process and have shifted in their focus from teachers and teaching methods to learners (Chamot, 2005; Lee, 2003; Reiss, 1985). According to Ellis (1997), although individuals do not usually reveal variations in their L1 learning, they do vary in speed, rate, and ultimate attainment level of L2 learning. Scholars believe that variables such as age, cognitive/learning styles, gender, motivation, aptitude, and language learning strategies (LLSs), among others, affect L2 achievement and proficiency (e.g., Dörnyei & Skehan, 2003; Ellis, 1994; Robinson, 2001). Some of these factors like attitude are claimed to be mutable, whereas others such as aptitude may be immutable or innate and invariable

in the course of L2 development (Dörnyei & Skehan, 2003; Ellis, 1997). Research on students' LLSs has been a hot topic since the late 1970s (Hong-Nam & Leavell, 2007; Zare, 2010). There seems to be certain factors that determine the choice and use of LLSs. Previous experience, gender, affective/cognitive styles, or linguistic backgrounds/social settings, and language learning aptitude (LLA) are some of the variables responsible for differential learning among EFL students (Ellis, 1997; Harley & Hart, 2000; Skehan, 1989).

One of the most frequently cited definitions of LLSs in the literature was provided by Oxford (1990) as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8). These strategies have also been described as "any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information" (Wenden & Rubin, 1987, p.19) and "special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information" (O'Malley & Chamot, 1990, p. 1). Richards, Platt, and Platt (1992) regard learning strategies as "intentional behavior and thoughts that learners make use of during learning in order to better help them understand, learn, or remember new information" (p. 209).

The most inclusive taxonomy of LLSs was provided by Oxford (1990). She categorized LLSs into two main categories (i.e., direct and indirect strategies), subdivided into six classes. Direct strategies which "require mental processing of the language" (p. 37) are divided into memory, cognitive, and compensation strategies. Indirect strategies consist of metacognitive, affective, and social strategies. These strategies assist language learning indirectly by employing multiple strategies like focusing, arranging, evaluating, seeking opportunities, and lowering anxiety (Oxford, 1990).

Within a cognitive information processing paradigm, according to Robinson (2005), LLA has been defined as strengths that every learner might have in their cognitive abilities. These strengths are required for information processing both during L2 learning process and for performance, in different contexts and at various stages. Highlighting the importance of aptitude as a foundation for learning, Snow (1992) in broad terms characterizes it as,

> A present concern in virtually all goal-oriented human activities; whenever one thinks about the antecedents of observed individual differences in some valued goal attainment, some concept of aptitude is needed. . . . Aptitudes are initial states of persons that influence later developments . . . that are not merely correlates of learning, but rather propaedeutic to (i.e., needed as preparation for) learning in the particular situation at hand. (p. 6)

Finally, Cronbach and Snow (1977) describe aptitude as "whatever makes a person ready to learn rapidly in a particular situation (or, more generally to make effective use of a particular environment)" (p. 107).

The most frequently used instrument for testing LLA is Modern Language Test (MLAT) which has been initially developed as a means of screening candidates for foreign language instruction. Generally, MLAT has five different components, each focusing on a separate skill: (a) number learning, (b) phonetic script, (c) spelling clues, (d) words in sentences, and (e) paired associates. It was shown statistically that these five components are representative of a number of underlying constructs constituting LLA (Ellis, 2008). Carrol (1965) identified four key constructs in MLAT, namely phonemic coding ability (i.e., the ability to code foreign sounds in a way that can be remembered later, grammatical sensitivity (i.e., the ability to recognize the grammatical functions of words in sentences), inductive language-learning ability (i.e., the ability to identify patterns of correspondence and relationships involving form and meaning), and rote-learning ability (i.e., the ability to form and remember associations between stimuli).

The two factors discussed above (i.e., LLA and LLSs use) are among the two influential variables affecting success in any learning program. However, if the students who enter an educational program via some kind of standardized exam such as university entrance examination, as is the norm in Iran, are expected to enjoy an approximately equal level of LLA, it needs investigation into why during and at the end of the program, these students prove to perform differently. It seems that some other factors should determine how and the extent to which students can utilize their abilities, or to put it differently, some other factors seem to be related to LLA which make it function inconsistently among individuals. LLSs are a determining element in this regard. In order to get a solid view of this relationship, studies should be carried out in multiple settings because each context has unique characteristics which would limit the degree to which its results could be generalized. However, to make this claim of empirical reference, this study was an attempt to investigate the relationship between these two factors in an Iranian EFL context. The controversies in some findings of research on LLA and LLSs, intensified by the lack of research examining the two in combination both worldwide and locally (particularly in an Iranian university EFL context), invoked the current researchers to explore the link between these two factors by scrutinizing them from three angels: (1) the relationship between LLA and LLSs use, (2) the relationship between gender and LLA and the use of LLSs, and (3) the role of LLA in the use of LLSs.

2. Literature Review

Futurists predict that by 2020, teachers will be losing their roles in education and in the teacher-less society of tomorrow, students will have to manage

their learning independently (Frey, 2014). Even if this prediction does not materialize by the predicted deadline, very few people will deny the role of independent learning (i.e., education without the help of a teacher) in our current education system. To become an independent learner, either today or tomorrow, there is an urgent need for the learner to first identify which strategies they currently use, and then to find out which strategies they should learn to become more effective learners so that they can survive without the help of a teacher. This is why LLSs have attracted the attention of numerous researchers, teachers, and learners.

Allwright (1990) and Little (1991) propose that for strategies to enable more independent, autonomous, and lifelong learning, they must meet three conditions. First, the strategy must relate well to the L2 task at hand; second, the strategy should fit the particular student's learning style preferences to one degree or another; and third, the student ought to employ the strategy effectively and link it with other relevant strategies. Chamot and O'Malley (1996) as well as Cohen and Weaver (1998) investigated the effects of strategy instruction among native-English-speaking learners of foreign languages and found some positive results mixed with neutral findings. Strategy instruction also led to increased L2 learning motivation (Nunan, 1997) and greater strategy use and self-efficacy (Chamot & O'Malley, 1996). Further, it was realized that certain learners seemed to be successful regardless of methods or teaching techniques. Observations and research studies led researchers (Rubin, 1975; Rubin & Thompson, 1994; Stern, 1975) to describe *good* language learners in terms of personal characteristics, styles, and strategies. They insist that successful and proficient language learners have reported to use a wider range of LLSs; however, the amount of prior exposure to the English language, learner's aims, and proficiency levels should be considered in determining who the good language learner is (Anderson, 2005; Bruen, 2001; Ehrman & Oxford, 1989; Green & Oxford, 1995; Griffiths, 2003; Lee, 2003; Rahimi, Riazi, & Saif, 2008).

Previous research has demonstrated that many factors affect the choice of LLSs. Those factors include age, degree of awareness, gender, motivation, nationality, personality traits, learning context, and language proficiency (e.g., Chamot, 2004; Khamkhien, 2010; Rahimi et al., 2008; Zare & Nooreen, 2011). Studies have shown significant gender differences between language learners whereby females have demonstrated to use more and a wider range of strategies than males (Ehrman & Oxford, 1989; Zare, 2010). Research has also shown that learners with high motivation use a significantly greater range of LLSs than less motivated students (e.g., McIntyre & Noels, 1996; Oxford, 1990; Oxford & Nyikos, 1989). Researchers like Abraham and Vann (1987) and Wenden (1998) have discovered connections between learners' metacognitive knowledge or beliefs about language learning and their choice of LLSs. Wen and Johnson's (1997) study on L2 variables

and their relationship to English achievement found the strong and consistent effect of belief variables on strategy variables.

The most consistent predictor of one's success in learning a foreign language as declared by Dörnyei (2005) is aptitude. To Lightbown and Spada (1999), one can suppose that a high-aptitude learner learns with greater ease and speed, but low-aptitude learners can accomplish success if they persevere. Robinson (2001, 2005) believed that aptitude does not have a unidimensional nature. It is, indeed, hierarchical and multilevel, a characteristic which he calls an aptitude complex. In proposing the model, Robinson (2001) adopted an interactionist approach where multiple perspectives of the situation, the individual, and their interaction were presented. Robinson (2001) claims that if this interaction occurs successfully and at a high level, it can lead to "academic success in a variety of educational contexts (p. 371).

Also, Ranta (1995, as cited in Lightbown & Spada, 1999), working on children, found that children who were good at analyzing language (one component of aptitude that is targeted by aptitude tests) were the most successful learners in an English L2 program in which activities almost never involved distinct attention to grammar. Elsewhere, Erlam (2005) worked with secondary school learners and divided them into three groups who received either deductive or inductive or structured input instructions (60 were in each group), he found that deductive instruction that allows students to produce language output may control for the effect of individual differences in LLA. Gardner and Lambert (1972) found that grammatical sensitivity (a component in aptitude tests) correlates with grades in all aspects of educational attainment (not just in foreign language learning), and that other kinds of learning are to some extent linked to each other. Ehrman and Oxford (1995) found that language analytic ability is a predictor of success in L2 learning. Furthermore, performance on the words and sentences sections of MLAT was one of the differential variables that strongly correlated with proficiency.

Seemingly, aptitude is also related to age. For instance, research shows that in young learners, there is a low correlation between aptitude and L2 learning. Harely and Hart (1997, as cited in DeKeyser, 2003), for example, reported that for students enrolled in an immersion program in their first grade, analytic ability was not a significant predictor of their proficiency; however, for students who began their seventh grade, it was indeed a significant predictor of proficiency. DeKeyser (2003) focused on the interaction between age and aptitude of Hungarian immigrants, the study revealed that age was a significant predictor of proficiency for low but not for high-aptitude students, it also showed that language learning aptitude was a significant predictor for older learners but not for their younger counterparts.

If LLA and LLSs use were found to be related, the results of the study can then be used in a variety of ways to help students progress more efficiently and even independently. LLA tests can detect the choice and frequency of use of LLSs among high and low-aptitude students. Consequently, programs can be scheduled to include teaching LLSs used by high-aptitude students to low-aptitude students. Then, through practice, students will learn to use these LLSs more frequently, consciously or unconsciously, and in turn will gradually improve their attainment. Motivated by a dearth of research on the relationship between LLA and LLSs in an Iranian EFL context in particular, this research was aimed to understand how university EFL students' LLA is actually related to their LLSs use. Another aim of this research was to identify the easiest and the most difficult parts of aptitude, based on which matched forms of instruction can be developed. In this paper, the researchers investigated the role of LLA on and the relationship between gender and learners' patterns of strategy use and LLA, as aptitude and strategy seemed to be interrelated. In particular, this study tried to answer three general research questions as follows:

1. Is there any significant relationship between Iranian university EFL students' LLA and LLSs use?
2. Is there any significant relationship between gender and Iranian university EFL students' LLA and LLSs use?

3. Method

3.1. Participants

The participants were 48 male and female Iranian university EFL students at Urmia University, Iran, and ranged in age from 21 to 23. The study employed a convenient sampling procedure and, indeed, all the senior students doing a B.A. in English language and literature at Urmia University participated in this study. They were all in the same class and were more or less the same in terms of their L1 and cultural backgrounds. The distribution of participants based on their gender is provided in Table 1:

Table 1. *Descriptive Statistics of the Sample*

	Number	Percent
Males	16	33.33
Females	32	66.70
Total	48	100

3.2. Instruments

The first instrument was MLAT developed by Carroll and Sapon (1983). The test was modified to some extent, with some items omitted (except the first 10 items in each part) as the original form was long and could possibly be boring for

some participants. The final version had five parts with 10 items in each, so the test had a total of 50 multiple-choice items including, number learning (items 1-10), phonetic script (items 11-20), spelling clues (items 21-30), words in sentences (items 31-40), and paired associates (items 41-50).

The second tool was Oxford's (1990) 50-items SILL (version 7.0). It had a five-point Likert scale format: from 1 (*never*) to 5 (*always*). SILL structures the strategies into six categories, namely memory strategies (items 1-9), cognitive strategies (items 10-23), compensatory strategies (items 24-29), metacognitive strategies (items 30-38), affective strategies (items 39-44), and social strategies (items 45-50). The estimates of Cronbach's alpha reliability indices for MLAT (items = 50 and SILL (items = 50) were estimated as r = .80 and r = .87, respectively, both of which were good according to Cohen's (1988) specification. The validity of MLAT and SILL has been established due to their wide use and acceptance among researchers in relevant fields.

3.3. Procedure

This study followed a survey-based design in which MLAT and SILL were given to the research sample. The students were given instructions on how to complete the two. They were instructed to provide their best options in the case of MLAT and to give complete and honest responses to the SILL.

It was the first time that the participants were involved in taking an aptitude test, so after distributing the MLAT among them, they were asked to read and follow the directions carefully. Although some explanations were given in Persian (i.e., the formal language of the country), they were allowed to ask for clarifications in case they did not understand the directions for each section. For the first component, that is, Number Learning (NL), the students were instructed to listen to a tape teaching them some numbers in Kurdish language whose English translations they were provided with. Then, they listened to 10 numbers in Kurdish and were asked to write them in English in an accompanying table. For the second component, Phonetic Script (PS), the students heard 10 nonsense words in English (chosen based on recommendations in the MLAT manual) and, then, identified their phonetic transcriptions from among four alternatives in their papers. In the third component of MLAT, Spelling Clues (SC), the students were given phonetic representations of only the consonants of 10 English words and, consequently, they found the synonyms of those words from among five options. The next component, that is, Words in Sentences (WS), included 10 items composed of two sentences. The students should have noticed the functions of the underlined words in the first sentences (one in each sentence) and then should have selected, from among five underlined words in the second sentences for each item, the best ones which had the same functions as the ones in the first sentences. In the last component, that is,

Paired Associates (PA), a list of 10 Kurdish words along with their English translations (which they were required to memorize) was given to the students. Then, the Kurdish words were given to the students and they specified the correct English translation for each word from among five alternatives.

Regarding the SILL, in addition to the directions provided on the questionnaire itself (which the students were required to follow with great care), they were told in Persian that there were 50 statements with respect to strategies they may use when learning English as a foreign language. It was explained to them that they needed to indicate how often they use each of the strategies on a scale from '*never'* to '*always'* by putting a mark on the associated cells in the strategy table.

The questionnaires were administered as part of the classroom hour between two groups of students, and their completion took nearly 45 min (firstly, 30 min was devoted to MLAT completion and, secondly, 15 min was given for SILL).

3.4. Data Analysis

Using the Statistical Package for Social Sciences (Version 17), the whole analysis procedure was divided into two main parts: (a) Four series of Pearson product-moment correlations in order to find the relationships between total aptitude scores and total strategy use, between total aptitude and categories of strategies, between total strategy use and components of MLAT, and among the component parts of the aptitude and the specific types of strategies; (b) two series of *t* tests and ANOVAs in order to show how the groups (males and females versus low and high-aptitude) differed from each other in LLA and LLSs use. It needs to be mentioned that the students' MLAT scores were the sum of their correct responses to each item, and for the items in SILL, because there was no right or wrong answer, each student's response to an item was an indication of the amount of his or her agreement/disagreement with it.

4. Results

For the first stage, the Pearson product-moment correlation was carried out which revealed that there was a significantly large positive relationship (r = .88) between total LLA test scores and the frequency of use of LLSs by the participating EFL students. Table 2 shows the means of aptitude and LLSs use among the participants and Table 3 presents the results of the correlation test:

Table 2. *Descriptive Statistics for Total LLSs Use and Total MLAT Scores*

Descriptive Statistics			
	Mean	Std. Deviation	*N*
LLSs	3.3100	.40379	48
LLA	16.7458	1.32520	48

Table 3. *Pearson Product-Moment Between Total MLAT Scores and Total LLSs Use*

Correlations		LLS	LLA
LLSs	Pearson Correlation	1	.883*
	Sig. (2-tailed)		.000
	N		48

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

In order to see which type of strategy correlated most with the aptitude scores, another Pearson product-moment correlation was run, and it was found that aptitude had large positive correlations with all categories of strategies except for memory strategies (see Table 4):

Table 4. *Pearson Product-Moment for the Total MLAT Scores and the Categories of LLSs*

Correlations		LLA	Memory	Cognitive	Compensation	Metacognitive	Affective	Social
LLA	Pearson Correlation	1	.233	.843**	.639**	.674**	.596**	.527**
	Sig. (2-tailed)		.111	.000	.000	.000	.000	.000
	N	48	48	48	48	48	48	48

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

Similarly, another correlation test revealed that the use of LLSs had significant large positive relationships with all components of MLAT, but a small one with the scores on phonetic script:

Table 5. *Pearson Product-Moment for Total LLSs Use and Components of MLAT*

Correlations		LLSs	NL	PS	SC	WS	PA
LLSs	Pearson Correlation	1	.408**	.290*	.613**	.616**	.451**
	Sig. (2-tailed)		.004	.045	.000	.000	.001
	N	48	48	48	48	48	48

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

In order to understand whether the components of MLAT were in any ways related to the specific types of strategies as well as within themselves, the scores on each part of MLAT was correlated with each strategy type (see Table 6). It was interesting that large positive correlations were found: Metacognitive strategies correlated with SC, PS, WS components; cognitive strategies correlated with all components; social strategies correlated with SC, WS, NL parts; compensation strategies correlated with SC, WS, NL sections; affective strategies correlated with SC, WS, PA components; and memory strategies correlated with SC section.

Furthermore, it was found that there was also a strong positive relationship between the scores on WS section and those on PA section, but a medium positive

relationship was found between performance on NL part and WS section; other components of MLAT were not related to each other. A further finding of this test was that the use of memory strategies was not correlated with the use of other strategies and that the use of affective strategies had no relationship with social strategy use; all the other strategy types, namely cognitive, compensation, metacognitive, affective, and social, had large positive correlations with each other in their frequencies of use.

Table 6. *Pearson Product-Moment for Categories of LLSs and Components of MLAT*

		Memory	Cognitive	Compensation	Metacognitive	Affective	Social	NL	PS	SC	WS	PA
Correlations												
Memory	Pearson Correlation	1	.279	.159	.116	.096	.261	.022	.092	.302*	.050	.186
	Sig. (2-tailed)		.055	.280	.432	.514	.073	.884	.533	.037	.736	.206
	N	48	48	48	48	48	48	48	48	48	48	48
Cognitive	Pearson Correlation			.483**	.647**	.437**	.535**	.428**	.386**	.478**	.630**	.394**
	Sig. (2-tailed)			.001	.000	.002	.000	.002	.007	.001	.000	.006
	N			48	48	48	48	48	48	48	48	48
compensation	Pearson Correlation				.316*	.392**	.366*	.400**	.045	.428**	.512**	.254
	Sig. (2-tailed)				.029	.006	.010	.005	.762	.002	.000	.082
	N				48	48	48	48	48	48	48	48
Metacognitive	Pearson Correlation					.478**	.457**	.280	.165	.557**	.420**	.380**
	Sig. (2-tailed)					.001	.001	.054	.261	.000	.003	.008
	N					48	48	48	48	48	48	48
Affective	Pearson Correlation						.248	.195	.255	.325*	.503**	.322*
	Sig. (2-tailed)						.090	.184	.080	.024	.000	.026
	N						48	48	48	48	48	48
Social	Pearson Correlation							.287*	.080	.436**	.323*	.277
	Sig. (2-tailed)							.048	.591	.002	.025	.056
	N							48	48	48	48	48
NL	Pearson Correlation								.006	.057	.293*	.156
	Sig. (2-tailed)								.968	.700	.043	.290
	N								48	48	48	48
PS	Pearson Correlation									-.173	.021	-.145
	Sig. (2-tailed)									.240	.888	.325
	N									48	48	48
SC	Pearson Correlation										.270	.243
	Sig. (2-tailed)										.063	.096
	N										48	48
WS	Pearson Correlation											.368**
	Sig. (2-tailed)											.010
	N											48
PA	Pearson Correlation											1
	Sig. (2-tailed)											
	N											48

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

The second part of the analyses examined the relationship between aptitude level and LLSs use. In order to assign the students into two groups of high and low-aptitude, first they were ranked from the highest to the lowest based on their total

MLAT score, and then they were divided into two groups of equal numbers. The *t*-test table that follows reveals that the differences between the high and low-aptitude groups on both MLAT and SILL was statistically significant:

Table 7. *t Test for Aptitude Level and MLAT Scores and Strategy Use*

Independent Samples *t* Test										
		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
LLSs Use	Equal Variances Assumed	6.992	.011	-9.935	46	.000	-.66000	.06643	-.79372	-.52628
	Equal Variances Not Assumed			-9.935	37.717	.000	-.66000	.06643	-.79452	-.52548
LLA	Equal Variances Assumed	5.351	.025	-6.572	46	.000	-1.82500	.27771	-2.38400	-1.26600
	Equal Variances Not Assumed			-6.572	30.726	.000	-1.82500	.27771	-2.39160	-1.25840

Table 8 shows the descriptive statistics for performances on the components of MLAT between the two aptitude level groups. It can be seen that the high-aptitude students had consistently and significantly outperformed the low-aptitude students on each component of MLAT, except on the PS part for which their difference was not statistically significant. The table also shows that, in general, (following Oxford's classification, 1990), the high-aptitude students were high strategy users (M = 3.64), but the low-aptitude students used strategies with a medium frequency (M = 2.98). In detail, out of the six strategy types for which the low-aptitude students were regarded as medium users, the high-aptitude students were similar to them only in the implementation of memory and affective strategies; however, these students were high users of metacognitive (M = 4.11), cognitive (M = 3.73), social (M = 3.68), and compensation (M = 3.65) strategies:

Table 8. *Descriptive Statistics for MLAT and SILL Performances Based on Aptitude Level*

Descriptives		*N*	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
Memory	Low	24	2.9074	.38022	.07761	2.7469	3.0680	2.00	3.78
	High	24	3.2222	.44324	.09047	3.0351	3.4094	2.44	4.22
	Total	48	3.0648	.43839	.06328	2.9375	3.1921	2.00	4.22
Cognitive	Low	24	2.8869	.37909	.07738	2.7268	3.0470	1.71	3.71
	High	24	3.7351	.43854	.08952	3.5499	3.9203	3.00	4.57
	Total	48	3.3110	.59003	.08516	3.1397	3.4823	1.71	4.57
Compensation	Low	24	3.0972	.49372	.10078	2.8887	3.3057	2.00	4.17
	High	24	3.6528	.44210	.09024	3.4661	3.8395	2.67	4.50
	Total	48	3.3750	.54197	.07823	3.2176	3.5324	2.00	4.50
Metacognitive	Low	24	3.3287	.51021	.10415	3.1133	3.5441	2.44	4.22
	High	24	4.1157	.38417	.07842	3.9535	4.2780	3.22	4.56
	Total	48	3.7222	.59813	.08633	3.5485	3.8959	2.44	4.56
Affective	Low	24	2.6875	.50913	.10392	2.4725	2.9025	1.33	3.50
	High	24	3.2708	.62903	.12840	3.0052	3.5365	1.67	4.33
	Total	48	2.9792	.63825	.09212	2.7938	3.1645	1.33	4.33
Social	Low	24	2.9583	.50181	.10243	2.7464	3.1702	2.17	4.00
	High	24	3.6875	.49469	.10098	3.4786	3.8964	3.00	5.00
	Total	48	3.3229	.61541	.08883	3.1442	3.5016	2.17	5.00
LLSs	Low	24	2.9800	.16775	.03424	2.9092	3.0508	2.56	3.24
	High	24	3.6400	.27888	.05693	3.5222	3.7578	3.26	4.24
	Total	48	3.3100	.40379	.05828	3.1928	3.4272	2.56	4.24
NL	Low	24	18.6667	2.46129	.50241	17.6274	19.7060	10.00	20.00
	High	24	19.8750	.33783	.06896	19.7323	20.0177	19.00	20.00
	Total	48	19.2708	1.84206	.26588	18.7360	19.8057	10.00	20.00
PS	Low	24	16.4583	1.25036	.25523	15.9304	16.9863	14.00	19.00
	High	24	16.9583	1.75646	.35854	16.2166	17.7000	13.00	20.00
	Total	48	16.7083	1.52927	.22073	16.2643	17.1524	13.00	20.00
SC	Low	24	11.2917	2.69426	.54996	10.1540	12.4294	4.00	14.00
	High	24	14.4583	2.32153	.47388	13.4780	15.4386	10.00	20.00
	Total	48	12.8750	2.95804	.42696	12.0161	13.7339	4.00	20.00
WS	Low	24	14.3333	4.06113	.82897	12.6185	16.0482	.00	20.00
	High	24	17.5417	1.44400	.29476	16.9319	18.1514	14.00	19.00
	Total	48	15.9375	3.42336	.49412	14.9435	16.9315	.00	20.00
PA	Low	24	18.4167	1.88626	.38503	17.6202	19.2132	14.00	20.00
	High	24	19.4583	1.10253	.22505	18.9928	19.9239	16.00	20.00
	Total	48	18.9375	1.61649	.23332	18.4681	19.4069	14.00	20.00
LLA	Low	24	15.8333	1.25617	.25642	15.3029	16.3638	11.60	17.00
	High	24	17.6583	.52247	.10665	17.4377	17.8790	17.00	18.80
	Total	48	16.7458	1.32520	.19128	16.3610	17.1306	11.60	18.80

As is revealed in the ANOVA table that follows (see Table 9), the differences in the mean scores on each component of MLAT was significant between the groups in favor of the high-aptitude students. Based on the aptitude groups' mean scores on the components of MLAT (See Table 8), the order of difficulty of its components, as the most difficult component, was the SC part (M = 12.87) followed by WS (M = 15.93), then PS (M = 16.70) followed by PA (M = 18.93), and finally the easiest one was NL (M= 19.27):

Table 9. *ANOVA Test for MLAT and SILL Performances Based on Aptitude Level*

ANOVA		Sum of Squares	*df*	Mean Square	*F*	*Sig.*
Memory	Between Groups	1.189	1	1.189	6.975	.011
	Within Groups	7.844	46	.171		
	Total	9.033	47			
Cognitive	Between Groups	8.634	1	8.634	51.387	.000
	Within Groups	7.729	46	.168		
	Total	16.362	47			
Compensation	Between Groups	3.704	1	3.704	16.865	.000
	Within Groups	10.102	46	.220		
	Total	13.806	47			
Metacognitive	Between Groups	7.433	1	7.433	36.446	.000
	Within Groups	9.382	46	.204		
	Total	16.815	47			
Affective	Between Groups	4.083	1	4.083	12.470	.001
	Within Groups	15.062	46	.327		
	Total	19.146	47			
Social	Between Groups	6.380	1	6.380	25.699	.000
	Within Groups	11.420	46	.248		
	Total	17.800	47			
NL	Between Groups	17.521	1	17.521	5.677	.021
	Within Groups	141.958	46	3.086		
	Total	159.479	47			
PS	Between Groups	3.000	1	3.000	1.291	.262
	Within Groups	106.917	46	2.324		
	Total	109.917	47			
SC	Between Groups	120.333	1	120.333	19.027	.000
	Within Groups	290.917	46	6.324		
	Total	411.250	47			
WS	Between Groups	123.521	1	123.521	13.298	.001
	Within Groups	427.292	46	9.289		
	Total	550.813	47			
PA	Between Groups	13.021	1	13.021	5.455	.024
	Within Groups	109.792	46	2.387		
	Total	122.812	47			

To recognize the role of gender on LLA and LLSs use, the two genders' differences in terms of their mean scores on MLAT and LLSs use were compared. As presented in the *t*-test table below, their differences were not statistically significant:

Table 10. *t Test for Gender and MLAT Scores and Strategy Use*

Independent Samples *t* Test										
		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
LLSs Use	Equal Variances Assumed	.077	.783	1.817	46	.076	.21938	.12071	-.02361	.46236
	Equal Variances Not Assumed			1.775	28.309	.087	.21938	.12359	-.03366	.47241
LLA	Equal Variances Assumed	.483	.491	1.465	46	.150	.58750	.40089	-.21946	1.39446
	Equal Variances Not Assumed			1.544	34.592	.132	.58750	.38062	-.18552	1.36052

It can be seen in the following descriptive data table (see Table 11), all types of strategies were used with a medium frequency among both males and females, except for the case of metacognitive strategies that enjoyed a high level of utilization in the two groups and cognitive strategies that were used with a higher frequency among males:

Table 11. *Descriptive Statistics for Performances on MLAT and SILL Based on Gender*

Descriptives		*N*	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
Memory	Male	16	3.0625	.52739	.13185	2.7815	3.3435	2.00	4.22
	Female	32	3.0660	.39598	.07000	2.9232	3.2087	2.33	4.00
	Total	48	3.0648	.43839	.06328	2.9375	3.1921	2.00	4.22
Cognitive	Male	16	3.5625	.62861	.15715	3.2275	3.8975	2.29	4.43
	Female	32	3.1853	.53632	.09481	2.9919	3.3786	1.71	4.57
	Total	48	3.3110	.59003	.08516	3.1397	3.4823	1.71	4.57
Compensation	Male	16	3.4271	.47519	.11880	3.1739	3.6803	2.50	4.17
	Female	32	3.3490	.57791	.10216	3.1406	3.5573	2.00	4.50
	Total	48	3.3750	.54197	.07823	3.2176	3.5324	2.00	4.50
Metacognitive	Male	16	3.9583	.44606	.11152	3.7206	4.1960	3.11	4.56

	Female	32	3.6042	.63480	.11222	3.3753	3.8330	2.44	4.56
	Total	48	3.7222	.59813	.08633	3.5485	3.8959	2.44	4.56
Affective	Male	16	3.1042	.69887	.17472	2.7318	3.4766	1.67	4.33
	Female	32	2.9167	.60760	.10741	2.6976	3.1357	1.33	4.17
	Total	48	2.9792	.63825	.09212	2.7938	3.1645	1.33	4.33
Social	Male	16	3.4271	.75270	.18817	3.0260	3.8282	2.17	5.00
	Female	32	3.2708	.54006	.09547	3.0761	3.4655	2.17	4.17
	Total	48	3.3229	.61541	.08883	3.1442	3.5016	2.17	5.00
LLSs	Male	16	3.4563	.41262	.10315	3.2364	3.6761	2.68	4.18
	Female	32	3.2369	.38505	.06807	3.0981	3.3757	2.56	4.24
	Total	48	3.3100	.40379	.05828	3.1928	3.4272	2.56	4.24
NL	Male	16	19.2500	2.48998	.62249	17.9232	20.5768	10.00	20.00
	Female	32	19.2813	1.46429	.25885	18.7533	19.8092	13.00	20.00
	Total	48	19.2708	1.84206	.26588	18.7360	19.8057	10.00	20.00
PS	male	16	17.0625	1.23659	.30915	16.4036	17.7214	15.00	19.00
	female	32	16.5313	1.64580	.29094	15.9379	17.1246	13.00	20.00
	Total	48	16.7083	1.52927	.22073	16.2643	17.1524	13.00	20.00
SC	Male	16	13.8750	1.85742	.46435	12.8853	14.8647	11.00	18.00
	Female	32	12.3750	3.28977	.58155	11.1889	13.5611	4.00	20.00
	Total	48	12.8750	2.95804	.42696	12.0161	13.7339	4.00	20.00
WS	Male	16	16.0625	2.74393	.68598	14.6004	17.5246	10.00	19.00
	Female	32	15.8750	3.75671	.66410	14.5206	17.2294	.00	20.00
	Total	48	15.9375	3.42336	.49412	14.9435	16.9315	.00	20.00
PA	Male	16	19.4375	.96393	.24098	18.9239	19.9511	17.00	20.00
	Female	32	18.6875	1.82169	.32203	18.0307	19.3443	14.00	20.00
	Total	48	18.9375	1.61649	.23332	18.4681	19.4069	14.00	20.00
LLA	Male	16	17.1375	1.17466	.29367	16.5116	17.7634	13.60	18.40
	Female	32	16.5500	1.36972	.24213	16.0562	17.0438	11.60	18.80
	Total	48	16.7458	1.32520	.19128	16.3610	17.1306	11.60	18.80

Although Table 10 revealed no significant differences between the two genders on their total strategy use, one-way analysis of variance (see Table 12) uncovered that there was a significant difference between the males and females in their use of cognitive $F(1, 46)= 4.70$, $p = .03$ and metacognitive $F(1, 46)= 3.97$, $p = .05$ LLSs use in favor of males; however, as the *t* test showed, one-way ANOVA also confirmed that there were no significant differences between the two groups on the frequency of use of other strategy types and on their performances on the components of MLAT:

Table 12. *ANOVA Test for the Performances on MLAT and SILL Based on Gender*

ANOVA		Sum of Squares	*df*	Mean Square	*F*	*Sig.*
Memory	Between Groups	.000	1	.000	.001	.980
	Within Groups	9.033	46	.196		
	Total	9.033	47			
Cognitive	Between Groups	1.518	1	1.518	4.704	.035
	Within Groups	14.844	46	.323		
	Total	16.362	47			
Compensation	Between Groups	.065	1	.065	.218	.643
	Within Groups	13.740	46	.299		
	Total	13.806	47			
Metacognitive	Between Groups	1.338	1	1.338	3.977	.052
	Within Groups	15.477	46	.336		
	Total	16.815	47			
Affective	Between Groups	.375	1	.375	.919	.343
	Within Groups	18.771	46	.408		
	Total	19.146	47			
Social	Between Groups	.260	1	.260	.683	.413
	Within Groups	17.540	46	.381		
	Total	17.800	47			
NL	Between Groups	.010	1	.010	.003	.957
	Within Groups	159.469	46	3.467		
	Total	159.479	47			
PS	Between Groups	3.010	1	3.010	1.295	.261
	Within Groups	106.906	46	2.324		
	Total	109.917	47			
SC	Between Groups	24.000	1	24.000	2.851	.098
	Within Groups	387.250	46	8.418		
	Total	411.250	47			
WS	Between Groups	.375	1	.375	.031	.860
	Within Groups	550.438	46	11.966		
	Total	550.813	47			
PA	Between Groups	6.000	1	6.000	2.363	.131
	Within Groups	116.812	46	2.539		
	Total	122.812	47			

Based on the results presented above, the research questions can be answered as follows:

1. There is a strong positive relationship between Iranian university EFL students' LLA and LLSs use.
2. There is no relationship between gender and Iranian university EFL students' LLA, but a partial relationship with their LLSs use.

5. Discussion

This study sought to unearth the relationship between LLA (based on MLAT) and LLSs use (based on SILL) among a cohort of male and female Iranian university EFL students. The researchers found a strong positive relationship between LLA and LLSs use; it was also found that the high-aptitude students used LLSs significantly more frequently than did the low-aptitude students; however, gender had no relationship with aptitude level and LLSs use, except for cognitive and metacognitive strategies that it had in favor of the males. As regards the relationship between total LLA scores and the use of categories of LLSs, LLA was found to have a significant positive relationship with all the categories of LLSs excluding memory strategies. Furthermore, total LLSs use was largely positively correlated with the performances of the students on all the components of MLAT, except on PS with which it had a small positive relationship. Regarding the relationship between the components of MLAT and LLS categories, large positive relationships existed between the use of cognitive strategies and performance on all the five components of MLAT; the same was found between compensation strategies and NL, SC, and WS components; between metacognitive strategy use and SC, WS, and PA; between affective strategy use and SC, WS, and PA components; between the use of social strategies and scores on NL, SC, WS sections, and between memory strategy use and SC. Large positive relationship was also found between WS and PA components, but a medium positive relationship was revealed between NL and WS sections; other components of MLAT had no relationship with each other. The use of memory strategies correlated with none of the other strategy types; also, the frequency of use of affective strategies was not associated with the use of social strategies; however, the frequencies of use of all the other categories of strategies were found to have large positive correlations with each other. Finally, the main factor determining the use of LLSs was found to be the students' aptitude, not their gender.

Results also revealed that the most difficult component of MLAT was SC, followed by WS, then PS, then PA, and finally NL that was the least difficult part. The low-aptitude group was a medium user of all the categories of strategies; the high-aptitude group, on the other hand, was a high user of strategies, except for

being medium in the case of memory and affective strategies. Based on frequency of use of LLS categories among the high-aptitude students, the most frequently used strategies ranked as metacognitive, cognitive, social, and compensation with a decrease in their means of use. Finally, the high-aptitude students' mean scores significantly surpassed the low-aptitude students' on all the components of MLAT, except in the PS component in which, although the former outperformed the latter, their difference was not significant. Based on Ellis (2008), SC component involves using inductive language learning ability; PS part is related to phonemic coding ability; WS utilizes grammatical sensitivity; PA involves the application of rote-learning; and possibly NL again uses phonemic coding ability. In addition, the first three parts were found to be difficult even for the high-aptitude students. Furthermore, these students used metacognitive, cognitive, social, and compensation strategies more than other strategy types, meanwhile, SC component correlated with all the six categories of strategies, WS with all except memory strategies, NL with cognitive, social, and compensation strategies, PS with metacognitive and cognitive strategies, and PA part with just cognitive and affective strategies. We also found that there were two common strategies, that is, metacognitive and cognitive strategies that correlated with performance on SC, PS, WS; however, for completing WS, PA, and NL, the cognitive strategy was the only commonly used strategy.

These findings enabled us to conclude that, in improving students' language learning, metacognitive strategies are more important than cognitive strategies which are themselves more important than social strategies, with this latter strategy type being more important than compensation strategies. To the confirmation of this conclusion, Graham (1997) defines metacognition simply as thinking about thinking and it is believed that learners who are metacognitively aware know what to do exactly when they do not know what to do; in fact, they use strategies to help them find out what they need to do. The reason why metacognitive strategies were found to be the mostly used strategies among the high-aptitude students might be that they involve various thinking and reflection processes (Anderson, 1999). Metacognitive strategies, it seems, allow students to plan, control, and evaluate their learning, so they can have the most focal role to play in this regard than strategies that merely increase input and interaction (Graham, 1997).

Gender was found to have a positive relationship with the choice of metacognitive and cognitive strategies in favor of the males; this might be related to the mental mechanisms (cognitive styles) of males: Males are claimed to have more analytic abilities than females. Furthermore, metacognitive and cognitive strategies are the attributes of the left hemisphere (Skehan, 1998). However, this particular finding may be further investigated by having a proportional distribution of genders. The results of the study are in line with previous investigations where it was

discovered that there is an association between the use and choice of LLSs and different variables like context, learner's characteristics and their experiences, language proficiency, or cultural and academic backgrounds (Deneme, 2008; Fuping, 2006; Hong, 2006; Oxford, 2003). The findings have concluded that the employment of LLSs facilitates and improves language learning and assists language learners in different ways. It was also found that a direct relationship exists between proficiency and achievement (Griffiths, 2003; Ya-Ling, 2008; Yang, 2007). Supporting the findings of the present study, many research studies have explored the relationship between LLSs and learners' proficiency in which the findings have indicated that more proficient language learners use a greater variety and often a greater number of LLSs (Anderson, 2005; Ehrman & Oxford, 1989; Green & Oxford, 1995; Griffiths, 2003; Lee, 2003; O'Malley & Chamot, 1990).

The present findings are also in line with Li's (2010) study on the relationship between students' belief and LLSs use. He also found that metacognitive strategies surpass the use of cognitive, social, and memory strategies among English major sophomores in vocational colleges in Jiangxi. However, it contradicts his findings in that he found compensation and affective strategies to be used more frequently than metacognitive strategies. In line with the present research findings, in some other studies, it was found that compensation strategies lie among the most highly and frequently used strategies, whereas memory strategies were the least frequently used (e.g., Yang, 1992). In support of the present findings is Li's (2002) study that indicated that the use of metacognitive strategies is followed by compensation, social, and affective strategies, and that the least frequently used strategies are affective strategies. However, his other finding that memory strategies are the most frequently used strategies is in contrast to the present research that found memory strategies near the end of the frequency of use continuum. One possible reason that compensation strategies were the most frequently used strategies might be that the learners who struggle with lower exposure to language usually use them. In view of the fact that Iranian EFL students are less exposed to real-life use of authentic English, they should employ compensation strategies whenever they try to produce or comprehend English. This research does not support Li (2010), who found affective strategies were popular among vocational students, and also Li (2002) and Oxford (1990) and some studies carried out in Asia, where learners, preferred those types of strategies that necessitated rote memorization of language rules. Perhaps, the low use of affective and memory strategies among the participants in this study might be due to their cultural, social, and emotional backgrounds, over which they might have control, or it can be due to the lack of direct interaction opportunities with native speakers.

In contrast to the findings of this research, studies have shown significant gender differences between males and female language learners in which females have demonstrated the use of more and a wider range of strategies than males (Ehrman & Oxford, 1989; Green & Oxford, 1995; Lee, 2003; Zare, 2010). Contrary to the findings of the present research, Yang (1992) found that EFL learners used strategies at a medium level; however, their results are in line with our finding as far as low-aptitude students are concerned.

The present study, like its predecesors, is not without its shortcomings. The major limitation which might even underrepresent some findings might be the possible disproportionate distribution of the males and females. Another factor that might reduce the generalizability of the findings would be the small sample size, and the possible effect of cultural backgrounds which is also a thought provoking area for future replications. Finally, as SILL is a self-report tool, there may be some "regression toward mean" effect (Li, 2010) because students are not free in the options, so there may be strategies not provided in the SILL but employed by the learners. Researchers suggest that future studies consider the relationship between students' achievement and aptitude and strategy use in a single study. Future studies can replicate this type of research in an experimental design by conducting strategy training programs and scrutinizing the effect of strategy-based instruction on language learning, aptitude, and achievement. Finally, as Skehan (2002, as cited by Erlam, 2005) states, LLA is modular in that one's aptitude for L1 learning is different from L2 learning in perception, analysis, storage, and retrieval of information, accordingly future researchers can also compare L1 with L2 aptitude.

6. Conclusion

The results of the present study revealed that LLA and LLS are strongly and positively related. Although gender seemed not to affect LLA and LLSs, further research with more students from different context is needed to verify the findings and make solid claims in this regard. However, in order to enable the learners to learn independently, we need to provide them with all possible opportunities, even to teach them the advantages of having autonomy in learning; similarly, our teaching program should allow them to start out in a fair, comfortable, and stress-free way. In doing so, language professors should allow them to know themselves and their preferred strategies. As Anderson (2002) points out, through reflecting upon their LLSs, the students become better equipped to make informed decisions on how to improve their learning. Understanding and controlling cognitive processes may be one of the most essential skills that classroom teachers can help L2 learners develop.

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