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# THE ROLE OF LANGUAGE APTITUDE IN EXPLICIT TEACHING OF METACOGNITIVE STRATEGIES: A CASE OF COLLOCATIONS

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***Abstract*** **The present study investigates the mediating role of language aptitude and the effect of metacognitive vocabulary learning strategy instruction on the recall of collocations. Therefore, 75 high and low language aptitude level participants were randomly assigned to two control and experimental groups based on the TOEFL test score at upper intermediate level and the Words in Sentence component of the Modern Language Aptitude Test-Elementary (MLAT-E) (2002). Both experimental and control groups received the same type of collocation instruction, but the experimental group, in addition, received the metacognitive explicit strategy instruction. A pretest and posttest measuring the learners' collocation knowledge before and after treatment was administered. During the training, the class time was allocated to teaching collocations and the last thirty minutes of each session was dedicated to metacognitive strategy instruction in the experimental group. Treatment continued for eight weeks and the required data were obtained. At the end, a two-way ANOVA was run to compare the two groups plus the effect of language aptitude on such performance. The results indicated that treatment did have an effect on the recall of collocations and also the high language aptitude learners enjoyed better performance compared to their low language aptitude counterparts.**

***Keywords*— Aptitude, Metacognitive strategies, Explicit strategy instruction, Collocation, Recall.**

## I. INTRODUCTION

Existing research in the field of L2 learning suggests that language learning aptitude, defined as a set of abilities which enables some learners to acquire new language material more quickly and with greater ease than others (Dörnyei, 2005), is a strong and significant predictor of L2 learning success. There is empirical support for this finding from studies with adult learners in different instructional settings (Ehrman & Oxford, 1995; Hummel, 2009; Mohammadi Darabad, 2013; Skehan, 1998; Sparks, Patton, Ganschow, Humbach, 2011; Winke, 2013). Researchers subscribing to the classic, multi-componential concept of language learning aptitude as exemplified by Carroll's model (1962, 1981; 1990) tend to agree that aptitude is relatively stable in adults (Kiss & Nikolov, 2005; Skehan, 1998).

Carroll (1981) argues that aptitude reflects a prediction for proficiency and a potential rate of acquisition by older learners as well; quality of instruction, opportunity, and motivation can guarantee such a prediction under optimal conditions. The role of aptitude in achievement can vary as these variables vary. He further stipulates that the concept of foreign language aptitude does not imply that some people are capable of learning foreign languages while the others are not. All people are considered to be able to learn a foreign language under the right condition and being cognitively healthy. Aptitude is only believed to determine the ease and rate with which a particular individual would successfully acquire a language. Considering the fact that all individuals might have the ability to achieve success with a foreign language, it is believed that those with lower aptitude might do so with a great difficulty and over a longer period of time.

The study of language aptitude began in the mid twentieth century. Since then several standard language aptitude tests have been developed and widely used in measuring language aptitude. They include The Modern Language Aptitude Test (MLAT; Carroll & Sapon, 1959), The Elementary Form of the Modern Language Aptitude Test (Carroll & Sapon, 1967), the Pimsleur Language Aptitude Battery (PLAB; Pimsleur, 1966), the Defense Language Aptitude Battery (DLAB, Peterson & Al-Haik, 1976), the VORD (Parry & Child, 1990), and the Cognitive Ability for Novelty in Acquisition of Language (foreign)-CANAL-F (Grigorenko, et al., 2000).

*The Modern Language Aptitude Test*

Carroll (1962) developed the Modern Language Aptitude Test (MLAT) and proposed that the construct of aptitude was made up of four components: (a) phonetic coding ability, (b) grammatical sensitivity, (c) rote learning ability for foreign language materials and (d) inductive learning ability (Skehan, 2002).

Skehan (1998) has adapted Carroll's model to an information-processing model of language acquisition along with research in cognitive psychology. According to Skehan (2002), general learning mechanisms determine the success at

foreign L2 language learning. He proposes that language learning are modular, different from those that exist in L1 learning, and related to different stages in the perception, analysis, storage and retrieval of information as it passes through the learner's information-processing system.

*A. Phonemic Coding Ability*

Phonemic coding ability concerns the effective auditory processing of input (Skehan, 1998; 2002). It is important in allowing the learner to analyze and code auditory material for the purpose of retention, often in real time. It is particularly important at beginning stages of language learning and it affects crucially how much comprehensible input is available to the learner for the next stage of processing (Skehan, 2002).

*B. Language Analytic Ability*

Language analytic ability is the ability of inferring rules of learning or making linguistic generalization. Skehan (1998) believes that this ability is necessary to the central stage of information processing. According to Carroll (1962), there are two separate components to this ability: grammatical sensitivity and inductive language analytic ability (although his MLAT did not include a measure of the latter). Skehan (1989) suggests that language analytic ability is more closely related to general measures of intelligence and he is unclear because of the kinds of structures and processes that operate at this stage. If the learner still has access to Universal Grammar, then an ability that is qualitatively different from general learning mechanisms may be at work; if not, then more general cognitive processes may play the dominant role. Ehrman and Oxford (1995) conducted a research in which the results indicated that language analytic ability was a good predicator of success in L2 learning. The relationships of a variety of individual difference variables to end-of-training proficiency ratings for a large sample of learners receiving instruction in a variety of languages had been examined. They found that one of the individual difference variables that correlated most strongly with proficiency was the performance on the Words in Sentences subtest of the MLAT.

*C. Memory*

Memory is one of the components of aptitude that has received the greatest attention. Some works in cognitive psychology have led to the concept of working memory instead of short-term memory (Carroll, 1962). Baddeley (1999) stipulated that working memory is responsible for both manipulating and temporarily storing information. There are three components to working memory: the central executive, the phonological loop and the visuo-spatial sketchpad. According to Baddeley (1999), the central executive is the component that is most complex and least understood. It is capacity limited and used for the processing and storage of information at the same time.

Traditional measures of working memory (e.g., the Digit Span Test of Gathercole et al., 1997) evaluated storage only. Daneman and Carpenter's Reading Span Test (1980), which requires students to recall auditory input while processing it at the same time, has been used as an index of working memory capacity in many studies. In a research conducted by Harrington and Sawyer (1992), the results indicated that learners with greater working memory capacity outperformed their counterparts on measures of L2 reading skill. Mackey et al. (2002) propose a possible link between the capacity of working memory and the ability to benefit from interactional feedback in an L2 learning context.

Baddeley (1999) describes the phonological loop as a specialized unit for the retention of verbal information over short periods of time. He further argues that this loop is composed of two units: the phonological store and the sub-vocal articulatory rehearsal process. The phonological store holds information in phonological form and is subject to decay and interference. The sub-vocal articulatory rehearsal process recodes non-auditory material into a form suitable for the phonological store and maintains decaying representations in the phonological store. Phonological loop capacity has been operationalized in the research literature (e.g., Gathercole & Martin, 1996; Gathercole et al., 1991) as the ability to repeat non-words immediately following presentation. Phonological loop capacity has been shown to be predictive of both L1 and L2 vocabulary acquisition (Gathercole & Baddeley, 1989; 1990). The role of phonological working memory has been investigated in L2 learning in a few studies. Ellis and Sinclair (1996) emphasized on the role of phonological working memory in idiom learning. He quotes a number of studies that have demonstrated the correlation of phonological working memory with grammatical ability. Skehan (1998) suggests that the importance of memory in language learning may have been greatly underestimated. He stresses the role of memory at the output stage of language processing but also allows for a role for memory within the input-processing stage. He claims that noticing must take place within working memory and suggests that those learners who are the more effective input processors will have greater working memory attentional capacity.

*D. Language Learning Strategies*

One of the main aims of education, in general, and language teaching, in particular, is to help students develop a sense or attitude that learning is a lifetime process and requires skills of self-directedness. As Wenden and Rubin (1987) claim, one who is equipped with the appropriate skills and strategies to learn a language in a self-directed way, is an autonomous learner. In another way, Cohen (1996) states that if a language learner is equipped with second language learning strategies, he may possess both second language learning and second language use strategies. A gradual but significant shift has been taken place, resulting in less emphasis on teachers and teaching and greater stress on learners' role and learning process (Cohen, 1996; Cohen & Macaro, 2007; Griffiths, 2006; Nunan, 1991;

O'Malley & Chamot, 1990; Oxford 1990; Rubin, 1975; Wenden, 1991). Along with this shift, the primary concern of researchers who are dealing with this area of foreign language learning is to investigate how learners process new information and what kind of strategies they employ to understand, learn or remember the information.

Language learning strategies have been defined by some scholars working in this area. Some define it as the strategies that contribute to the development of language system (e.g., Wenden & Rubin, 1987). Others identified them as "special thought and behavior that individuals use to help them comprehend, learn, or retain new information (e.g., O'Malley & Chamot, 1990, p.1). And finally the most comprehensive definition and work on strategies was done by Oxford (1990). She defines learning strategies as steps taken by students to enhance their own learning. She emphasizes on the importance of strategies in that they are tools that empower the learners for active, self-directed participation which is essential for communicative competence. It is worth mentioning that language learning strategies are vast in number. They have been named in various terms, classifications or taxonomies by different researchers (O'Malley & Chamot, 1990; Oxford, 1990; Rubin, 1975; Stern, 1992). The most famous models for the teaching of language learning strategies favor either a direct teaching model, or an indirect model. Generally, in direct or explicit training, learner's attention is directed towards the strategy being taught. On the other hand, in indirect training learners are not told the purpose of the tasks.

### *E. Metacognitive Strategies*

According to Brown (2007), metacognitive strategies are used to plan for learning, thinking about the learning process as it is taking place, monitoring of one's production or comprehension, and evaluating learning after an activity is completed. He offered an account for different metacognitive strategies as *directed attention*, *comprehension monitoring*, *real-time assessment*, *comprehension evaluation*, and *selective attention*. "Directed attention" is concentrating on the input and avoiding distraction, by maintaining concentration as much as possible, listen closely to every word and continue listening in spite of problems. "Comprehension monitoring" is the process of checking and conforming how well one understands the input during listening by making use of both external and internal resources which include information in the text, visual element, context and prior knowledge. "Real-time assessment" of input is necessary for achieving their comprehension goals during listening. This strategy involves determining the potential value of unfamiliar words and noticing problems during listening. "Comprehension evaluation" is determining the accuracy and completeness of listener's comprehension. It can be done any time after an individual has finished and arrived at some tentative interpretation. The purpose is to check to what extend the understanding is acceptable. "Selective attention" means paying attention to specific aspects of the input by listening for gist, listening for familiar of key words noticing the way information is structured, listening for repetition, paying attention to meaning in groups of words and heeding intonation.

A study was conducted by Eslami-Rasekh and Ranjbari (2003) on the metacognitive strategy training. The results of their study showed positive effects of explicit metacognitive strategy training on the vocabulary learning among Iranian EFL learners. Another study was conducted by Mardani and Moinzadeh (2011) to investigate the effect of explicit training of metacognitive vocabulary learning strategies on recall and retention of idioms among Iranian female advanced EFL learners. The results showed that metacognitive vocabulary learning strategies had positive effects on both short term and long term participants' recall of idioms. Lajooee and Barimani (2013) conducted a contrastive study on explicit learning of vocabulary through role-play and memorization among Iranian EFL female learners. Based on the findings, they also emphasized on the positive effect of explicit teaching of metacognitive strategies on vocabulary learning.

### *F. Collocations*

Regardless of the vocabulary acquisition approach, the question is that why some language learners, even advanced ones, experience difficulties in learning vocabularies. Zarei and Kosha (2003) provided an account for the mentioned issue. They believed that language learners try to learn the meaning of words in isolation without paying much attention to the relations that words form with each other. In other words, Carter (1988) states that "knowing a word means knowing (among other things) the network of relations it forms with other words, either collocationally, or in terms of semantic fields or collocationality" (as cited in Zarei & Kosha, 2003, p. 138). McCarthy and O'Dell (2005) define collocation in the following terms: "a collocation is a pair of words that are often used together. These combinations sound natural to native speakers, but students of English have to make a special effort to learn them because they are often difficult to guess" (p. 6).

### *G. Recall of Information*

Undoubtedly one of the most important aspects of language learning is the recall of previously learned material. In the 40s and 50s learners were encouraged to imitate for the purpose of retention and learning of information. With the advent of Ausubel's meaningful learning, recall and retention of information was viewed from a different prospective. Ausubel (1965) stated that learning takes place in human memory through a systematic and meaningful process. In this way, rote learning came under attack and gave way to meaningful learning. To this end, some experts in the field, such as O'Malley and Chamot (1990) emphasized the use of strategies for the purpose of promoting the retention and recall of information. "Recall is not reproduction of the important ideas, but rather than that, recall is an inferential reconstruction" (Clark, 1997, p. 188). According him, "the reconstruction is

based on inferences which not only reflect the expected schema, but also the expected values of the individual events within that text" (p. 188). He also considered remembering as a reconstruction process and stated that to recall, people retrieve bits and pieces of what is stored in their memories. Van Dijk and Kintsch (1983) stated that retrieval follows the arrangement of the text base and the situation model from a given text. It is now widely acknowledged that collocations play an important role in SLA. Bolinger (1976) was one of the first to point out that our language does not expect us to build everything starting with lumber, nails, and blueprint. Instead, it provides us with an incredibly large number of conventionalized multi-word combinations. Prawly and Syder (1983) argue that collocational knowledge, as the essence of language knowledge, is indispensable for language learners to produce fluent and appropriate language. In Lewis' (2000, p. 8) words:

"….. the single most important task facing language learners is acquiring a sufficiently large vocabulary. We now recognize that much of our "vocabulary" consists of prefabricated chunks of different kinds. The single most important kind of chunk is collocation. Self-evidently, then, teaching collocation should be a top priority in every language course".

Support for this view has been provided by research in corpus linguistics (e.g. Altenberg, 1998; Sinclair, 1991; Stubbs, 2001). Further evidence has come from neurophysiological and psychological studies which indicate that the human mind is better equipped for memorizing than for creative processing. The use of ready-made multi-word expressions reduces the processing effort and thus plays a major role in language production and comprehension (Cantos & Sanchez, 2001; Nesselhauf, 2005; Prawley & Syder, 1983; Schmitt, 2004; Wiktorsson, 2003). Relying on the brief review of the literature on the issue, the present study aimed at examining the explicit teaching of metacognitive strategies on recalling collocations among HA and LA EFL learners.

## II. Methodology

### *A. Participants*

150 Iranian EFL learners (18–25 years old) of English at upper-intermediate level from different language institutes in Ardabil participated in this study. 75 learners were selected based on the scores obtained from MLAT–Elementary (MLAT–E), and a TOEFL proficiency test. Forty of them were identified as high aptitude and the 35 participants as low aptitude participants. The participants, then, were randomly assigned into two experimental groups (HA and LA individuals) and control groups (HA and LA individuals). The homogeneity of the participants was assured by the implementation of a piloted TOEFL proficiency test.

### *B. Instrumentation*

*The TOEFL as the Language Proficiency Test*

The homogeneity of the participants at upper-intermediate level was determined by an available version of piloted paper-based TOEFL (PBT) test. The test includes listening section (50 items), grammar and written expressions (40 items), and reading comprehension and vocabulary (50 items). The total score is made by adding all the results together (the total score of the test equals to 140).

### *C. Determining High and Low Aptitude Participants*

After conducting the placement test, the participants attended the MLAT–Elementary (MLAT–E). Subjects who scored above the group mean were considered to be high aptitude learners while subjects who scored below the group mean were considered to be low aptitude. The MLAT–E is considered a standardized instrument and has previously been tested for validity and reliability (e.g., M. M. Suarez Vilagran, 2010).

### *D. English Collocation in Use*

A 40-multiple-choice items test adapted from English Collocation in Use by Michael McCarthy and Felicity O'Dell (2005) was conducted as the pretest and the posttests following the treatment.

### *E. Procedure*

To administer a reliable test, a version of the TOEFL (PBT) proficiency test was piloted in a group of 30 participants similar to the characteristics of the participants of the main study. The obtained reliable test was then administered to 150 Iranian EFL learners (20-25 years old) who were determined as upper-intermediate learners. Based on the scores obtained from the test (one Standard Deviation (1SD) below and above the mean), seventy-five participants were selected as the main participants of the study. An attempt was, then, made to discriminate high and low aptitude learners. The MLAT–Elementary (MLAT–E) was administered and the results were analyzed. The MLAT–E distinguished the high and low aptitude participants resulting 40 high and 35 low language aptitude participants. The participants, then, were randomly assigned into two experimental groups (20 HA and 20 LA) and control groups (20 HA and 15 LA). Participants in both the experimental and control groups took part in a piloted test of collocations before the beginning of the treatment to present how well they were familiar with the concept of collocations. The experimental group received an explicit teaching of metacognitive strategies as the treatment plus explicit teaching of collocations based on the course book (McCarthy & O'Dell, 2005). The control group received the same instruction and materials minus the treatment. Following eight weeks of treatment (for 16 sessions), the piloted collocation posttest was administered to both the experimental and control groups in

order to observe the probable significant difference between the groups regarding their recalling of collocations. It is worth mentioning that for the pre and posttests, two similar piloted collocation tests were given to the participants in both experimental and control groups. The pretest was conducted one week prior to the treatment including 40 multiple-choice items of English collocations. Like the pretest, one posttest was also taken by the participants with the same number of items and the same format which was administered right after the treatment to both the experimental and control groups. The obtained data were plugged into SPSS version 20. The results are presented in the subsequent sections.

## III. Results

The present study aimed at investigating the relative effect of metacognitive strategies in terms of vocabulary learning, particularly the retention of collocations, by Iranian EFL learners along with their language aptitude levels as being High/Low aptitude. What follows is an account of the findings based on the obtained results including assumptions of normality tests, homogeneity of variances, various Two-Way ANOVAs, and the descriptive statistics.

Table 1. Normality tests

| Group | | N | Skewedness | | Kurtosis | | | |
|---|---|---|---|---|---|---|---|---|
| | | Statistic | Statistic | Std. Error | Ratio | Statistic | Std. Error | Ratio |
| Experimental | Pretest | 40 | .253 | .374 | 0.676 | -.412 | .733 | -0.562 |
| | Posttest | 40 | .070 | .374 | 0.187 | -.886 | .733 | -1.209 |
| | Proficiency | 40 | -.161 | .374 | -0.430 | -1.295 | .733 | -1.767 |
| Control | Pretest | 35 | .270 | .398 | 0.678 | -.950 | .778 | -1.221 |
| | Posttest | 35 | .372 | .398 | 0.935 | -.797 | .778 | -1.024 |
| | Proficiency | 35 | -.250 | .398 | -0.628 | -1.187 | .778 | -1.526 |

Table 1 shows the ratios of skewedness and kurtosis over their respective standard errors within the ranges of +/- 1.6. Therefore, the assumption of normality is met. A two-way ANOVA was run to compare the high aptitude and low aptitude experimental and control groups mean scores on the TOEFL test in order to ensure that the groups enjoyed the same level of general language proficiency prior to the main study. Before discussing the main results, it should be mentioned that the groups enjoyed homogeneous variances (Levene's F = .38, p> .05).

Table 2. Levene's test of equality of error variances

| F | df1 | df2 | Sig. |
|---|---|---|---|
| .381 | 3 | 71 | .767 |

Table 3. Two-way ANOVA TOEFL test by group and aptitude

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | $\eta^2$ |
|---|---|---|---|---|---|---|
| Group | 1.105 | 1 | 1.105 | .173 | .679 | .002 |
| Aptitude | 10.980 | 1 | 10.980 | 1.715 | .195 | .024 |
| Group * Aptitude | .576 | 1 | .576 | .090 | .765 | .001 |
| Error | 454.534 | 71 | 6.402 | | | |
| Total | 12273.000 | 75 | | | | |

There was not any significant difference between the experimental and control groups on the TOEFL test (F (1, 71) = .17, p > .05, $\eta^2$ = .002). Thus it can be concluded that the experimental and control groups enjoyed the same level of general language proficiency prior to the main study.

There was not any significant difference between the HA and LA participants on the TOEFL test (F (1, 71) = 1.71, p > .05, $\eta^2$ = .024). Thus it can be concluded that the HA and LA participants enjoyed the same level of general language proficiency prior to the main study. There was not any significant interaction between groups and aptitude on the proficiency test (F (1, 71) = .090, p > .05, $\eta^2$ = .001). However, considering the descriptive statistics, LA participants – both experimental and control groups – showed slightly higher means than the HA participants.

*Pretest of Collocation*

A two-way ANOVA was run to compare the HA and LA experimental and control groups mean scores on the pretest of recalling of collocations test in order to ensure that the groups enjoyed the same level of knowledge on recalling of collocations prior to the main study. Before discussing the main results, it should be mentioned that the groups enjoyed homogeneous variances (Levene's test of equality of error variances: F = .45, p > .05).

Table 4. Two-Way ANOVA pretest on recalling of collocations by group and aptitude

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | $\eta^2$ |
|---|---|---|---|---|---|---|
| Group | 2.491 | 1 | 2.491 | .964 | .330 | .013 |
| Aptitude | 1.013 | 1 | 1.013 | .392 | .533 | .005 |
| Group * Aptitude | 3.426 | 1 | 3.426 | 1.326 | .253 | .018 |
| Error | 183.524 | 71 | 2.585 | | | |
| Total | 15058.000 | 75 | | | | |

There was not any significant difference between the experimental and control groups on the recalling of collocations test (F (1, 71) = .96, p > .05, $\eta^2$ = .013). Thus it can be concluded that the experimental and control groups enjoyed the same level of knowledge on recalling of collocations prior to the main study. There was not any significant difference between the HA and LA participants on the pretest of recalling of collocations test (F (1, 71) = .39, p > .05, $\eta^2$ = .005). Thus it can be concluded that the HA and LA participants enjoyed the same level of knowledge on recalling of collocations prior to the main study (HA: M = 14.16, SE =

.24; LA: M = 13.93, SE = .28). There was not any significant interaction between groups and aptitude on the pretest of recalling of collocations test (F (1, 71) = 1.32, p > .05, $\eta^2$ = .018). LA participants – both experimental and control groups – showed slightly higher means than the HA participants.

*A. Posttest of Collocation*

A two-way ANOVA was run to compare the HA and LA participants experimental and control groups mean scores on the posttest of recalling of collocations test in order to examine the effect of explicit teaching of metacognitive strategies on subjects (HA and LA) recalling of collocations and which aptitude type benefited more from the instructions. Before discussing the main results, it should be mentioned that the groups enjoyed homogeneous variances (Levene's test of equality of error variances: F = 1.02, p>.05). Thus the results of the two-way ANOVA can be discussed.

Table 5. Two-Way ANOVA posttest recalling of collocations by group and aptitude

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | $\eta^2$ |
|---|---|---|---|---|---|---|
| Group | 144.457 | 1 | 144.457 | 56.790 | .000 | .444 |
| Aptitude | 60.899 | 1 | 60.899 | 23.941 | .000 | .252 |
| Group *Aptitude | 3.511 | 1 | 3.511 | 1.380 | .244 | .019 |
| Error | 180.602 | 71 | 2.544 | | | |
| Total | 19024.000 | 75 | | | | |

There was a significant difference between the experimental and control groups on the posttest of recalling of collocations test (F (1, 71) = 56.79, p < .05, $\eta^2$ = .44 representing a large effect size). Thus it can be concluded that the explicit teaching of metacognitive strategies had a significant effect on HA and LA EFL students' recalling of collocations. There was a significant difference between the HA and LA participants on the posttest of recalling collocations test (F (1, 71) = 23.94, p < .05, $\eta^2$ = .24 representing a large effect size). The HA subjects (M = 16.47, SE = .24) benefited more from the explicit teaching of metacognitive strategies than their LA counterparts (M = 14.65, SE = .27). There was not any significant interaction between groups and aptitude types on the posttest of recalling of collocations test (F (1, 71) = 1.38, p > .05, $\eta^2$ = .019 representing a weak effect size). However, the HA participants of the experimental group (M = 18.09, SE = .34) showed higher means than the LA participants (M = 15.83, SE = .37).

*B. Criterion Related Validity*

The Pearson correlation coefficient between the TOEFL test and pretest and posttest of recalling collocations was calculated as indices of validity for the latter two tests. Based on the results displayed in Table 6, it can be concluded that both pretest (r (73) = .87, p < .05) and posttest (r (73) = .52, p < .05) enjoyed significant validity.

Table 6. Pearson correlation of the TOEFL test, pretest and posttest of recalling collocations

| | | Proficiency |
|---|---|---|
| Pretest | Pearson Correlation | .873** |
| | Sig. (2-tailed) | .000 |
| | N | 75 |
| Posttest | Pearson Correlation | .523** |
| | Sig. (2-tailed) | .000 |
| | N | 75 |
| ** Correlation is significant at the 0.01 level (2-tailed). | | |

Table 7. K-R21 reliability indices

| | N | Mean | Variance | K-R21 |
|---|---|---|---|---|
| TOEFL pilot | 30 | 108.96 | 211.89 | 0.79 |
| Pilot1 | 30 | 29.66 | 24.78 | 0.81 |
| Pilot2 | 30 | 19.46 | 40.05 | 0.75 |
| Pretest | 75 | 14.050 | 41.29 | 0.89 |
| Posttest | 75 | 15.56 | 26.59 | 0.81 |
| TOEFL | 120 | 103.72 | 31.69 | 0.84 |

The K-R21 reliability indices for the TOEFL pilot, pilot tests 1 and 2, pretest and posttest of recalling collocations, and the TOEFL test are .79, .81, .75, .89, .81 and .84, respectively.

## IV. Discussion and Conclusion

The findings of the present study revealed that explicit teaching of metacognitive strategies had a significant effect on HA and LA EFL students' recalling of collocations. Secondly, the results showed that explicit teaching of metacognitive strategies does not have the same effect on HA and LA students' recall of collocations, as HA participants of the study outperformed the LA ones.

Macaro (2006), in an attempt to revise the theoretical framework of strategies used for language learning and language use, suggested a possible relationship between strategy use and second language learning success. In line with the previous researches, Mizumoto and Takeuchi (2009) examined the effectiveness of explicit instruction of vocabulary learning strategies with Japanese EFL university students and found that familiarity with such strategies amazingly affects the learners' second language vocabulary increase.

Though teaching metacognitive strategies to the second language learners of English has recorded invaluable supports, there are some researches the results of which minimize the usage of such strategies and shed doubts on their effectiveness, or at least on their applicability in certain proficiency levels. Mizumoto (2010) stressed the effect of explicit teaching of learning strategies for the enhancement of vocabulary knowledge of the learners; meanwhile, he mentions that "the learners with average proficiency level do not employ the metacognitive strategies" (p.130).

Regarding other language skills and components, various research findings support the positive effect of metacognitive strategies in the development of such skills as writing (Wenden, 1991), speaking (Chamot & Kupper, 1989), listening comprehension (O'Malley, Chamot, & Küpper, 1989; Vandergrift, 2002), and reading comprehension (Liu, Chen, & Chang, 2010; Pressley, Borkowski, & Schneider, 2010; Sen, 2012).

The findings of the present study revealed that HA students outperformed the LA students in retention of collocations following metacognitive strategy training. But this difference was not statistically significant.

Second language learners struggle to know how to study effectively and make progress in developing their language skills. Some of these learners rely on teachers and others, or on a structured language program to tell them what to do and how to study in their target language. But good language learners develop metacognitive skills which enable them to manage their own learning, thereby rendering themselves less dependent on others or on the changes of the learning situation (Griffiths, 2006).

While learning from a good teacher in a well-structured language program is very important, it is perhaps even more important for these learners to have meaningful learning experiences on their own. Good teachers and well-structured language learning programs cannot possibly teach learners everything they need to know. Getting good results from studying depends on learners' going beyond what teachers and programs provide and developing the kind of metacognitive behavior which will enable them to regulate their own learning.

In relation to aptitude, we didn't find the mediating effect between word-in-sentence component of MLAT and retention of collocations following metacognitive strategy training. However, the importance of other components of MLAT should be taken into consideration in teaching and learning settings as it is evidenced enough by other studies.

## REFERENCES

Altenberg, B. (1998). On the phraseology of spoken English: The evidence of recurrent word-combinations. In A. P. Cowie (Ed.), *Phraseology: theory, analysis and applications* (pp. 101–122). Oxford: Oxford University Press.

Ausubel, D. A. (1965). Introduction to part one. In R. C. Anderson, & D. P. Ansubel (Eds.), *Readings in the Psychology of Cognition*. New York NY: Holt, Rinehart & Winston.

Baddeley, A. D. (1999). *Essentials of human memory*. Hove: Psychology Press, Taylor & Francis.

Bolinger, D. (1976). Meaning and Memory. *Forum Linguisticum, 1,* 1–14.

Brown, H. D. (2007). *Principles of language learning and teaching* (5th ed.). White Plains, NY: Pearson Education Inc.

Cantos, P., & Sánchez, A. (2001). Lexical constellations: What collocates fail to tell. *International Journal of Corpus Linguistics, 6*, 199–228.

Carroll, J. B. (1990). Cognitive abilities in foreign language aptitude: Then and now. In T. S. Parry & C. W. Stansfield (Eds.), *Language aptitude reconsidered* (pp. 11–29). Englewood Cliffs, NJ: Prentice Hall.

Carroll, J. B. (1981). Twenty-five years of research on foreign language aptitude. In K. C. Diller (Ed.), *Individual differences and universals in language learning aptitude* (pp. 83– 118). Rowley, MA: Newbury House.

Carroll, J. B. (1962). The prediction of success in intensive foreign language training. In R. Glaser (Ed.), *Training research and education* (pp. 87–136). New York, NY: John Wiley & Sons.

Carroll, J. B., & Sapon, S. (1967). *The Modern Language Aptitude Test (MLAT)*. New York: The Psychological Corporation.

Carroll, J. B., & Sapon, S. M. (1959). *The modern language aptitude test.* New York: The Psychological Corporation.

Chamot, A. U., & Kupper, L. (1989). Learning strategies in foreign language instruction. *Foreign Language Annals*, *22*(1), 13–22.

Clark, A. (1997). *Being There: putting brain, body, and world together again*, Cambridge, MA: MIT Press.

Cohen, A. D. (1996). *Second language learning and use strategies*: *Clarifying the Issues*. New York: Newbury House.

Cohen, A. D., & Macaro, E. (Eds.). (2007). *Language Learner Strategies: Thirty Years of Research and Practice*. Oxford: Oxford University Press.

Daneman, M., & Carpenter, P. A. (1980). Individual differences in working memory and reading. *Journal of Verbal Learning and Verbal Behavior, 19*(4), 450–466.

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Erlbaum.

Ehrman, M. E., & Oxford, R. L. (1995). Cognition plus: Correlates of language learning success. *Modern Language Journal, 79*(1), 67–89.

Ellis, N., & Sinclair, S. (1996). Working memory in the acquisition of vocabulary and syntax: Putting language in good order. *Quarterly Journal of Experimental Psychology, 49,* 234–250.

Eslami-Rasekh, Z., & Ranjbari, R. (2003). Metacognitive strategy training for vocabulary learning. *TESL EJ, 7*(2), 5–15.

Gathercole, S., & Baddeley, S. D. (1990). The role of phonological memory in vocabulary acquisition: A study of young children learning new names. *British Journal of psychology, 81,* 439–454.

Gathercole, S., & Baddeley, S. D. (1989). Evaluation of the role of phonological STM in the development of vocabulary in children: A longitudinal study. *Journal of Memory and Language, 28,* 1–4.

Gathercole, S., & Martin, A. (1996). Interactive processes in phonological memory. In S. Gathercole (Ed.), *Models of short term memory* (pp. 73–100). Hove: Psychology Press.

Gathercole, S., Hitch, G., Service, E., & Martin, A. (1997). Phonological short term memory and new word learning in children. *Developmental Psychology, 33,* 966–979.

Gathercole, S., Willis, C., Emslie, H., & Baddeley, A. (1991). The influences of syllables and word likeness on children‟s repetition of non-words. *Applied Psycholinguistics, 12,* 349–367.

Griffiths, C. (2006) Strategy development and progress in language learning. *Prospect, 21*(3), 58–76.

Grigorenko, E. L., Sternberg, J. R., & Ehrman, M. E. (2000). A theory-based approach to the measurement of foreign language learning ability: The Canal-F theory and test. *Modern Language Journal,* 84, 390–405.

Harringtone, M. & Sawyer, M. (1992). L2 reading skill. *Studies in Second Language Acquisition, 14,* 25–38.

Hummel, K. M. (2009). Aptitude, phonological memory, and second language proficiency in nonnovice adult learners. *Applied Psycholinguistics, 30,* 225–249.

Kiss, C., & Nikolov, M. (2005). Developing, piloting, and validating an instrument to measure young learners' aptitude. *Language Learning, 55*(1), 99–150.

Lajooee, E., & Barimani, Sh. (2013). Contrastive study on learning vocabulary through role-play and memorization among EFL female learners. *Journal of Academic and Applied Studies, 3*(1), 1–19.

Lewis, M. (2000). *Teaching collocation: Further development in the lexical approach*. Hove, England: Language Teaching Publication.

Liu, P. L., Chen, C. J., & Chang, Y. J. (2010). Effects of a computer-assisted concept mapping learning strategy on EFL college students‟ English reading comprehension. *Computers & Education, 54*(2), 436–445.

Macaro, E. (2006). Strategies for language learning and for language use: Revising the theoretical framework. *The Modern Language Journal, 90*(3), 320–337.

Mackey, A., Philp, J., Egi, T., Fujii, A., & Tatsumi, T. (2002). Individual differences in working memory, noticing of interactional feedback and L2 development. In P. Robinson (Ed.), Individual differences and instructed language learning (pp. 181–209). Amsterdam: John Benjamins.

Mardani, M., & Moinzadeh, A. (2011). The effect of explicit training of metacognitive vocabulary learning strategies on recall and retention of idioms by advanced EFL students. *Iranian EFL Journal, 7*(3), 117–131.

McCarthy, M., & O'Dell, F. (2005). *English collocations in use.* Cambridge: Cambridge University Press.

Mizumoto, A. (2010). *Exploring the art of vocabulary learning strategies: A closer look at Japanese EFL university students.* Tokyo: Kinseido.

Mizumoto, A., & Takeuchi, O. (2009). Examining the effectiveness of explicit instruction of vocabulary learning strategies with Japanese EFL university students. *Language Teaching Research, 13*(4), 425–449.

Mohammadi Darabad, A. (2013). Does language aptitude make a difference? An investigation of the effect on oral accuracy through corrective feedback. *International Journal of Linguistics, 5*(4), 225–244.

Nesselhauf, N. (2005). *Collocations in a learner corpus.* Amsterdam: John Benjamins.

Nunan, D. (1991). *Language teaching methodology*. London: Prentice-Hall.

O'malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.

O'Malley, J. M., Chamot, A. U., & Küpper, L. (1989). Listening comprehension strategies in second language acquisition. *Applied Linguistics*, *10*(4), 418–437.

Oxford, R. (1990). *Language learning strategies*: *What every teacher should know.* New York: Newbury House.

Parry, T. S., & Child, J. (1990). Preliminary investigation of the relationship between VORD, MLAT, and language proficiency. In T. S. Parry & C. W. Stansfield (Eds.), *Language aptitude reconsidered* (pp. 30–66). Englewood Cliffs, NJ: Prentice Hall Regents.

Peterson, C.R., Al-Haik, A.R. (1976). The development of the Defense Language Aptitude Battery DLAB. *Educational and Psychological Measurement*, 36, 369–380.

Pimsleur, P. (1966). Testing foreign language learning. In Albert Valdman (Ed.), *Trends in language teaching*. New York: McGraw-Hill Company.

Prawley, A., & Syder, F. H. (1983). Two puzzles for linguistic theory: Native-like selection and native-like fluency. In J. Richards & R. Schmidt (Eds.), *Language and communication* (pp. 191–226). London: Longman.

Pressley, M., Borkowski, J. G., & Schneider, W. (2010). Cognitive strategies: Good strategy users coordinate metacognition and knowledge. *Annals of Child Development, 4*, 89–129.

Rubin, J. (1975). What the "good language learner" can teach us. *TESOL Quarterly*, *9*(1), 41–51.

Schmitt, N. (Ed.) (2004). *Formulaic Sequences*. Amsterdam & Philadelphia: Benjamins.

Sen, N. S. (2012). The affordances of mobile technologies in developing collaborative reading comprehension strategies through metacognitive instruction. *INTED2012 Proceedings, 6*, 3840–3840.

Sinclair, J. (1991). *Corpus, concordance, collocation.* Oxford: Oxford University Press.

Skehan, p. (2002). Theorizing and updating aptitude. In P. Robinson (Ed.), *Individual differences and instructed language learning* (pp. 69–93). Amsterdam: Benjamin.

Skehan, P. (1998). *A cognitive approach to language learning*. Oxford: Oxford University Press.

Skehan, P. (1989). *Individual differences in second language learning*. London: Arnold.

Sparks, R. L., Patton, J., Ganschow, L., & Humbach, N. (2011). Subcomponents of Second-Language Aptitude and Second-Language Proficiency. *The Modern Language Journal*, *95*(2), 253–273.

Stern, H. H. (1992). *Issues and options in language teaching*. Oxford: Oxford University Press.

Stubbs, M. (2001). *Words and phrases: Corpus studies of lexical semantics*. Oxford: Blackwell.

Suarez Vilagran, M. M. (2010). *Language aptitude in young learners: The elementary modern language aptitude test in Spanish and Catalan*. Doctoral Dissertation: Department of Flologia Anglesa i Alemanya.

Vandergrift, L. (2002). It was nice to see that our predictions were right: Developing metacognition in L2 listening comprehension. *Canadian Modern Language Review*, *58*(4), 555–575.

Van Dijk, T. A., & Kintsch, W. (1983). *Strategies of discourse comprehension*. New York: Academic Press.

Wenden, A. (1991). *Learner strategies for learner autonomy*. London: Prentice-Hall.

Wenden, A. L., & Rubin, J. (Eds.). (1987). *Learner strategies in language learning*. London: Prentice Hall.

Wiktorsson, M. (2003). *Learning idiomaticity: A Corpus-based study of idiomatic expressions in learners' written production*. PhD thesis, Department of English Lund University.

Winke, P. (2013). An Investigation into Second Language Aptitude for Advanced Chinese Language Learning. *The Modern Language Journal*, *97*(1), 109–130.

Zarei, A., & Koosha, M. (2003). Patterns of Iranian advanced learners‟ problems with English collocations: A focus on lexical collocations. *Iranian Journal of Applied Linguistics*, *6*(1), 137–169.