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The Role of Personality Types in Explicit Teaching of Metacognitive Strategies: A Case of Collocations

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Abstract

The present study investigates the effect of metacognitive vocabulary learning strategy instruction on the recall of collocations. To this end, 75 extravert and introvert students were selected. The participants, then, were randomly assigned to two control and two experimental groups based on the TOEFL test score at upper intermediate level and Eysenck Personality Questionnaire (EPQ). Both experimental and control groups (each group containing two extravert and introvert sub-groups that totally form four groups) received the same type of collocation instruction, but the experimental group, in addition, received the metacognitive

explicit strategy instruction. Meanwhile, our control groups received placebo. A pretest measuring the subjects' knowledge of collocations was administered. During the first parts of sessions, the class time was allocated to teaching collocations. The last thirty minutes of each session was dedicated to metacognitive strategy instruction in the experimental group. Treatment continued for eight weeks. At the end, a two-way ANOVA was run to compare the two groups plus the effect of personality on such performance. The results indicated that treatment did have an effect on the recall of collocations and also the extravert students enjoyed better performance compared to their introvert counterparts.

Keywords: Personality factors, Metacognitive strategies, Explicit strategy instruction, Collocation, Recall

1. Introduction

Language proficiency is the main offspring of both linguistic and psychological conditions. In terms of psychological conditions, language learners differ in how effectively they get advantage of and adapt to instruction. In predicting language learners' level of proficiency, achievement, and also their capability to get the advantages of various learning and teaching strategies, we need to take some individual differences among the learners into considerations. Motivation, aptitude, attitude, personality types, and anxiety are some of the most important existing differences among the learners. As such, a good number of studies (e.g., Ehrman, Leaver, & Oxford, 2003; Mohammadi Darabad, 2013a, 2013b) have focused on the effects of individual differences on language learning in classroom.

Focusing on personality, as the moderator variable of this study, it is defined as a collection of behavioral patterns and emotional thought that are 'individual-specific' and are relatively stable over time (Sharp, 2008). According to the theory of personality, individuals are considered to be different. They are characterized by their unique patterns of temperaments, dispositions, and types. It is also claimed that by using these factors it is possible to predict and explain individual differences in different conditions and situations such as job satisfaction, mental health, and work performance (Barrick & Mount, 1991; Judge, Heller, & Mount, 2002).

Meanwhile, in conducting personality research, the question of how many basic dimensions are needed to distinguish the individuals based on their personality types is of great importance. A number of scholars have introduced hierarchical models that classify behavioral measures into higher-order clusters. The Big Five model is one of the famous hierarchical models (Digman, 1994; Goldberg, 1993; McCrae & Costa, 1999). However, there are other somehow equally notable models which try to account for this phenomenon. Among them are Cattell's (1987) 16 Factors Model, Eysenck's (1970) Big Three factors of Psychoticism, Extraversion, and Neuroticism (PEN), and the Big Six model of Ashton and Lee (2007) which added Honesty–Humility dimension to the Big Five. In all the models, introversion and extraversion occupy a paramount position bearing testimony to the critical role the type plays in the overall performance of learners in general, and the language learning performance in particular. However, the focus on extraversion-introversion dichotomy has only briefly appeared in the applied linguistics literature since the 1990s as a potential correlate of language learning (e.g., Dewaele & Furnham, 2000; Goldberg, 1993; Hwu, 2007; Taylor & MacDonald, 1999; Zhang, 2003).

In addition to personality factors, the instructional options of teachers also play a crucial role in developing language proficiency in general and learning vocabulary in particular. One of the most significant of such options is the explicit teaching of metacognitive strategies.

Metacognition is a bridge between areas such as thinking and memory, learning and motivation, and learning and cognitive development (Metcalfe & Shimamura, 1994).

Livingston (2003) defines metacognition as thinking about thinking. In other words, metacognition corresponds to higher order thinking which involves regulating and overseeing

the cognitive processes of learning. He also specifies that activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature.

Flavell (1987) believes that metacognition is associated with knowledge about cognitive issues. Flavell, the pioneer in the field, attempted to classify metacognition. He created a taxonomy consisting of two key concepts which are metacognitive knowledge and metacognitive regulation. Metacognitive knowledge, on the one hand, reflects the acquired knowledge about cognitive processes which can be used to control cognitive processes. Metacognitive regulation, on the other hand, refers to employing metacognitive strategies which are sequential processes adopted by learners in order to control cognitive activities. These processes which involve planning and monitoring cognitive activities, as well as inspecting the outcomes of those activities aid in regulating any type of learning like English language learning.

Language learning strategies and vocabulary learning are considered as the two common themes in foreign language learning, and they have taken up too much room in SLA research. According to Zimmerman, vocabulary is central to language and language learning. As a subcategory of vocabulary, collocations are believed to be the stumbling block for second and especially foreign language learning. Strategies, however, are believed to be facilitator of learning, storage and recall of information. Oxford (1990) asserts that there is convincing evidence that people who use these strategies is more successful than the ones who do not use them. This means that appropriate and tactful use of language learning strategies helps learners overcome most of their learning problems. But, a problem that challenges most EFL/ESL students (and sometimes teachers) is that some of the words they learn or memorize will soon be forgotten or hard to retrieve in real context of use. This problem raises the question of 'why students cannot remember the meaning of words after the first encounter.'

The most likely answer to this question is provided by Hulstijn (1997). He believes that language learners try enough for immediate comprehension but not enough attempts for the retention over the time. For retention to take place over time, learners need to make effort to establish a link between the words and their meanings. As far as the definitions of recall and retention are concerned it should be pointed out that to date there is no unanimous definition on the time interval between the first exposure and the second encounter. In other words, there is no certain amount of time that can be considered as short term recall or long term retention. In this study recall and retention have been operationally defined in the following ways. What is meant by immediate recall is the ability of learners to remember the material immediately at the end of treatment in each session. This notion is driven from Laufer's (2003) definition for short-term recall. Based on this definition, immediate recall is usually measured right after, or after a short intervention, conducting a task that is supposed to lead to recalling the information. He articulates that in the case of vocabularies, in our case collocations, you can examine the retention of these words right after the intervention or ask the learners to do another task for 10-20 minutes and after that try to examine the target vocabularies. On the other hand, to check the long-term retention, some researchers administer a test a month or even three months after the intervention. The others might repeat

the measurement several times. But, in practice, administering vocabulary test may have some practical problems long after initial exposure. Accordingly, Laufer suggests vocabulary testing three weeks after instruction.

The present study aimed at examining the explicit teaching of metacognitive strategies on recalling collocations among introvert and extravert EFL learners. Although the recorded literature on metacognitive strategies and their implications in teaching various skills and components of language are vast, e.g., writing (Wenden, 1991), speaking (Chamot & Küpper, 1989; Cohen et al., 1998), listening comprehension (O'Malley, Chamot, & Küpper, 1989; Vandergrift, 2002), and reading comprehension (Pressley, Borkowski, & Schneider, 2010; Liu, Chen, & Chang, 2010; Sen, 2012), scarcity of empirical research concerning teaching metacognitive strategies to help learners develop knowledge of second language collocations and their recall is obvious.

2. Literature Review

2.1 Extraversion-Introversion

The term extravert and introvert were first used and developed by Carl Gustav Jung as part of his type theories (Jung et al., 2002); since then extraversion and introversion (E/I) have become a generally and widely acknowledged and used personality construct. These two personality types have been investigated broadly from two perspectives: the biological and the social. From a biological point of view, E/I can be discussed in relation to the arousal level in the cortex of the brain. Eysenck (1981) states that extraverts are underaroused, i.e., less excited, and introverts are overaroused, i.e., over excited, in terms of cerebral activity. Following this prediction, Wilson and Languis (1990) confirmed Eysenck's prediction. Underaroused people, later called extraverts, inevitably seek more stimuli outside themselves and their orientation of energy is toward the outer world (figure 1). On the other hand, overaroused, called introverts, do not need extra stimuli because they have sufficient internal stimuli, so their orientation of energy is toward an inner world. Thus, "extraverts tend to turn outward and introvert tend to turn inward" (Wakamoto, 2007, p. 7).

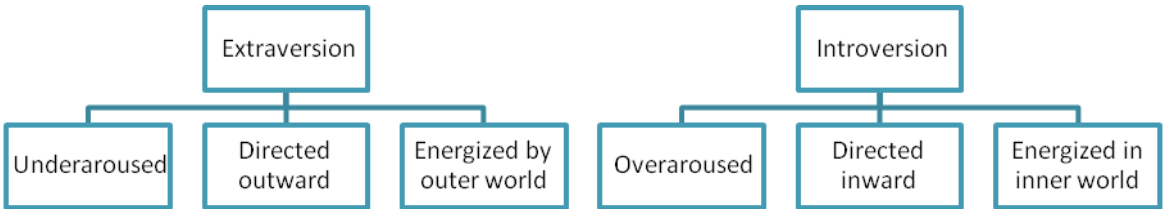

Figure 1. Orientation of energy (cited in N. Wakamoto, 2007, p. 7).

From social point of view, extraverts are energized by the interaction with the outer world, people or things, and are active and outgoing and they take the attitude of 'live it, and then understand it.' On the other hand, introverts are energized by concentration on the inner world, thoughts and concepts, and are reflective and inwardly directed, and they take the attitude of 'understand it, before living it.' Characteristic behaviors of extraverts and introverts are summarized in Table 1.

Table 1. Characteristic Behaviors of Extraverts and Introverts.

	Extraverts	Introverts
Sociability/Interaction	Like parties, need to have people to talk to.	Reserved and distant except to intimate friends.
Excitement	Crave excitement; act on the spur of the moment.	Do not like excitement, distrust the impulse of the moment.
Expenditure of energies	Carefree, easygoing, optimistic, like to laugh and the merry, altogether their feelings are not kept under tight control.	Reliable, take matters of everyday life with proper seriousness. Pessimistic, quiet, retiring sort of person, introspective.
Risk-taking/Planning	Take chances, generally like change.	Plans ahead, 'look before they leap', like a well-ordered mode of life.
Interests in external events	Do not like reading or studying alone.	Fond of books rather than people.

(Based on Eysenck & Eysenck, 1975, cited in N. Wakamoto, 2007, p. 10).

2.2 Empirical Studies on Personality Types

The focus on a particular psychological dimension (extraversion-introversion) has briefly appeared in the applied linguistics literature since the 1990s (e.g., Dewaele & Furnham, 2000; Goldberg, 1993; Hwu, 2007; Taylor & MacDonald, 1999; Zhang, 2003), as a potential correlate of language learning. According to Dewaele and Furnham (2000), it has been demonstrated that extraversion is inextricably linked with fluency in second language (L2) production. For this, they drew upon findings in different disciplines: the research on short-term memory, which showed that capacity correlates with fluency. Psycholinguistic and applied linguistic studies, which showed that second language production is less fluent than first language (L1) production because it needs more conscious interventions by the speaker that risks to overload his/her working memory. Finally, studies by personality psychologists, which show that extraverts have a better short-term memory, are more stress-resistant and are less anxious in second language production.

Muniz-Fernandez and Granizo (1981) stipulates that various discipline including applied linguistics, educational psychology, and personality psychology have carried out some studies on language and extraversion; these studies were conducted in different methodologies and expectations. Meanwhile, according to Furnham (1990), speech production is not that much interesting for personality theorists to warrant in-depth examination. He also believes that finding the appropriate level for analysis is another problem. Personality research theoreticians are eager to explain linguistic behavior at a universal level and they are reluctant to examine linguistic subsystems in detail. Multiplicity of theories in personality research make the psycholinguists and sociolinguists confused and they seem uncertain of which traits to measure and at which level. The study didn't show any simple direct relationship between learning strategies, personality and second language proficiency. Some other studies have also failed to find any direct, simple relationship in their research on the issue (e.g., Carrell, et al., 1996; Ehrman & Oxford, 1995).

Based on the findings of several studies, extraverts were found to be superior to introverts in short-term memory. Among them is the finding of Eysenck (1981) that to retrieve information from long-term memory introverts need more time than extraverts do (Dewaele & Furnham, 2000). Eysenck believes that this difference could be driven from the overarousal of the introverts. Therefore, introverts would not get the advantage in conducting the tasks that involve processing of several items of information.

2.3 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.

Recently 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.

A study was also 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.

2.4 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.

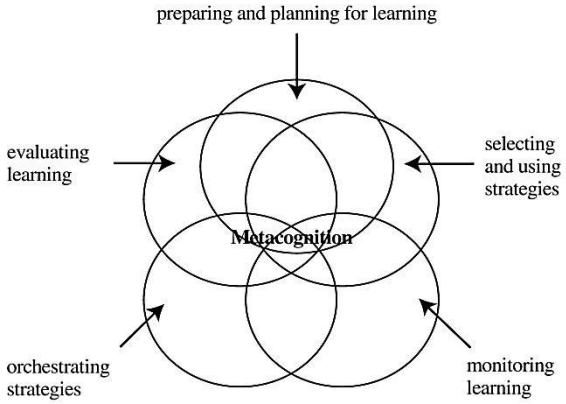

Figure 2. The Relationship among the Existing Metacognitive Strategies

The above figure can be helpful in remembering and understanding the relationship among the existing metacognitive strategies (Anderson, 2008).

2.5 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).

2.6 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 to Clark (1997) "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). Clark (1997) 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, p. 14) 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 & Snchez, 2001; Nesselhauf, 2005; Pawley & 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 introvert and extravert EFL learners.

3. Methodology

3.1 Participants

The initial participants of this study were 150 Iranian EFL learners (18–25 years old) of English at upper-intermediate level from different language institutes in Ardabil. To begin the study, the required warrants and permission were obtained from the learners and the target institutes. Some stimuli were also provided for motivating the learners to participate in the study. Of these participants, based on the scores taken from Eysenck Personality Questionnaire (EPQ), and a TOEFL proficiency test, 75 learners were selected. Forty of them were extraverts and the 35 participants were introverts. The participants were randomly assigned into two experimental groups (extravert and introvert) and two control groups (extravert and introvert).

The TOEFL proficiency test was first piloted with 30 students with similar characteristics to that of the main participants of the study to check its reliability and then the test was implemented for the purpose of homogenizing the sample of the study and to make sure that the study enjoys homogeneous participants with respect to the participants' English language proficiency.

3.2 Instrumentation

3.2.1 The TOEFL as the Language Proficiency Test

To homogenize the students at upper-intermediate level, an available version of paper-based TOEFL (PBT) was first piloted and then used. The test which is comprised of three parts includes listening (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). The administration of the whole test took around 2 hours.

3.2.2 Eysenck Personality Questionnaire (EPQ) (1985)

In psychology, EPQ is a questionnaire to assess the personality types of a person. The psychologists Hans Jurgen Eysenck and his wife Sybil B. J. Eysenck devised it. The original questionnaire consists of 100 yes/no items and the revised and short form has 57 yes/no items in which the examinees should choose the answer that is close to their feelings. In this study,

the short form was used. EPQ is a reliable research tool that is validated by criterion analysis. Karanci, Dirik, and Yorulmaz (2007) and Alexopoulos and Kalaitzidis (2005) have proved the reliability and validity of this questionnaire. The disadvantage of the questionnaire is that it asks yes/no questions which forces a sometimes-inaccurate response, and it can be psychometrically inferior.

3.2.3 English Collocation in Use

The other instruments in the pre and post treatment stages were two tests of Collocation consisting of 40 multiple-choice items based on *English Collocation in Use* by Michael McCarthy & Felicity O'Dell (2005) which were developed by the researcher and used as the pre and posttests.

3.3 Procedure

In the first step, a version of the TOEFL (PBT) proficiency test was piloted in a group of 30 participants to make sure of its reliability and then the test was administered to 150 participants who were upper-intermediate EFL learners with the age range of 18 to 25 in Ardabil, Iran. Seventy-five participants whose scores fell one Standard Deviation (1SD) below and above the mean were selected as the main participants of the study. After selecting the main participants, an attempt was made to figure out their personality type. The Eysenck Personality Questionnaire was administered and the results were analyzed. The EPQ distinguished the extravert and introvert participants resulting 40 extraverts and 35 introverts. The participants, then, were randomly assigned into two experimental groups (20 extraverts and 20 introverts) and two control groups (20 extraverts and 15 introverts). Participants in both the experimental and control groups sat for a piloted test of collocations before the beginning of the treatment to present how well they were familiar with the concept of collocations prior to the treatment level. The experimental group received the treatment in the form of explicit teaching of collocations based on the course book of collocations (McCarthy & O'Dell, 2005) plus an explicit teaching of metacognitive strategies. The control group received the same instruction and materials minus explicit manipulation of metacognitive strategies. Following eight weeks of treatment (for 16 sessions) the posttest, which was a piloted test of collocations, was administered to both the experimental and control groups in order to see if there was any significance difference between the groups regarding their recalling of collocations.

Two similar but not identical piloted collocation tests shaping a pretest and a posttest were given to the learners 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 data collected through running the pre and posttests were plugged into SPSS version 20 for the required statistics including assumptions of normality tests, homogeneity of variances, various Two-Way ANOVAs, and the descriptive statistics, and the results were reported.

4. 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 personality types as being extravert/introvert. What follows is an account of the findings based on the obtained results.

Table 2. Normality tests

Group		N	Skewness		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

As displayed in Table 2 the ratios of skewedness and kurtosis over their respective standard errors are within the ranges of *+/- 1.6*. Therefore, the assumption of normality is met.

A two-way ANOVA was run to compare the extravert and introvert experimental and control groups mean scores on the TOEFL test in order to prove 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*). Thus the results of the two-way ANOVA can be discussed.

Table 3. Levene's test of equality of error variances

F	df1	df2	Sig.
.381	3	71	.767

Table 4. Two-way ANOVA TOEFL test by group and personality

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Group	1.105	1	1.105	.173	.679	.002
Personality	10.980	1	10.980	1.715	.195	.024
Group * Personality	.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, η^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 extravert and introvert participants on the TOEFL test ($F\ (1, 71) = 1.71, p > .05, \eta^2 = .024$). Thus it can be concluded that the extravert and introvert participants enjoyed the same level of general language proficiency prior to the main study.

There was not any significant interaction between groups and gender on the proficiency test ($F\ (1, 71) = .090, p > .05, \eta^2 = .001$). However, considering the descriptive statistics, introvert participants – both experimental and control groups – showed slightly higher means than the extravert participants.

4.1 Pretest of Collocation

A two-way ANOVA was run to compare the extravert and introvert experimental and control groups mean scores on the pretest of recalling of collocations test in order to prove 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: $F = .45, p > .05$). Thus the results of the two-way ANOVA can be discussed as follows.

Table 5. Two-Way ANOVA pretest on recalling of collocations by group and personality

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Group	2.491	1	2.491	.964	.330	.013
Personality	1.013	1	1.013	.392	.533	.005
Group * Personality	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 extravert and introvert 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 extravert and introvert participants enjoyed the same level of knowledge on recalling of collocations prior to the main study (extraverts: $M = 14.16, SE = .24$; introverts: $M = 13.93, SE = .28$).

There was not any significant interaction between groups and personality on the pretest of recalling of collocations test ($F\ (1, 71) = 1.32, p > .05, \eta^2 = .018$). Introvert participants – both experimental and control groups – showed slightly higher means than the extravert participants.

4.2 Posttest of Collocation

A two-way ANOVA was run to compare the extravert and introvert participants experimental and control groups mean scores on the posttest of recalling of collocations test in order to probe the effect of explicit teaching of metacognitive strategies on subjects (extravert and introvert) recalling of collocations and which personality 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 6. Two-Way ANOVA posttest recalling of collocations by group and personality

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	η^2
Group	144.457	1	144.457	56.790	.000	.444
Personality	60.899	1	60.899	23.941	.000	.252
Group * Personality	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 extravert and introvert EFL students' recalling of collocations.

There was a significant difference between the extravert and introvert participants on the posttest of recalling collocations test $(F (1, 71) = 23.94, p < .05, \eta^2 = .24$ representing a large effect size). The extravert subjects $(M = 16.47, SE = .24)$ benefited more from the explicit teaching of metacognitive strategies than their introvert counterparts $(M = 14.65, SE = .27)$.

There was not any significant interaction between groups and personality 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 extravert participants of the experimental group ($M = 18.09$, $SE = .34$) showed higher means than the introvert participants $(M = 15.83, SE = .37)$.

4.3 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 4.17, it can be concluded that both pretest $(r (73) = .87, p < .05)$ and posttest $(r (73) = .52, p < .05)$ enjoyed significant validity.

Table 7. 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 8. 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.

5. Discussion and Conclusion

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

Both of these findings are in line with the findings of other researchers recorded in the literature: Schmidt (1990) argued that attention and explicit teaching are necessary for learning and Tomlin and Villa (1994) focused on the conception of attention and its effect on the second language development. Huckin and Coady (1999) discussed the insufficient nature of incidental learning of second language vocabulary and stress that the concepts such as "the degree of exposure to a word needed for successful acquisition, the efficacy of different word-guessing strategies, the value of teaching explicit guessing strategies, the influence of different kinds of reading texts, and the effects of input modification should not be neglected" (p.181). Fraser (1999) ran a research concerning the effect of training the learners with lexical processing strategies (LSPs) and the effect they might have on the learners' vocabulary knowledge development and found that "LPSs lead to higher retention rates than other

strategies" (p. 225).

Gu (2003) also argued that explicit teaching of vocabularies widely affects their retention in the learners' mind. Nassaji (2003) examined the use of strategies and knowledge sources in L2 lexical inferencing and their relationship with inferential success and could "support an inferencing model that distinguishes between strategies and the ability to use them appropriately and effectively in conjunction with various sources of knowledge in lexical inferencing" (p. 945).

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 (Garner, 1987; Liu, Chen, & Chang, 2010; Pressley, Borkowski, & Schneider, 2010; Sen, 2012).

The findings of the present study revealed that extravert students outperformed the introvert students in retention of collocations following metacognitive strategy training. But this difference was not statistically significant at alpha level of .05. Some studies have found difference in language learning success related to personality and teachers continue to regard personality as of considerable importance in learning (e.g., Blease, 1986). However, there have been other studies that have also failed to find any relationships. Carrell, et al. (1996), Ehrman and Oxford (1995), for example, failed to find any direct, simple relationships in their research on the issue. Why then, does the current study, like some others, have such difficulty in establishing mediating relationships between these variables? One reason may be that personality preferences, as set out in the EPQ, give no indication of student maturity, motivation, or of situational factors (a point also noted by Carrell, et al., 1996). It is also possible that these mixed findings are related to the learners' developmental readiness, i.e., they were more ready to acquire some features than the others were.

The notion of developmental readiness derives from early work in SLA, which showed that learners follow a relatively fixed, universal order of acquisition and manifest clear

developmental sequences in the acquisition of specific structures (Ellis, 2002). Thus, if the recasts or any other CF technique target features that a learner is developmentally primed to acquire, potentially those techniques will be effective; if the techniques target features that lie too far beyond the learner's current stage of development, they are likely to fail.

6. Concluding Remarks

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, 2008).

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 personality, we didn't find the mediating effect between personality and retention of collocations following metacognitive strategy training. However, the importance of other personality types should be taken into consideration in teaching and learning settings as it is evidenced enough by other studies.

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Glossary

EPQ: Eysenck Personality Questionnaire