

Iranian Intermediate Extroverted vs. Introverted Learners and Metacognitive Strategies

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Abstract

Metacognitive strategies are related to individuals' executive functions; strategies that involve planning for learning, thinking about learning process as it is taking place, monitoring of one's production or comprehension, and evaluating learning after an activity is completed. To conduct this research 60 subjects have been randomly chosen after administrating a PET. The subjects were assigned into two groups of 30 students of which one included introverted learners and the other one included extroverted learners. The teacher encouraged all learners to use some metacognitive strategies while reading texts. These strategies are as following: 1. Referring meaning through word analysis, 2. Using background knowledge, 3. Guessing the later topic, 4. Centering learning, 5. Arranging and planning leaning, and 6. Elaborating learning. After 10 sessions using the strategies a post-test was administered and the result showed that the introverted students had higher marks and they had better reading performance in comparison with the extroverted students.

I. INTRODUCTION

Using language learning strategies affect EFL students' language performance (Brown, 1989). However no important research has been done on investigating the effect of metacognitive strategies on personality types particularly introversion and extroversion. This study will attempt to add evidence to the findings of effect of metacognitive language learning strategies on reading achievement of extroverted and introverted Iranian Intermediate learners.

This study might contribute to the literature by providing additional data and analysis on the effect of metacognitive strategies, and might encourage learner to be aware of these kinds of strategies. It will be beneficial for the students in general to gain insight into

possible contributing factors to their own language learning, and therefore make better decisions on how to enhance their performance. EFL teachers would also benefit from the results of this study in order to decide how to implement their teaching goals in accordance with students' various choice of metacognitive strategies related to their extroversion-introversion personality styles. This study intends to become a pathway for further studies in finding the influence of language learning strategies particularly metacognitive strategies on the other personality types of language learners.

Many researches and theories in second/foreign language learning suggest that successful language learners use variety of strategies to help them to learn a new language. In the past two decades, teachers tried to teach those strategies to less successful and less competent learners and they could also promote their role as a teacher in helping students to achieve success. In addition to knowing learning strategies, learners have their own unique learning styles.

Several research studies in cognitive psychology (O'Malley, 1987; Rubin, 1981; Wenden, 1998) have reported that in order to improve learning, It is most effective to teach both cognitive and metacognitive strategies. Vandergrift (2005) argued that successful learners appear to use more metacognitive strategies than unsuccessful learners do. It was introduced in the late 1970s and has received a great deal of attention from cognitive psychologists. "Metacognition" according to Livingston (1997) is one of the latest buzz words in educational psychology. Generally, metacognition refers to thinking about one's own thinking and controlling one's own learning. Metacognition refers to higher order thinking which involves active control over cognitive processes engaged in learning. 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. Because metacognition plays a critical role in successful learning, it is important to study metacognitive activity and how students can be taught to better apply their metacognitive resources through metacognitive control.

Several studies have shown that people show different behaviors in the same educational setting. These differences are originated from individual variations (Busch, 1982; James and Gardner, 1995) . Each learner is a complicated person and has psychological, biological, physical, social, cognitive and affective characteristics which identify his/her position and capability toward language learning. Among all these attribution, affective factors, especially one of its particular dimensions, 'personality traits' play considerable role in language learning. According to Busch (1982) "personality is one of the individual differences which is widely accepted to have an influence on learning in general and language learning in particular" (p.1). James and Gardner (1995) define learning style as the "complex manner in which, and conditions under which, learners most efficiently and most effectively perceive, process, store, and recall what they are attempting to learn" (p. 20). Similarly, Griggs and Dunn (1988) define learning style as the way in which each individual starts to concentrate on, process, and retain new information.

II. REVIEW OF LITERATURE

In this section some previous studies will be examined. First of all, some studies regarding learning style dimensions and also personality styles are presented. Then the distinction between extroversion and introversion are discussed by the author. After that, some previous studies regarding metacognition and metacognitive strategies are presented and a distinction between cognitive and metacognitive strategies has been made. Studies in the field of metacognitive strategies and achievement and also studies regarding metacognitive strategies and reading comprehension are both included in literature review too.

A. Learning Style Dimensions

In the field of second language learning, learning styles have been thought of as a key factor in learning a new language successfully. Learners have clear preferences for how they go about learning a new language (Reid, 1995). There are many definitions of learning styles. Dunn and Griggs (1988) defined learning style as "the biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others" (p. 3). Moreover, Reid (1995) stated that the term learning style refers to an individuals' natural, habitual and preferred way of absorbing, processing, and retaining new information and skills. According to Spolsky (1989) learning styles were individuals' identifiable approaches to learning situations. Oxford and Anderson (1995) classified learning styles according to six interrelated aspects: cognitive, executive, affective, social, physiological and behavioral. Based on Oxford & Anderson (1995) Cognitive elements include preferred or habitual patterns of mental functioning, often known as cognitive styles. The executive aspects deal with the degree to which the learner seeks order, organization and manages his or her own learning process. The affective aspects refer to a group of attitudes, beliefs and values that influence what an individual will pay most attention to in a learning environment. The social aspects reflect the preferred extent of involvement with other people while learning. The physiological aspects constitute sensory and perceptual tendencies of the learner. The behavioral aspects relate to a tendency or situations compatible with ones' own learning preferences.

According to Ehrman (1996) the categories and dimensions of learning styles are varied according to preferences and personalities. Keefe (1979) defines learning style under the three broad subheadings of physiological, cognitive, and affective traits. In terms of physiological traits, Reid (1998) identifies the major perceptual style preferences as visual, auditory, and kinesthetic. Lightbown and Spada (1999) identified those people who cannot learn something until they have seen it as visual learners. Others seem to learn when they hear something once. Those learners are called aural learners. Those who prefer to do physical actions in the learning process are called kinesthetic learners. Cognitive learning styles also include several variables. Ellis (1986) defines cognitive learning style as "the manner in which people perceive, conceptualize, organize, and recall information" (p. 114). Ehrman (1996) divided cognitive learning styles into sequential-random, concrete-abstract, global-analytic, and deductive-inductive dimensions. According to Ehrman (1996), the sequential learner wants to learn step by step, that is, following a logical order, usually that

provided by a textbook and curriculum. Random learners, in contrast, tend to find their own learning sequence, making connections between new and old knowledge. Ehrman describes a concrete learner as one who “needs direct sensory contact with the language and its meaning” (P. 68). Abstract learners, however, are likely to show a preference for discussion of abstract topics. For the inductive learning style, induction begins with data and seeks the generalizations that can be extracted from them.

Learning styles consist of three broad categories: cognitive, perceptual, and personality styles. Cognitive styles refer to the manner in which learners perceive, organize, and recall information (Ellis, 1986). Various classifications have been made to categorize the most important cognitive styles. Ehrman (1996) classified them as sequential-random, concrete-abstract, global-analytic, field-dependent versus field-independent, intuitive-random, and concrete-sequential. Nelson (1995) described a global learner as a person who begins with the whole picture, while the analytic learner begins with the separate parts and pieces them to make a whole. Worthley (1987) explained field-independent learners as those who prefer to compete and gain individual recognition, and who are often task oriented. They prefer learning that emphasizes the details of concepts. However, field-dependent learners usually have trouble differentiating specific details in background information. Such learners are holistic and see themselves as part of a larger universe. According to Oxford and Anderson (1995), intuitive-random learners try to construct a mental model of the second language information. They deal best with the big picture in an abstract mode and try to find underlying language components. Concrete-sequential learners, on the other hand, prefer language learning materials that involve sound, movement, sight, and touch that can be applied in a concrete, sequential manner.

According to Oxford & Anderson (1995) perceptual learning styles are another category of learning styles. Perceptual learning styles or sensory preferences refer to learners' preferred way of absorbing, or learning new things through physiological sensory channels. Visual, auditory, and hands-on styles are the primary categories of perceptual styles. Visually oriented students like to read and obtain a great deal of visual stimulation. Lectures and oral direction without visual backup are confusing for them. However, auditory students are comfortable with oral directions and interactions unsupported by visual stimuli. Hands-on or kinesthetic students like to move and enjoy working with tangible objects. They need frequent physical action and dramatic activities (Oxford & Anderson, 1995).

III. METHODOLOGY

A. Participants

In the first step of the study, an institute was selected to do the whole experimental part of the study. So Ayandehsazan English Language institute in Varamin was selected. The subjects participating in this study were 64 Iranian students of intermediate levels. The selected participants were male and female ranged from 15 to 18 years of age. For the researcher to make sure whether the participants were at the same intermediate proficiency level, the PET (Preliminary English Test) for schools proficiency test was administered. In

fact, PET was administered to determine the homogeneity condition of classes. After that Eysenck Personality Inventory was administered to participants in order to classify them into categories of introverts and extroverts. Each group consists of thirty two students. Group one are learners who have introversion learning style and group two are learners who have introversion learning style.

B. Instrumentation and Materials

Considering the participants of the study, the instruments employed in this study included (a) Preliminary English Test (PET) as a means of estimating the participants' level of proficiency, (b) Eysenck Personality Inventory (EPI) that served to measure extroversion vs. introversion trait of the participants, (c) A pre-test of reading comprehension which contains four reading comprehension passages followed by twenty five multiple choice items, (d) A post-test of reading comprehension which like pre-test contains four reading comprehension passages and it has twenty five multiple choice items.

C. Procedure

In the first step We used the homogeneity test so as to evaluate the students' level and determine whether they are at the same level of proficiency or not. Therefore, PET test was selected since this kind of test is designed for Intermediate levels. Out of 300 learners taking the test 200 learners were chosen. In the second step The Eysenck Personality Questions was administered to select extrovert and introvert groups. This test quantified four psychological traits of extroversion (E scale), neuroticism (N scale), psychotism (P scale) and Lie (L scale). It must be stated here that division of the learners into categories of introverts/extroverts is a thorny issue and is based on the number of response they provide to the Yes/No questions. Since this study focused on extroversion and introversion alone and it was not concerned with other psychological traits, the researcher administered only E scale items to participants. Then students were divided into two groups of introverts and extroverts and both groups received the same pre-test and post-test in treatment. The number of students in each group was 32. The students in two groups received 10 sessions of 45 minute treatment, three sessions of a week which contained teaching reading comprehension through metacognitive strategies. First of all the pre-test was administered to students in order to check their current level of reading comprehension. The pre-test contained four reading comprehension passages which contained twenty five multiple choice items. After that students answered the pre-test the main treatment started and the teacher tried to teach reading skill through metacognitive strategies. Strategies which were taught are as follows:

1. Inferring meaning (through word analysis): While I am reading try to determine the meaning of unknown words that seem critical to the meaning of the text.
2. Using background knowledge: While I am reading, I reconsider and revise my background knowledge about the topic, based on the text's content.

3. Guessing the later topics: While I am reading, I anticipate information that will be presented later in the text.
4. Centering learning: I take an overall view of the text to see what it is about before reading it and while I am reading, I pay closer attention to what I am reading.
5. Arranging and planning learning: While I am reading, I try to decide what to read closely and what to ignore (purposeful reading).
6. Evaluating learning: While I am reading, I try to determine which errors are important (those that cause serious confusion), track the source of important errors, and try to eliminate such errors, furthermore, I try to evaluate my own progress in reading, for instance, by checking to see whether I am reading faster and understanding more than 6 month ago, or whether I am understanding a greater percentage of each conversation.

After the treatment was done, both groups received the same post-test to assess the effect of treatment session. It was done two weeks after the final session of treatment. The post-test was the same as pre-test. It contained four reading comprehension passages with twenty five multiple choice items. Then the mean obtained from the groups were compared through an independent sample T-Test and the overall result of both groups in pre-test and post-test was analyzed by 'ANCOVA' in order to find the significance difference between two groups.

D. Design

Among several research design, the one which seems to best fit the purpose of the present study is the quasi-experimental research; pretest-posttest nonequivalent control design (Hatch and Farhady, 1981; Seliger and Shohamy , 1998), since there was no random selection and also there was no control over the enrollment of the participants in the institute or including any member to the groups of the study. Furthermore, a pretest and posttest were administered to the intact groups for the research purpose, respecting the design of the study, both experimental groups had the same condition for the treatment. Then a pairedsample T-Test used to compare the mean scores of pre-test and post-test in extrovert group. Also anotherpaired sample T-test was used to compare mean score of pre-test and post-test in introverted group. Then in order to find the exact difference between groups, 'ANCOVA' was used.

E. Data Analysis

To test the hypothesis formulated in this study,the researcher usedpaired sample T- test to analysis and compare the means obtained from the pre-test and post-test in each group,to determine whether there existed a significant difference between being extrovert or introvert and reading comprehension progress.

At the beginning of the study, in order to determine whether there was any significant difference in the reading comprehension of the learners in the two groups, the statistical

technique of paired sample T-Test was used to compare the mean of pre-tests and post-test simultaneously in each group. However the researcher also benefited from the technique of ANCOVA to compare the mean scores of the two groups on the post-test and pre-test together.

IV. RESULTS

In order to analyze the data to answer this research question, it was necessary to compare the pre-test mean of introvert group with its relevant post-test mean to see whether there is any significant difference between pre-test and post-test or not. Table 4.10 presents the results of normality tests, which indicate that the pre-test and post-test scores are not significantly deviant from normal distribution ($p > .05$); therefore, it was possible to employ the non-parametric paired-samples t-test to compare the pretest and posttest means of the introvert group.

Table 1: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	.133	32	.160	.939	32	.069
Post-test	.150	32	.063	.963	32	.334

a. Lilliefors Significance Correction

Table 1 presents the descriptive statistics of the introvert group's pre-test and post-test means. Evidently, the post-test mean is a little larger than the pre-test mean; however, this difference is tested for statistical significance by employing paired-samples t test, the results of which are presented in Table 2

Table 2: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	17.1563	32	3.57509	.63199
	Posttest	17.3438	32	2.39097	.42267

The results of paired-samples t- test in Table 2 demonstrate that there is no significant difference between the pre-test and post-test means of the introvert group; $t(31) = -.226$, $p > .05$). In other words, the null hypothesis is supported and the introvert group has not improved in reading comprehension scores from the pre-test to the post-test. In sum, metacognitive strategies negatively affect reading achievement of introverted Iranian EFL learners.

Table 3: Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-.18750	3.98738	.70488	-1.62510	1.25010	-.226	31	.792

Is there any significant difference between the effect of the use of metacognitive strategies on reading achievement of extroverted and introverted Iranian intermediate learners?

In order to analyze data to answer this question, we must know that the results above indicated that the extrovert group improved significantly in its means from pre-test to post-test. But introvert group improved a little in its means from pre-test to post-test. At this point, it was necessary to compare the post-test of the experimental groups to see which has improved more on the post-test in comparison to its pre-test. In order to do this comparison, it was necessary to include the pre-test means of the two groups as well as the covariate since it was not clear whether the groups were equal on their pre-test or not. By employing analysis of covariance (ANCOVA) it was possible to compare the post-test and at the same time take into account the differences between the two groups in terms of their pre-test means.

Employing ANCOVA requires the observation of several assumptions the first which is normality which was found met in the previous sections. The second assumption is to do with the homogeneity or equality of variances which was found met as the Leven's test results indicate in Table 3 ($p > .05$).

Table 4: Levene's Test of Equality of Error Variances^a**Dependent Variable: Posttest**

F	df1	df2	Sig.
.181	1	62	.672

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + pretest + treat

Table 4 presents the mean scores of the two experimental groups without taking into account the initial differences on the pre-test(covariate). Evidently, the extrovert group is of higher mean score on the post-test, however, this difference needs to be checked for statistical significance by employing ANCOVA.

Table 5: Descriptive Statistics**Dependent Variable: Posttest**

Group	Mean	Std. Deviation	N
Extrovert	21.34	2.509	32
Introvert	17.34	2.391	32
Total	19.34	3.158	64

Table 5 provides the main ANCOVA results as well the results of the check for the assumption of homogeneity of regression slopes for ANCOVA. Evidently, this assumption is met since there is no interaction between the covariate and the dependent variable ($p > .05$).

The main results of ANCOVA in Table 5 also show that the groups are not significantly different on their pre-tests; $F(1, 29) = .682, p > .05$, however, they are significantly different on the post-test after taking into account the initial differences on the pre-test; $F(2, 29) = 40.281, p < .05$. In other words, the two experimental groups improved on the post-test to some extent, the extrovert group improved significantly but the introvert group improved to a small degree. That is to say, in extrovert group metacognitive strategies affected the reading comprehension of Iranian Intermediate learners. In other words, the null hypothesis is rejected, and the extrovert group has significantly improved in reading achievement.

Table 6: ANCOVA results

Source	df	Mean Square	F	Sig.	Partial Eta Squared
treat * pretest(interaction)	1	.637	.104	.748	
Pretest	1	4.120	.682	.412	.011
Treat	1	243.214	40.281	.000	.398
Error	61	6.038			
Total	64				
Corrected Total	63				

B. Discussion

The present study was an attempt to gain more insights into the effect of metacognitive strategies on reading achievement of extroverted *vs.* introverted Iranian intermediate learners. In this section, the researcher discusses some findings of her research with some findings of other researchers.

Nowadays, practitioners and administrators try to recognize language teaching in such a way that learners' variables are taken into consideration. They focus on the learners' performance, styles and individual differences. Lee and Baylor (2006) assert "if we want to help students grow as learners, we need to understand more thoroughly how the external factors combined with personality traits and shape individual styles" (p.18). On the other hand, using some strategies are useful to improve learners' proficiency. According to Celce-Murcia (2001) students who frequently employ learning strategies enjoy a high level of self-efficiency. It is worth mentioning that many of the researchers have reported a strong relationship between the use of language learning strategies and the learners' language proficiency which also contains reading achievement.

Many experts agree that appropriate use of metacognitive strategies influence learning process positively and they view it as what centers cognitive process of learning. What is worth noticing is that all researchers who have offered classifications of metacognition, agree that it involves active control of learning through steps such as planning, monitoring and evaluating learning process (Anderson, 2002, p.37). Brown (1980) differentiated between metacognitive and cognitive processes, the former as reader controlled strategies that included selecting and studying the most important part of text, selecting retrieval cues, and estimating readiness for tests. This idea is in line with the type of metacognitive strategies that the students used the technique of studying the most important part of the text.

Due to different researches which were done, this study was conducted to investigate the significant effect of using metacognitive strategies on reading achievement of extroverted and introverted Iranian intermediate learners. The purpose of the study was done to see whether metacognitive strategies use would effect on reading achievement of extroverted and introverted learners.

According to the results obtained from the present study, utilizing metacognitive strategies in the extrovert and introvert groups showed different effects. In extrovert group, using metacognitive strategies led to a better performance in reading achievement of Iranian intermediate learners in post-test. But in introvert group, metacognitive strategies did not have a significant effect on the reading achievement of Iranian intermediate learners. Based on the results it was inferred that metacognitive strategies have significant effect on reading achievement of Iranian intermediate learners.

V. CONCLUSION

The main concern of this study was to investigate this assumption that whether or not using metacognitive strategies can affect reading achievement of extrovert **vs.** introvert Iranian intermediate learners.

To assure and determine any significant change in the reading achievement of our group of subjects, in particular, extrovert and introvert learners after receiving treatment, the result of the performance of each group at the pre-test was compared with the result of its performance at the post-test stage through applying paired sample t-test. It revealed a significant difference in reading achievement of extrovert group; that means that the extrovert

students benefited significantly more from the treatment which was conducted. In addition, the result of the paired sample t-test in extrovert group enabled the researcher to reject the first null hypothesis and therefore, the first research question was answered appropriately.

Performing paired sample t-test between pre-test and post-test scores in introvert group revealed no significant effect of treatment on reading achievement of learners.

Performing ANCOVA between the post-tests of two groups by including the pre-test means of the two groups as well as the covariate since it was not clear whether the groups were equal on their pre-test or not. The result of ANCOVA revealed that the pre-tests were significantly the same and the post-test were significantly different. So, the extrovert group had a better mean in post-test which showed the significant effect of metacognitive strategies on reading achievement.

C. Summary of the Findings and Results

To test the hypotheses, two groups of Iranian intermediate learners were selected through the administration of standardized PET test, 200 students whose score fell one standard deviation above and below the mean were selected. Then, they were given Eysenck personality style inventory to answer. The questionnaire contained four scales and 90 items that students answered E scale items as extroversion vs. introversion. 64 students were selected from the two extremes of the scores which were divided into two groups of extrovert and introvert each contained 32 students. Then a pre-test which contained 25 multiple choice items was prepared. The same process was done for the post-test. Before administering the pre-test and post-test in the study, the researcher piloted the test. In order to pilot the test, the researcher administered them to a group of 20. Then, the group answered PET reading comprehension test. Their reading comprehension scores were correlated with PET reading comprehension scores using Pearson Product moment correlation. The results showed that the correlation for pre-test was .512 and for post-test was .459. Next, the pre-test was administered to determine if there was any significant difference between two groups. The mean score of extrovert group was 18.06 and the mean score of introvert group was 17.15. After that, ten sessions of treatment were done and they contained teaching reading comprehension through using metacognitive strategies. After treatment the subjects of both groups took the post-test. The mean score of extrovert group was 21.34 and the mean score of introvert group was 17.34. Then, paired sample t-test was utilized to compare the mean score of pre-test and post-test in each group. The results showed that there is a significant difference between the mean score of pre-test and post-test in extrovert group. After that ANCOVA was used to compare the post-test of the experimental groups to see which has improved more on the post-test in comparison to its pre-test. The result of ANCOVA also showed that metacognitive strategies effect reading achievement of extrovert learners.

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