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# Boosting Autonomous Foreign Language Learning: Scrutinizing the Role of Creativity, Critical Thinking, and Vocabulary Learning Strategies

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**Abstract**

This study set out to investigate the association among English language learners' Autonomy (AU), Creativity (CR), Critical Thinking (CT), and Vocabulary Learning Strategies (VLS). The participants of this study were 202 randomly selected male and female undergraduate (English as a Foreign Language) EFL learners, between the ages of 19 and 26 ($M_{age}$ = 22 years). These participants filled out four questionnaires estimating their AU, CR, CT, and VLS. The characteristics of the collected data legitimated running Pearson's product-moment correlation coefficient. The results suggested that there is a significant and positive relationship between EFL learners' AU and CR, AU and CT, AU and VLS, CR and CT, CR and VLS, as well as their CT and VLS. Considering AU as the predicted variable for this study, it was confirmed that CT is the best predictor of AU. The article concludes with some pedagogical implications and some avenues for future research.

**Keywords:** creativity, critical thinking, foreign language learning, learning autonomy, vocabulary learning strategies

## 1. Introduction

It is now a widely held belief that learners' psychological, mental, and personal factors play a determining role in realizing pedagogical objectives and achieving the best possible outcomes from the instructional practice (Lightbown & Spada, 2013; Nosratinia, Saveiy, & Zaker, 2014; Nosratinia & Zaker, 2014). These internal factors, according to Ryan and Deci (2000, 2002), can regulate learners' motivation which would facilitate personal growth, social development, and psychological well-being. Among these internal factors and psychological needs, Autonomy (AU) is one of the highly influential factors (Deci, Vallerand, Pelletier, & Ryan, 1991). It has been argued that AU would make learners feel more competent, feel more related to others, attempt to grow, and be more centered and focused (O' Donnell, Reeve, & Smith, 2012).

AU is known to be the psychological need to experience authority in the initiation and regulation of one's behavior (Deci & Ryan, 1985). In the English as a Foreign Language (EFL) context, student-centered methodology and AU are currently given a primary focus (Akbari, 2008; Bell, 2003; Benson, 2003). Put another way, EFL learners are now given a meaningful role in pedagogic decision making by being treated as active and autonomous players (Kumaravadivelu, 2008, 2012). Based on this premise, language learners are given the main focus in the process of designing curricula (Nation & Macalister, 2010) and both theorizer and practitioners (the controversial categorization rejected by today's pedagogical concerns) are acknowledging the fundamental role of learner AU in achieving Second Language (L2) proficiency (Bell, 2003; Benson, 2003; O' Donnell et al., 2012).

AU has been generally defined as the freedom and authority to manage one's own activities which also calls for the right to make decisions (Scharle & Szabo, 2000). An autonomous individual, according to Paul and Elder (2008), is not reliant upon others for the direction and control of their thinking. They further add that AU is the self-authorship on one's beliefs, values, and ways of thinking. Chang (2007) argues that the basis of AU among learners is that they accept responsibility for their learning and mastering L2 proficiency. More specifically, Little (1995) argued that promoting AU in educational contexts necessitates learning how to learn.

There seems to be many reasons for valuing and promoting AU among EFL learners. For instance, Nation and Macalister (2010) argue that a major reason for promoting learner AU is that EFL learners may not have a permanent access to teachers for correction, guidance, and instruction. As a result, AU would proffer learners the ability to know "how to learn a language and how to monitor and be aware of their learning, so that they can become effective and independent language learners" (p. 38). Moreover, there seems to be an intimate relationship between AU and learning effectively. Put another way, the development of AU implies better language learning (Benson, 2001).

It is believed that promoting AU requires an environmental support, and in the context of classroom, teachers play a key role in supporting and encouraging AU among learners (O' Donnell et al., 2012). More specifically, when EFL teachers support and value AU among learners, it would directly affect the degree of AU among learners (Chan, 2001). Nonetheless, any attempt to develop learners' AU calls for having a broader perspective on the process of learning and the factors which directly or indirectly affect the process of learning, AU in learning, and L2 competence (Bell, 2003; Kumaravadivelu, 2012; Lightbown & Spada, 2013; Little, 1991). Accordingly, attempting to establish techniques to enhance AU and to know the nature of AU seems to a very well justified effort. Being conversant with the nature of AU can be achieved through inspecting the relationship between AU and other psychological, cognitive, and metacognitive factors (Nosratinia & Zaker, 2014). Such an attempt would also equip EFL teachers with a higher degree of knowledge regarding the characteristics of their learners and the way they can properly regulate their learning process.

From the myriads of theoretically and operationally defined mental factors, the present study investigates the way EFL learners' AU is related to their Creativity (CR) Critical Thinking (CT), and Vocabulary Learning Strategies (VLS), an attempt whose reason would be provided in the following sections. For starters, CR, CT, and VLS not only are among popular topics in the TEFL (Teaching English as a Foreign Language) profession, but they also are widely acknowledged as three metacognitive factors which substantially impact, influence, and shape the process of learning English as a second/foreign language (Connolly, 2000; Kabilan, 2000; Nation, 2001, 2004; Nation & Meara, 2002; Sarsani, 2006; Schmitt, 2000). Accordingly, inspecting the relationship among EFL learners' AU, CT, CR, and VLS seems to be justified and even promising towards the elevation and furtherance of TEFL practice and teacher education.

It has been argued that for learners to become proficient in the language (L2), they should employ CT through the target language (Kabilan, 2000). It is believed that Socrates was the founder of CT as he established the tradition of reflectively questioning common beliefs and expectations. He also attempted to separate reasonable and logical beliefs from those that lack evidence or rational foundation (Zireva & Letseka, 2013). CT has also been viewed as a social practice and language itself (Kress, 1985). CT, as a highly cognitive function, "is a purposeful, self-regulatory judgment which results in interpretation, analysis evaluation, and inference, as well as explanations of evidential, conceptual, methodological or contextual considerations upon which the judgment is based" (Astleitner, 2002, p. 53). An ability of this kind would make it possible to look at issues from different perspectives and angles (Willingham, 2008). That is why many educators have argued for the importance of promoting higher-order thinking skills in EFL contexts (Chamot, 1995; Tarvin & Al-Arishi, 1991). The significance of CT and teaching CT skills in EFL contexts has been confirmed by empirical evidence (Chapple & Curtis, 2000); however, the nature of CT and the way it interacts with other mental factors is yet to be investigated in different contexts.

CR, as another variable of this study, is a metacognitive attribute which is believed to profoundly influence the process of learning (Mishan, 2005). Based on this premise, Pink (as cited in Rao & Prasad, 2009) argues that humankind is "entering a new age where creative thinking is becoming increasingly important" (p. 31). The field of CR has received significant contribution from Guilford and Torrance who have made CR being known as it is today (Sternberg, 2009). Since CR is complex in nature, different viewpoints have been put forward to explain the concept emphasizing its different aspects (Sarsani, 2006). Lubart (as cited in Nosratinia & Zaker, 2014) states that CR is generally characterized as the ability to create new and original products which are considered appropriate for the features and limitations of a given task, where products can refer to a variety of ideas, viewpoints, and innovations. Lubart and Guignard (2004) believe that these products must be original as they cannot be just a mere copy of what already exists. This feature seems to have made Carter (2004) to argue that, "Discussions of creativity in relation to language teaching and learning have been extensive and continue to be a very major point of application of a wide range of theories of creativity" (p. 213). Therefore, it seems to be quite reasonable to state that the TEFL/TESOL (Teaching English to Speakers of Other Languages) practice can be highly influenced by CR (Fahim & Zaker, 2014).

Coming to VLS, as another factor included in this study, it should be stated that for many EFL learners, vocabulary learning is an extremely challenging task (Catalan, 2003; Hiebert, 2011; Read, 2000). Therefore, recently, many EFL researches have attempted to provide and suggest effective techniques in order to increase the efficiency of vocabulary learning, called VLS (Atay & Ozbulgan, 2007; Fan, 2003; Nation, 2001, 2004; Nation & Meara, 2002; Nosratinia, Abbasi, & Zaker, 2015; Schmitt, 2000; Shen, 2004; Tsuchida, 2002). Vocabulary learning is believed to be a multifaceted process which involves many factors, i.e. memorizing words, being able to recall them, and using them appropriately (Nation, 2004; Verhallen & Schoonen, 1993). Therefore, VLS are defined as the "knowledge about the mechanisms (processes, strategies) used in order to learn vocabulary as well as steps or actions taken by students (a) to find out the meaning of unknown words, (b) to retain them in long-term memory, (c) to recall them at will, and (d) to use them in oral or written mode" (Catalan, 2003, p. 56). However, the need is felt to inspect the way this cognitive and metacognitive ability interacts with and influences other metacognitive/psychological/internal factors, especially AU.

The put forward premises have been the driving force for many studies in our field that aim at conducting further investigation into the nature of AU, CR, CT, and VLS and the way they promote L2 learning. However, the question that is raised is whether AU, CR, CT, and VLS are associated to each other and if so, to what extent. In order to answer this question and fulfill the objective of this study, the following research questions were proposed:

**Research Question 1:** Is there any significant relationship between EFL learners' AU and CR?

**Research Question 2:** Is there any significant relationship between EFL learners' AU and CT?

**Research Question 3:** Is there any significant relationship between EFL learners' AU and VLS?

**Research Question 4:** Is there any significant relationship between EFL learners' CR and CT?

**Research Question 5:** Is there any significant relationship between EFL learners' CR and VLS?

**Research Question 6:** Is there any significant relationship between EFL learners' CT and VLS?

Assuming a significant relationship among the four variables, the following research question was posed:

**Research Question 7:** Is there any significant difference among EFL learners' CR, CT, and VLS in predicting AU?

## 2. Method

### *2.1 Participants*

The participants in this research consisted of undergraduate EFL learners majoring in English Translation and English Literature at the Islamic Azad University, Central Tehran and Roudehen branches. In these full-time undergraduate courses, English is the main medium of instruction, but occasional use of learners' L1 (Persian) is allowed. From the abovementioned population, 202 male and female EFL learners (153 females, 76%, and 49 males, 24%), between the ages of 19 and 26 (mean age = 22 years) were selected via cluster random sampling.

### *2.2 Instruments*

Four instruments utilized to collect data pertaining the subjects' levels of AU, CR, CT, and VLS were as follows:

1. A questionnaire of AU by Spratt, Humphreys, and Chan (2002);
2. A questionnaire of CR created by O'Neil, Abedi, and Spielberger (1992);
3. A questionnaire of CT developed by Honey (2000); &
4. A questionnaire of VLS by Schmitt (1997).

#### 2.2.1 Learner AU Questionnaire

To evaluate participants' level of AU, a questionnaire of AU including 52 items was administered. The questionnaire though designed by Spratt, Humphreys, and Chan (2002), is strongly influenced by Holec's (1981) definition of AU. Holec defines AU as "the ability to take charge of one's own learning and where to take charge of one's learning is to hold the responsibility for all the decisions concerning all aspects of this learning"(as cited in Spratt, Humphreys, & Chan, 2002, p. 249).

Holec, according to Spratt et al. (2002), argues that ability and responsibility are functioning in five principal areas which are: "determining objectives; defining contents and progressions; selecting methods and techniques to be used; monitoring the procedure of acquisition; and evaluating what has happened" (p. 249). All these notions of ability and responsibility are incorporated in the questionnaire.

The questionnaire has four sections. The first section (13 items) focuses on examining students' views of their responsibilities and those of their teachers. The second section (11 items) evaluates the students' confidence in their ability to operate autonomously. The third section (1 item) aims to measure the levels of student motivation to learn English. The fourth section (27 items) investigates students' practice of autonomous learning in the form of both inside and outside class activities.

Respondents were asked to indicate their answers in 20 minutes in a Likert scale, sequentially assigning values of 1, 2, 3, 4, and 5 to options of *not at all*, *a little*, *some*, *mainly*, and *completely* in section one; counting 1 for *very poor* to 5 for *very good* in section two; setting 5 to 1 beside the first to the last choices in section three; and attributing values of 1, 2, 3, and 4 to options of *never*, *rarely*, *sometimes*, and *often* in section four. In this regard, the result can vary from 52 to 233. It is self-evident that the higher the mark, the more autonomous the participant is.

In this study, the Persian version of this questionnaire that was translated and validated by Fahim and Sheikhy (2011) was employed to make sure the participants fully comprehended it. The reliability of AU questionnaire in this study was estimated to be 0.86 using Cronbach's alpha coefficient which demonstrated a good degree of reliability.

#### 2.2.2 CR Questionnaire

This questionnaire was originally designed by O'Neil, Abedi, and Spielberger in 1992 and is called the Abedi-Schumacher Creativity Test or the ACT (as cited in Cropley, 2000). According to Abedi (2002), the estimated correlation coefficient between the four subscales of the ACT and the Torrance Test of Creative Thinking (TTCT) was meaningful at 0.01 level of significance. Therefore, the concurrent validity of ACT was established. It is worth noting that the TTCT is one of the best known tests of CR which consists of two sections: verbal and nonverbal or figural sections. In fact, the development of the ACT was an attempt to shorten the time needed for the administration and scoring of the TTCT. The estimated reliability of each of the subscales of the ACT was 0.61 to 0.75 which demonstrated that the test is also reliable (Auzmendi, Villa, & Abedi, 1996).

In this study, the Persian version of this questionnaire, developed and validated by Zaker (2013) based on the original test, was utilized. Zaker (2013) provides the following sections in order to assess and appraise the validity of the instrument: a report on content validity, checking the criterion-related validity, an analysis of the internal structure of

the instrument employing exploratory and confirmatory factor analyses, and a report on the reliability of the instrument including 50 items. The 50 multiple-choice items of this test have three options ranging from least to most creative responses with a range of scores between 0-2; therefore, the scores of the test could range from 0 to 100, and the participants are allocated 50 minutes to respond to the questionnaire. In this study, the internal consistency of this test was estimated to be 0.83 employing Cronbach's alpha coefficient.

2.2.3 CT Questionnaire

The CT Questionnaire intends to explore what a person might or might not do when thinking critically about a subject. Developed by Honey (2000), the questionnaire aims at evaluating the three main skills of comprehension, analysis, and evaluation of the participants. This questionnaire is a Likert-type questionnaire with 30 items which allows researchers to investigate learners' ability in note-taking, summarizing, questioning, paraphrasing, researching, inferencing, discussing, classifying and outlining, comparing and contrasting, distinguishing, synthesizing, inductive and deductive reasoning.

The participants were asked to rate the frequency of each category they use on a 5-point Likert scale, ranging from *never* (1 point), *seldom* (2 points), *sometimes* (3 points), *often* (4 points), to *always* (5 points). The participants' final scores are calculated by adding up the numbers of the scores. The ultimate score is computed in the possible range of 30 to150. The participants were allocated 20 minutes to complete the questionnaire.

In this study, the Persian version of this questionnaire was employed which was translated and validated by Naeini (2005). In a study conducted by Nosratinia and Zaker (2014) on EFL learners, the reliability of this questionnaire was estimated to be 0.81 using Cronbach's alpha coefficient. The estimated reliability of CT questionnaire in the present study was estimated to be 0.79 using Cronbach's alpha coefficient which demonstrated a fair degree of reliability.

2.2.4 VLS Questionnaire

The 60-item VLS questionnaire by Schmitt (1997) was used in this study. Schmitt's taxonomy of VLS is known to be one of the most comprehensive and practical taxonomies in the domain of L2 VLS. It contains five categories that are: metacognitive, cognitive, memory, determination, and social.

The researchers used the Persian version of this questionnaire which has been translated and validated by Fahim & Komijani (2010) in order to make sure that participants' answers would not be affected by their level of English language proficiency. The participants were asked to rate the frequency of each category they use on a 5-point Liker-type scale, ranging from *never* (1 point), *seldom* (2 points), *sometimes* (3 points), *often* (4 points), to *always* (5 points). The time limit for the completion of the questionnaire was 35 minutes. The scores ranged in the possible range of 60 to 300. In this study the reliability of this questionnaire was estimated to be .89 using the Cronbach's alpha coefficient.

*2.3 Procedure*

To achieve the purpose of this study and address the questions posed, certain procedures were pursued which are explained below.

The data gathering phase began with obtaining a formal approval for conducting the research in the universities mentioned above (see participants). For every session of administration, three available classes were codified. Next, one class was chosen randomly and the other two classes were excluded from the study. This procedure resulted in having samples selected on a cluster sampling basis which according to Springer (as cited in Nosratinia & Zaker, 2014) would increase the validity and generalizability of the findings of a descriptive study. All the EFL students in the selected class were then informed about the aim of the study and were given the choice whether to fill in the questionnaires or not. They were also informed that the information supplied by them will be treated as confidential. Before administering the questionnaires, the participants were fully briefed on the process of completing the questionnaires through their L1. Due to the nature of this correlational study, no criterion for establishing homogeneity was adopted. Moreover, the researchers intentionally randomized the order of questionnaires administered to control the impact of order upon the completion process and validity of the data.

Thereafter, the four questionnaires were administered to the participants, and they were given 125 minutes (with a 15-minutes break after the first 60 minutes) to complete them. The researchers randomly observed the filling out process of some individuals to make sure they were capable of fully understanding the questions and responses. Subsequently, the questionnaires were scored to specify participants' degrees of AU, CR, CT, and VLS. This was followed by the statistical analyses which will be elaborated later in the following parts. It is worth mentioning here that, out of the initial 310 administered questionnaires, 202 sets of fully answered questionnaires of all the four ones were considered for statistical analyses to determine the relationship among the variables. The other 108 sets of questionnaires were excluded from the analyses due to their incomplete answers.

**3. Results**

The purpose of this study was to investigate the relationship among EFL learners' AU, CR, CT, and VLS. In order to achieve this goal, a series of pertinent calculations and statistical routines was conducted whose results are elaborated comprehensively in this section.

The data analysis provided both descriptive statistics and inferential statistics. Those in the former category such as Mean (M), Standard Deviation (SD), and Standard Error of the Mean (SEM) were obtained. Next, in order to check the normality of distributions, the assumptions of linear correlation were checked. Moreover, the reliability of the research

instruments was estimated through Cronbach's alpha coefficient. In view of the normal distribution of the variables in the inferential statistics, Pearson's product-moment correlation was then applied to the data. The design of the present study is descriptive since the primary motivation of the researchers was to investigate the relationship among the four variables with no preceding manipulation (Best & Kahn, 2006; Springer, 2010; Tabachnick & Fidell, 2007). CR, CT, and VLS were considered the predictor variables of the predicted variable, AU. Furthermore, age and gender were assumed as potential confounds.

*3.1 Checking the Assumptions of Linear Correlation*

According to Tabachnick and Fidell (2007), in order to run correlation, the following assumptions should be checked:

1. Linear relation between each pair of variables;
2. Normality of the distribution of the variables; &
3. Homoscedasticity.

3.1.1 Linear Relation between Each Pair of Variables and Homoscedasticity

To check the linearity of relations, it was needed to visually inspect the data by creating scatter plots. Since there were multiple variables in the study, the researchers created a multiple scatterplot for AU, CR, CT, and VLS which showed that there was no kind of non-linear relationship between the scores on the four variables, such as a U-shaped or curvilinear distribution. Consequently, the linearity of relations was confirmed. Moreover, the distributions were not funnel shape, i.e. wide at one end and narrow at the other; therefore, the assumption of homoscedasticity was met.

3.1.2 Normality of the Distributions

To check the normality of the distributions, the descriptive statistics of the data were obtained which are reported in Table 1.

Table1. Descriptive Statistics of the Scores of Autonomy, Creativity, Critical Thinking, and Vocabulary Learning Strategies

| | N | Mean | SEM | SD | Skewness | SE Skewness | Skewness ratio | Kurtosis | SE kurtosis | Kurtosis ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| Autonomy | 202 | 163.98 | .930 | 13.217 | .197 | .171 | 1.15 | -.174 | .341 | -.51 |
| Creativity | 202 | 54.85 | .786 | 11.175 | -.018 | .171 | -.1 | -.015 | .341 | -.04 |
| Critical Thinking | 202 | 103.96 | .869 | 12.357 | .068 | .171 | .4 | -.069 | .341 | -.2 |
| Vocabulary Learning Strategies | 202 | 150.63 | 1.165 | 16.559 | .328 | .171 | 1.92 | -.449 | .341 | -1.32 |

As demonstrated in Table 1, the distribution of data for AU, CR, CT, and VLS was normal as both the skewness and kurtosis ratios fell within the range of -1.96 and +1.96. This means that, the distribution did not show a significant deviation from normality. Moreover, the actual shapes of the distributions for the four variables were inspected by checking the histograms of distributions which supported the normality of the scores' distributions.

3.1.3 Homoscedasticity Based on the Regression Model

Although the assumption of homoscedasticity was checked while inspecting the multiple scatterplot of the scores (see section 3.1.1), in order to check the assumption of homoscedasticity based on the regression model, that is, the assumption that the variance of residuals for every pair of points on the independent variable is equal (Tabachnick & Fidell, 2007), the residuals plot was examined (Figure 1).

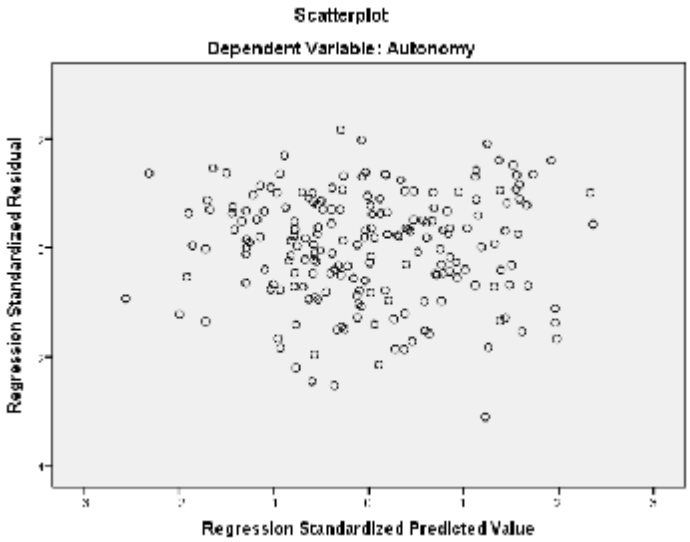


Figure 1. Plot of studentized residuals for autonomy

As demonstrated in Figure 1, the cloud of data is scattered randomly across the plot; therefore, the variance seems to be homogeneous.

Since the assumptions of linear correlation were all observed for AU, CR, CT, and VLS, the data was analyzed by Pearson's correlation, as a parametric formula, to seek the answers to the questions of the study.

*3.2 The Relationship between AU and CR*

Previous studies favor the idea that CR and AU are both highly influential in the process of learning (Benson, 2003; Sarsani, 2005). However, in order to systematically investigate the relationship between CR and AU among EFL learners, the subsequent question was posed as the first research question of this study:

**Research Question 1:** *Is there any significant relationship between EFL learners' AU and CR?*

To answer this question, the data were analyzed by Pearson's product-moment correlation coefficient. The results obtained showed a significant and positive correlation between the two variables, $r = .667$, $n = 202$, $p < .05$, and high levels of CR were associated with high levels of AU. This signified a large effect size (Cohen, Manion, & Morrison, 2007; Larson-Hall, 2010) supplemented by a very small confidence interval (CI = [0.58 – 0.74]).

*3.3 The Relationship between AU and CT*

By giving EFL learners the role of autonomous players in pedagogic decision making (Kumaravadivelu, 2008, 2012) and considering the empirical evidence which supports the significant impact of CT on the process of second or foreign language learning (Chapple & Curtis, 2000), another objective of this study was to investigate the relationship between these two factors; accordingly, the second research question was posed as follows:

**Research Question 2:** *Is there any significant relationship between EFL learners' AU and CT?*

To answer this question, the data were analyzed by Pearson's product-moment correlation coefficient. The results showed that there was a significant and positive correlation between the two variables, $r = .73$, $n = 202$, $p < .05$, and high levels of CR were associated with high levels of AU. This signified a large effect size supplemented by a very small CI = [0.66 – 0.79].

*3.4 The Relationship between AU and VLS*

It was stated earlier that AU has a positive impact on learning language (O'Donnell, Reeve, & Smith, 2012). Moreover, many studies have emphasized the importance of VLS in making L2 learning faster and more autonomous (Nation, 2001, 2004; Nation & Meara, 2002). Based on these ideas, the following research question was posed in order to inspect the way EFL learners' AU and VLS are systematically associated.

**Research Question 3:** *Is there any significant relationship between EFL learners' AU and VLS?*

In order to answer this question, learners' AU scores were correlated with those of VLS using Pearson's product-moment correlation coefficient. As suggested by the results, there is a significant and positive relationship between EFL learners' AU and overall use of VLS, $r = .685$, n = 202, $p < .05$. This signified a large effect size supplemented by a very small CI = [0.61 – 0.75].

*3.5 The Relationship between CR and CT*

Many educators and psychologists argue that CR and CT are closely associated, and they both amplify and foster higher-order thinking (Chamot, 1995; Kabilan, 2000; Sarsani, 2006). However, in order to systematically investigate the association between CT and CR among EFL learners, the following research question was posed as the fourth research question of this study:

**Research Question 4:** *Is there any significant relationship between EFL learners' CR and CT?*

In order for this study to answer this question, the data were analyzed by Pearson's product-moment correlation coefficient, results of which showed a significant and positive correlation between the two variables, $r = .830$, $n = 202$, $p < .05$. This signified a large effect size supplemented by a very small CI = [0.78 – 0.87].

*3.6 The Relationship between CR and VLS*

It seems to be a common belief held by many educators and psychologists that CR can significantly amplify higher-order thinking and learning (Chamot, 1995; Kabilan, 2000; Sarsani, 2006). On the other hand, many hold the opinion that VLS is an important factor in making L2 learning faster and more autonomous (Nation, 2001, 2004; Nation & Meara, 2002). Based on this proposal, the following question was posed in order to systematically investigate the way CR and VLS are associated among EFL learners:

**Research Question 5:** *Is there any significant relationship between EFL learners' CR and VLS?*

To answer this question, the data were analyzed by Pearson's product-moment correlation coefficient. The results showed that there was a significant and positive correlation between the two variables, $r = .473$, $n = 202$, $p < .05$, and high levels of CR were associated with high levels of VLS. This signified a modest to moderate effect size supplemented by a very small CI = [0.359 – 0.573].

*3.7 The Relationship between CT and VLS*

It is believed that CT has a major influence on the process of learning (Chamot, 1995; Nosratinia & Zaker, 2014). Moreover, many hold the opinion that VLS are important cognitive and metacognitive factors which promote the process of language learning (Nation, 2001, 2004; Nation & Meara, 2002). Accordingly, in order to inspect the way CT and VLS are associated in this context, the following research question was posed:

**Research Question 6:** *Is there any significant relationship between EFL learners' CT and VLS?*

In order to investigate this relationship, the results of Learners' CT scores were correlated with those of VLS, using Pearson's product-moment correlation coefficient. Results suggested that there is a significant and positive relationship between EFL learners' CT and overall use of VLS, $r = .476$, n = 202, $p < .05$. This signified a modest to moderate effect size supplemented by a very small CI = [0.362 – 0.576].

*3.8 AU as Predicted by CR, CT, and VLS*

Since the observed correlations between the four variables of AU, CR, CT, and VLS turned out to be significant, it was legitimate to opt for the multiple regression analysis between the variables in order to answer the following research question:

**Research Question 7:** *Is there any significant difference among EFL learners' CR, CT, and VLS in predicting AU?*

As reported in Table 2, $R$ turned out to be 0.82 and Adjusted $R^2$ was 0.676. This means that the model explains 67.6 percent of the variance in AU (Cohen et al., 2007). Moreover, $f^2 = 2.135$ indicated a large effect size for the regression.

Table 2. Model Summary – R and $R^2$

| Model | R | $R^2$ | Adjusted $R^2$ | SE of the Estimate |
|---|---|---|---|---|
| 1 | .825[a] | .681 | .676 | 7.523 |

a. Predictors: (Constant), Vocabulary Learning Strategies, Creativity, Critical Thinking

b. Dependent Variable: Autonomy

Table 3 reports the results of ANOVA ($F$ (3, 198) = 140.78, $p$ = 0.0005), the results of which were considered significant.

Table 3. Regression Output: ANOVA[b] Table

| Model | | Sum of Squares | Df | $M^2$ | F | Significance |
|---|---|---|---|---|---|---|
| 1 | Regression | 23904.550 | 3 | 7968.183 | 140.787 | .000[a] |
| | Residual | 11206.326 | 198 | 56.598 | | |
| | Total | 35110.876 | 201 | | | |

a. Predictors: (Constant), Vocabulary Learning Strategies, Creativity, Critical Thinking

b. Dependent Variable: Autonomy

Also, Table 4 demonstrates the *Standardized Beta Coefficients* which signify the degree to which each predictor variable contributes to the prediction of the predicted variable. Inspection of the Sig. values showed that CT and VLS make statistically significant unique contributions to the equation as their both Sig. values were less than .05. However, this was not the case for CR.

Table 4. Regression Output: Coefficients

| | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| Model | | B | SE | β | T | Significance |
| 1 | (Constant) | 56.749 | 5.989 | | 9.476 | .000 |
| | Creativity | .110 | .086 | .093 | 1.273 | .204 |
| | Critical Thinking | .478 | .078 | .447 | 6.117 | .000 |
| | Vocabulary Learning Strategies | .342 | .037 | .428 | 9.261 | .000 |

The comparison of β values revealed that CT has the largest β coefficient (β = 0.447, $t = 6.117$, $p = 0.0005$). This means that CT makes the strongest statistically significant unique contribution to explaining AU. Therefore, it was concluded that CT could predict more significantly the AU scores of the candidates. Moreover, VLS was ranked as the second predictor of AU. By contrast, CR did not exhibit a significant prediction of AU ($p = .204$). Based on the results of the multiple regression analysis, the following formula was provided in order to calculate EFL learners' AU scores when CR, CT, and VLS scores are available in this context (Cohen et al., 2007):

$$\textit{AU Score} = 9.476 + .093\,(\textit{CR Score}) + .447\,(\textit{CT Score}) + .428\,(\textit{VLS Score})$$

Ultimately, although normality of the distributions were checked for correlation in the previous sections, the residuals table (Table 5) also verified the absence of outstanding outliers as the Cook's distance values did not exceed 1 and Mahalanobis distance values did not exceed 16.27 (Tabachnick & Fidell, 2007).

Table 5. Regression Output: Residuals Statistics

| | Minimum | Maximum | M | SD |
|---|---|---|---|---|
| Mahal. Distance | .101 | 11.080 | 2.985 | 2.308 |
| Cook's Distance | .000 | .087 | .006 | .011 |

a. Dependent Variable: Autonomy

The P-P Plot (Figure 2) was used to visually inspect the result.

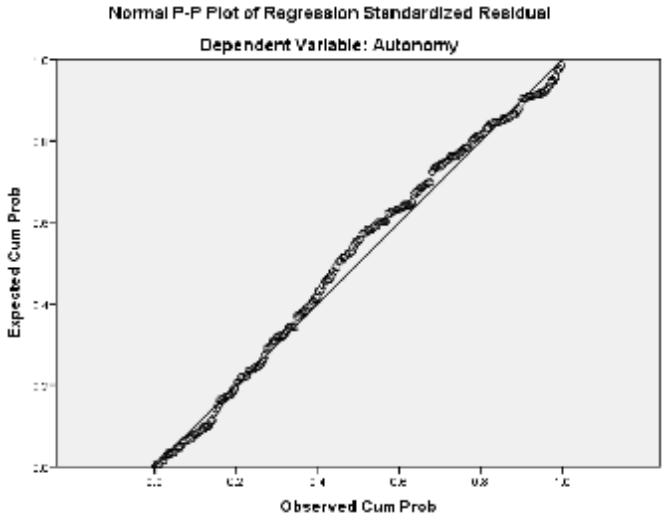


Figure 2. P-P plot for diagnosing normal distribution of residual

**4. Discussion and Conclusion**

There is now a unanimous consensus among those involved in the TEFL practice that EFL learners' internal factors play a determining role in realizing pedagogical objectives (Lightbown & Spada, 2013; Nosratinia & Zaker, 2014). Among these internal factors, AU is believed to be one of the highly influential factors (Deci, Vallerand, Pelletier, & Ryan, 1991) which truly justifies any attempt to inspect the way AU is associated with other mental, cognitive, metacognitive, and personal factors (Nosratinia & Zaker, 2013a, 2013b). Based on this premise, the current study attempted to investigate the possible relationships among EFL learners' AU, CR, CT, and VLS through addressing the following questions:

**Research Question 1:** *Is there any significant relationship between EFL learners' AU and CR?*

**Research Question 2:** *Is there any significant relationship between EFL learners' AU and CT?*

**Research Question 3:** *Is there any significant relationship between EFL learners' AU and VLS?*

**Research Question 4:** *Is there any significant relationship between EFL learners' CR and CT?*

**Research Question 5:** *Is there any significant relationship between EFL learners' CR and VLS?*

**Research Question 6:** *Is there any significant relationship between EFL learners' CT and VLS?*

Observing a significant relationship among the four variables made it possible to pose the following question:

**Research Question 7:** *Is there any significant difference among EFL learners' CR, CT, and VLS in predicting AU?*

As stated above, for every session of administration, one class was randomly selected from the available classes, and the participants were informed about the purpose of the study. After collecting the data through administering four pertinent questionnaires, the statistical analyses were carried out to answer the abovementioned questions in this descriptive study. After testing the preliminary assumptions, Pearson's product-moment correlation coefficient, as a parametric test, answered the first six research questions. Following this, as the correlations between the variables were significant, a multiple regression was ran to answer the seventh research question.

It has been stated that CR and AU are both highly influential in the process of learning (Benson, 2003; Sarsani, 2005). However, the existence of such a relationship should be tested systematically. As suggested by the results, this study observed a significant and positive relationship between EFL learners' AU and CR, $r = .667$, $n = 202$, $p < .05$. This finding confirmed the findings of another study (Nosratinia & Zaker, 2014) which observed a statistically significant relationship between CR and AU. This confirmation would make it more reasonable now to argue about a causal

relationship between CR and AU (Springer, 2010). Moreover, this result confirms that the more an EFL learner is creative, the more automatically s/he will make progress in L2 learning. As a result, it is highlighted that promoting the elements of CR (e.g. fluency, flexibility, originality, imaginativeness, and elaboration) would directly and indirectly facilitate L2 learning.

By giving EFL learners the role of autonomous players in pedagogic decision making (Kumaravadivelu, 2008, 2012) and considering the significant impact of CT on the process of L2 learning (Chapple & Curtis, 2000), another objective of this study was to systematically investigate the relationship between EFL learners' AU and CT. The data analysis by Pearson's product-moment correlation coefficient showed that there is a significant and positive correlation between the two variables, $r = .73$, $n = 202$, $p < .05$, and high levels of CT were associated with high levels of AU. This finding was in line with the findings of previous studies, i.e. Nosratinia and Zaker (2014) ($r = 0.73$) and Fahim and Sheikhy (2011) ($r = 0.546$). This highlights the significance of including the elements of CT (e.g. identifying and challenging assumptions, imagining, exploring, and enumerating other options, respecting evidence and reasoning, defining the context, listing reasons explicitly, and self-correction) in all aspects of the TEFL practice. Moreover, it seems reasonable to argue that CT should be promoted when a higher level of AU use is expected.

The positive impact of AU on learning language (O'Donnell, Reeve, & Smith, 2012) and the stated importance of VLS in making L2 learning faster and more autonomous (Nation, 2001, 2004; Nation & Meara, 2002) justified the attempt to systematically inspect the association between EFL learners' AU and VLS. The results suggested that there is a significant and positive relationship between EFL learners' AU and overall use of VLS, $r = .685$, $n = 202$, $p < .05$. This result was in line with the findings of another study by Nosratinia, Shakoori, and Zaker (2013) ($r = 0.77$). Therefore, this relationship, also, shows the tendency to confirm and/or support a causal relationship.

The theoretically supported relationship between CR and CT (Chamot, 1995; Kabilan, 2000; Sarsani, 2006) legitimated the attempt to systematically investigate the way they are associated in an EFL context. The results of data analysis confirmed a significant and positive correlation between the two variables, $r = .830$, $n = 202$, $p < .05$. This result confirmed the findings of another study by Fahim and Zaker (2014) ($r = 0.825$). This highly significant relationship provides ample support to argue that CR and CT and their underlying constructs are closely associated and can promote each other. By and large, it can be argued that when there is variance in CR, there also exists variance in CT, and vice versa. This confirmation also paves the way to consider the existence of a causal relationship.

Many EFL researchers have argued that CR can significantly amplify higher-order thinking and learning (Chamot, 1995; Kabilan, 2000; Sarsani, 2006) which seems to have in common the metacognitive processes with VLS (Nation, 2001, 2004; Nation & Meara, 2002). The systematic investigation of the relationship between CR and VLS by Pearson's product-moment correlation coefficient showed that there was a significant and positive correlation between the two variables, $r = .473$, $n = 202$, $p < .05$, and high levels of CR were associated with high levels of VLS. This relationship, however, was the least significant observed relationship in this study. Therefore, regarding the large size of the sample, it might be argued that the association between CR and VLS is not so much influential and illuminating, and that CR would not function as a reliable predictor for VLS.

Vocabulary learning is a multifaceted process which involves many mental processes, i.e. memorizing words, being able to recall them, and using them appropriately (Nation, 2004; Verhallen & Schoonen, 1993). On the other hand, CT is a significant internal factor which is believed to have a major influence on the process of learning and the way EFL learners deal with the input and produce the output (Chamot, 1995; Nosratinia & Zaker, 2014). Based on these theoretical arguments, the sixth analysis examined the way CT and VLS are associated. Results suggested that there is a significant and positive relationship between CT and overall use of VLS, $r = .476$, $n = 202$, $p < .05$, in this context. This is to say that the higher level of CT a learner has, the higher number of VLS s/he uses, and vice versa. This result confirmed the results of the same analysis carried out by Nosratinia, Shakoori, and Zaker (2013) ($r = 0.72$) in an Iranian context. However, the less significant relationship observed warns us about making generalizations about the association between CT and VLS. It also necessitates inspecting the other factors which might have influenced the way CR and VLS are associated, i.e. the potential confounds.

The final analysis was a multiple regression analysis between the variables in order to see if there is any significant difference among EFL learners' CR, CT, and VLS in predicting their AU. The obtained results, $R = 0.82$, Adjusted $R^2 = 0.676$, revealed that: a) this model explains 67.6 percent of the variance in AU; b) $f^2 = 2.135$ indicated a large effect size for the regression; c) CT and VLS make statistically significant unique contributions to the equation; d) CT makes the strongest statistically significant unique contribution to explaining AU; and e) VLS was ranked as the second predictor of AU. Moreover, the following formula was suggested in order to calculate EFL learners' AU scores in this context.

$$\textit{AU Score} = 9.476 + .093\,(\textit{CR Score}) + .447\,(\textit{CT Score}) + .428\,(\textit{VLS Score})$$

Based on the above-mentioned findings, this study suggests that EFL teachers inform EFL learners of the ways through which CT, CR, and VLS can contribute to a more independent, reliable, and effective learning process. In this research, it was revealed that possessing higher levels of CR, CT, and VLS would make learners equipped to act autonomously and independently which would result in a more personalized learning. More specifically, CR, CT, and VLS can predict 67.6 percent of the variance in AU. Therefore, EFL teachers are recommended, when planning classroom activities, to include CT, CR, and VLS oriented activities. These activities would be based on highlighting the basic components of CT and CR and introducing VLS. Moreover, creating an environment in which CR, CT, and VLS are properly valued

and in which learners take the responsibility for their own learning seems to be a considerable step toward benefiting from the potential capacities of CR, CT, and VLS toward learning and making autonomous progress.

Due to the fact that language learning is a multidimensional phenomenon, not only language teachers, but also language learners should play their role properly in order to facilitate and optimize this complicated process. Therefore, the results of the current study have implications for language learners, encouraging them to become more creative and critical about their learning activities and attempt to improve their vocabulary learning through employing VLS. It is hoped that, the results of this study would make EFL learners more internally motivated to value autonomous learning, CR, CT, and VLS. Furthermore, improving thinking and learning skills in a learning context can help learners to be equipped with tools designed to instill positive attitudes toward learning a new language and positive views of themselves as learners.

Given the content of EFL/ESL materials, the results of this study would also assist syllabus designers and curriculum developers to integrate AU, CR, CT, and VLS into the body of EFL materials in a way which serves the purpose of instruction and teaching best. Moreover, possessing a higher degree of understanding regarding these metacognitive variables would enable syllabus designers and curriculum developers to proffer the learners the capability to know how to learn a language better, how to observe and monitor their L2 progress, and how to develop their learning so that they can become effective and independent language learners (Nation & Macalister, 2010).

It is also reasonable and well-justified to incorporate CR, CT, and VLS into the body of achievement and diagnostic tests where it might provide the context-sensitive teachers with a better understanding of the mental and cognitive states of the learners and the way the instruction has been successful or should be adapted (Nosratinia & Zaker, 2014). In the same vein, it is also suggested to include CR, CT, and VLS in the prognostic tests of English courses, namely placement tests.

The findings of this study confirmed that CR, CT, and VLS would facilitate learning a new language through promoting AU. Moreover, it was observed that, in this context, CT makes the strongest unique contribution to explain AU. However, considering the inherent lack of control or knowledge regarding the influential factors in correlational research (Best & Kahn, 2006; Springer, 2010), further studies may inspect the way other mental and personality factors interact with the variables of this study. Moreover, the same study could be conducted among other age groups regarding the difference amongst different age groups with respect to mental and personal qualities. This study can also be replicated employing some qualitative instruments, e.g. interviews, in order to increase the validity and generalizability of the findings.

**References**

Abedi, J. (2002). Standardized achievement tests and English language learners: Psychometrics issues. *Educational Assessment, 8*, 231-257. doi: 10.1207/S15326977EA0803_02

Akbari, R. (2008). Postmethod discourse and practice. *TESOL Quarterly*, *42*(4), 641-652.

Astleitner, H. (2002). Teaching critical thinking online. *Journal of Instructional Psychology, 29*(2), 53-77.

Atay, D., & Ozbulgan, C. (2007). Memory strategy instruction, contextual learning and ESL vocabulary recall. *English for Specific Purposes*, *26*, 39-51. doi: 10.1016/j.esp.2006.01.002

Auzmendi, E., Villa, A., & Abedi, J. (1996). Reliability and validity of a newly constructed multiple-choice creativity instrument. *Creativity Research Journal, 9*, 89-96. doi: 10.1207/s15326934crj0901_8

Bell, D. M. (2003). Method and postmethod: Are they really so incompatible? *TESOL Quarterly, 37*(2), 325-336.

Benson, P. (2001). *Teaching and researching autonomy in language learning.* London: Longman.

Benson, P. (2003). Learner autonomy in the classroom. In D. Nunan (Ed.), *Practical English language teaching* (pp. 289-308). New York: McGraw Hill.

Best, J. W., & Kahn, J. V. (2006). *Research in education* (10th ed.). Boston, MA: Pearson Education, Inc.

Carter, R. (2004). *Language and creativity: The art of common talk.* New York: Routledge.

Catalan, R. (2003). Sex differences in L2 vocabulary learning strategies. *International Journal of Applied Linguistics, 13*(1), 54-77. doi: 10.1111/1473-4192.00037

Chamot, A. (1995). Creating a community of thinkers in the ESL/EFL classroom. *TESOL Matters*, *5*(5), 1-16.

Chan, V. (2001). Readiness for learner autonomy: What do our learners tell us? *Teaching in Higher Education, 6*(4), 506-516. doi: 10.1080/13562510120078045

Chang, Y. L. (2007). The influence of group process on learners' autonomous beliefs and behaviors. *System*, *35*(3), 322-337. doi: 10.1016/j.system.2007.03.001

Chapple, L., & Curtis, A. (2000). Content-based instruction in Hong Kong: Student responses to film. *System*, *28*(3), 419-433. doi: 10.1016/S0346-251X(00)00021-X

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). New York: Routledge.

Connolly, M. (2000). What we think we know about critical thinking. *CELE Journal, 8*. Retrieved April 20, 2013, from http://www.asia-u.ac.jp/english/cele/articles/Connolly_Critical_Thinking.htm

Cropley, A. J. (2000). Defining and measuring creativity: Are creativity tests worth using? *Roper Review*, *23*(2), 72-79.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum. doi: 10.1007/978-1-4899-2271-7

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *The Educational Psychologist*, *26*, 325-346. doi: 10.1080/00461520.1991.9653137

Fahim, M., & Komijani, A. (2010). Critical thinking ability, L2 vocabulary knowledge, and L2 vocabulary learning strategies. *Journal of English Studies, 1*(1), 23-38.

Fahim, M., & Sheikhy, R. (2011). Critical thinking ability and autonomy of Iranian EFL learners. *American Journal of Scientific Research, 29*, 59-72.

Fahim, M., & Zaker, A. (2014). EFL learners' creativity and critical thinking: Are they associated? *Humanising Language Teaching, 16*(3). Retrieved from http://www.hltmag.co.uk/jun14/mart01.htm

Fan, M. Y. (2003). Frequency of use, perceived, usefulness, and actual usefulness of vocabulary strategies: A study of Hong Kong learners. *The Modern Language Journal, 87*(2), 222-241. doi: 10.1111/1540-4781.00187

Hiebert, E. H. (2011). Growing capacity with literary vocabulary: The megaclusters framework. Retrieved March 23, 2013, from http://americanreadingforum.org/yearbook/11_yearbook/documents/Hiebert%20KEYNOTE.pdf

Holec, H. (1981). *Autonomy and foreign language learning.* Oxford: Pergamon.

Honey, P. (2000). *Critical Thinking Questionnaire*. Retrieved April 20, 2013, from http://www.peterhoney.com/

Jeffrey, B., & Craft, A. (2001). Introduction: The universalization of creativity. In A. Craft, B. Jefferey, & M. Leibling (Eds.), *Creativity in education* (pp. 1-16). London: Continuum.

Kabilan, M. K. (2000). Creative and critical thinking in language classrooms. *The Internet TESL Journal*, *6*(6). Retrieved March 23, 2013, from http://iteslj.org/Techniques/Kabilan-CriticalThinking.html

Kress, G. (1985). *Linguistic processes in sociocultural practice*. Victoria: Deakin University Press.

Ku, Y. L. K. (2009). Assessing students' critical thinking performance: Urging for measurements using multi-response format. *Thinking Skills and Creativity*, *4*(1), 70-76. doi: 10.1016/j.tsc.2009.02.001

Kumaravadivelu, B. (2008). *Understanding language teaching: From method to postmethod.* Mahwah, NJ: Lawrence Erlbaum Associates.

Kumaravadivelu, B. (2012). *Language teacher education for a global society: A modular model for knowing, analyzing, recognizing, doing, and seeing.* New York: Routledge.

Larson-Hall, J. (2010). *A guide to doing statistics in second language research using SPSS*. New York: Routledge.

Lightbown, P., & Spada, N. (2013). *How languages are learned* (4th ed.). Oxford: Oxford University Press.

Little, D. (1991). *Learner autonomy 1: Definitions, issues and problems.* Dublin: Authentik.

Little, D. (1995). Learning as dialogue: The dependence of learner autonomy on teacher autonomy. *System, 23*(2), 175-182. doi: 10.1016/0346-251X(95)00006-6

Lubart, T. I. (1999). Componential models. In M. A. Runco & S. R. Pritzker (Eds.), *Encyclopedia of creativity: Volume 1*(pp. 295-300). San Diego, CA: Academic Press.

Lubart, T., & Guignard, J. H. (2004). The generality–specificity of creativity: A multivariate approach. In R. J. Sternberg, E. L. Grigorenko, & J. L. Singer (Eds.), *Creativity: From potential to realization* (pp. 43-56). Washington, DC: American Psychological Association.

Mishan, F. (2005). *Designing authenticity into language learning materials.* Bristol: Intellect Books.

Naeini, J. (2005). *The effects of collaborative learning on critical thinking of Iranian EFL learners* (Unpublished master's thesis). Islamic Azad University at Central Tehran, Iran.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9781139524759

Nation, I. S. P. (2004). Evaluating your vocabulary program. In Y. Leung & Y. Chen (Eds.), *Selected papers from the thirteenth international symposium on English teaching* (pp. 91-97). Taipei: The Crane.

Nation, I. S. P., & Macalister, J. (2010). *Language curriculum design*. New York: Routledge.

Nation, I. S. P., & Meara, P. (2002). Vocabulary. In N. Schmitt (Ed.), *An introduction to applied linguistics* (pp. 35-54). London: Arnold.

Nosratinia, M., Abbasi, M., & Zaker, A. (2015). Promoting second language learners' vocabulary learning strategies: Can autonomy and critical thinking make a contribution? *International Journal of Applied Linguistics & English Literature, 4*(3), 21-30. doi:10.7575/aiac.ijalel.v.4n.3p.21

Nosratinia, M., Saveiy, M., & Zaker, A. (2014). EFL learners' self-efficacy, metacognitive awareness, and use of language learning strategies: How are they associated? *Theory and Practice in Language Studies, 4*(5), 1080-1092. doi:10.4304/tpls.4.5.1080-1092

Nosratinia, M., Shakoori, N., & Zaker, A. (2013). Language learners' internal factors and practical applications: A case of vocabulary learning strategies. *IOSR Journal of Humanities and Social Science, 17*(1)*,* 100-115. doi: 10.9790/0837-171100115

Nosratinia, M., & Zaker, A. (2013a, August). *Autonomous learning and critical thinking: Inspecting the association among EFL learners*. Paper presented at the First National Conference on Teaching English, Literature, and Translation, Shiraz University, Shiraz, Iran. Retrieved from http://www.civilica.com/Paper-TELT01-TELT01_226.html

Nosratinia, M., & Zaker, A. (2013b, April). *Creativity and autonomy: Connections for language learning*. Paper presented at the Second ELT Conference, Allameh Tabataba'i University, Tehran, Iran.

Nosratinia, M., & Zaker, A. (2014). Metacognitive attributes and liberated progress: The association among second language learners' critical thinking, creativity, and autonomy. *SAGE Open, 4*(3), 1-10. doi: 10.1177/2158244014547178

O' Neil, H. F., Abedi, J., & Spielberger, C. D. (1992). The measurement and teaching of creativity. In H. F. O'Neil & M. Drillings (Eds.), *Motivation: Theory and research* (pp. 245-264). Hillsdale, NJ: Lawrence Erlbaum Associates.

O' Donnell, A., Reeve, J., & Smith, J. (2012). *Educational psychology: Reflection for action* (3rd ed.). Hoboken, NJ: Wiley.

Paul, R., & Elder, L. (2008). The miniature guide to critical thinking concepts and tools. Retrieved August 2, 2014 http://louisville.edu/kent/CURRENT%20STUDENTS/bsw-practicum/MiniatureGuidetoCriticalThinking.pdf

Rao, D. B., & Prasad, S. S. (2009). *Creative thinking of school students.* New Delhi: Discovery Publishing House.

Read, J. (2000). *Assessing vocabulary*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9780511732942

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68-78. doi: 10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). Rochester, NY: University of Rochester Press.

Sarsani, M. R. (2005). Creativity: Definition and approaches. In M. R. Sarsani (Ed.), *Creativity in education* (pp. 1-7). New Delhi: Sarup & Sons.

Sarsani, M. R. (2006). *Creativity in schools.* New Delhi: Sarup & Sons.

Scharle, A., & Szabó, A. (2000). *Learner autonomy. A guide to developing learner responsibility.* Cambridge: Cambridge University Press.

Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

Scriven, M., & Paul, R. (2004). *Defining critical thinking.* Retrieved January 25, 2013 from: http://www.criticalthinking.org/pages/defining-critical-thinking/410

Shen, W. W. (2004). Does the practice of English vocabulary learning strategies follow theories? In Y. Leung & Y. Chen (Eds.), *Selected papers from the Thirteenth International Symposium on English Teaching*, (pp. 91-97). Taipei: The Crane.

Spratt, M., Humphreys, G., & Chan, V. (2002). Autonomy and motivation. Which comes first? *Language Teaching Research*, *6*(3), 245-266. doi: 10.1191/1362168802lr106oa

Springer, K. (2010) *Educational research: A contextual approach.* Hoboken, NJ: Wiley.

Sternberg, R. J. (2009). Domain-generality versus domain-specificity of creativity. In P. Meusburger, J. Funke, & E. Wunder (Eds.), *Milieus of creativity: An interdisciplinary approach to spatiality of creativity* (pp. 25-38). Dordrecht: Springer. doi: 10.1007/978-1-4020-9877-2_3

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Pearson Education, Inc.

Tarvin, W., & Al-Arishi, A. (1991). Rethinking communicative language teaching: Reflection and the EFL classroom. *TESOL Quarterly, 25*(1), 9-27. doi: 10.2307/3587026

Tsuchida, M. (2002). *The learning strategies: Helping students learn how to learn.* ERIC Document Reproduction Service No. ED463655.

Verhallen, M., & Schoonen, R. (1993). Vocabulary knowledge of monolingual and bilingual children. *Applied Linguistics, 14,* 344-363. doi: 10.1093/applin/14.4.344

Wagner, R. K. (1997). Intelligence, training, and employment. *American Psychologist, 52*(10)*,* 1059–1069. doi: 10.1037/0003-066X.52.10.1059

Willingham, D, T. (2008). Critical thinking: Why is it so hard to teach? *Arts Education Policy Review, 109*(4), 21-29. doi: 10.3200/AEPR.109.4.21-32

Yang, D. N. (1998). Exploring a new role for teachers: Promoting learner autonomy. *System, 26*(1)*,* 127-135. doi: 10.1016/S0346-251X(97)00069-9

Zaker, A. (2013). *The relationship among EFL learners' creativity, critical thinking, and autonomy* (Unpublished master's thesis). Islamic Azad University at Central Tehran, Iran.

Zireva, D., & Letseka, M. (2013). Obstacles to the development of critical thinking dispositions among student teachers at Morgenster teachers' college, Zimbabwe. *Mediterranean Journal of Social Sciences*, *4*(6), 671-680. doi:10.5901/mjss.2013.v4n6p671