

# Exploring the impact of Self-efficacy and Learning Styles on Iranian EFL Learners' Achievement Scores

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## Abstract

Although all human beings share the same bio-psychological features in the learning process, their preferences concerning the ways of giving meaning and acquiring information may vary considerably. In fact, these are the individual-specific differences which play key roles in learning process. The more we know about these differences, the better we can analyze the learning process. To determine whether those who are academically more successful, favor a particular learning style and/or have necessarily high degree of self-efficacy, among the various individual-specific differences, the learning styles and self-efficacy have been addressed in this study. A number of 110 advanced Iranian EFL learners studying English at a Language Institute in Tehran took part in this study. The homogenized sample of the study was selected with respect to their scores on the Oxford placement test (OPT). Then, the Kolb's (1984) learning styles inventory, the general self-efficacy scale designed by Schwarzer

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and Jerusalem (1995), and the achievement test were administered to the participants. The results of the study showed that there was a significant relationship between learners' self-efficacy and their achievement test scores. There was not a significant relationship between learners' vocabulary scores and their self-efficacy though. The results of the regression analyses showed that 15% of variability in reading comprehension score and 27% of variability in grammar score were predicted by Iranian EFL learners' self-efficacy. The results of ANOVA omnibus test of different groups of learning style revealed that there was no statistically significant correlation between Iranian EFL learners' learning styles and their achievement test scores. In the end, implications and suggestions for further research were proposed.

**Keywords:** Learning styles, Self-efficacy, Learners' achievement, EFL Learners, Individual differences.

## Introduction

Knowing the way learners think and learn is quite critical while designing and managing any educational system, as it may lead to desired outcomes in most of cases. Individual differences and their different ways of learning have been long debated by cognitive psychologists according to Liu and Reed (1994). To clarify the point, Chevrier et al. (2000) presented three classifications considering predispositions or priorities concerning teaching/learning settings; information processing; and personality aspects. As Kraus et al. (2001) state, learning style is a way any individual adopts to acquire information. It seems there is no determined way to learn in a particular context. Learners have their own learning styles that may change from context to context. Due to the variation of learning theories and styles, one can select flexibly different styles in various situations so as to use the most influential one. Another key personal feature playing a significant role in learning is self-efficacy. Self-efficacy refers to individuals' confidence about their abilities/skills adopted to control motivation, stress, etc. which are essential for a successful performance under particular circumstances (Bandura, 1997). It is a motivational part of instruction that has been presented to stimulate students' choice of tasks, goal levels, durability, and performance in different contexts (Zhao et al., 2005). Accordingly, the theory of self-efficacy is a vital component of Bandura's (1986) Social Cognitive Theory, which recommends high interrelatedness between learners' behaviors, environment and cognitive elements. To Bandura (1986), self-regulation extremely relies on self-efficacy beliefs. Perceived self-efficacy affects the level of goal challenge that learners set for themselves, the degree of endeavor they deploy and their durability in the face of problematic areas. Recognized self-efficacy is assumed to affect learners' performance both directly and indirectly via its impacts on self-set goals (Zimmerman et al., 1992). Different sources of variations have been already elaborated in the ways learners acquire information, yet the most contributing factor might be the inappropriate educational system which puts emphasis on what rather than how in dealing with different learning matters. A great amount of literature has addressed the issue of learn-

ing a language and interaction of individual differences so far (Alptekin & Atkan, 1990; Dörnyei, 2005; Jamieson, 1992). Keefe and Ferrell (1990) believe that difficulties learners experience are related to both the subject matters they study and types/levels of cognitive process they adopt in most of cases. Poor instructional methods, for example, have been blamed for such low academic achievements. Furthermore, although all human beings share the same biopsychological features, their priorities in learning and making sense of objects, knowledge, and surrounding environment might change considerably. In fact, these are the individual-specific differences which play key roles in learning process. The more we know about these differences, the better we can analyze the learning process. Meanwhile to overcome the existing gap whether those who are academically more successful favoring a particular learning style and/or having necessarily high degree of self-efficacy, among the various individual-specific differences, the learning styles and self-efficacy have been addressed in this study. It has been done especially due to the fact that few -if none- studies have been done in this area to the researchers' knowledge in an Iranian context. This study thus sought to explore the effect of learning styles/self-efficacy on achievement test scores of learners in an Iranian context.

## **Literature Review**

### **Learning Styles**

Individual differences may present themselves in life styles and even in personality types (Zhang & Sternberg, 2005). Learning styles are the constant methods learners adopt in comprehending and transferring knowledge according to Kolb (1984). Keefe (1987) considers learning styles as cognitive/affective and psychological features that work constantly all through the learning process. Students would rather instinctively particular forms of data/procedures while learning (Vainionpää, 2006). Knowledge about learning styles might be utilized to enhance learners' awareness about their strong/weak points (Coffield et al., 2004). Many learners are unaware of their own learning styles and if they are exposed to such tests, they would probably begin learning in new ways (Merrill, 2000). Coffield (2004) noticed that for those who are uncertain about their learning styles, it might be encouraging to explore novel methods to explain and discover their ways.

### ***Learning Style Theories and Models***

In the field of learning styles, many theories and models have been developed over time by different scholars. Various learning style theories have been used in studies and their inventories have been tested for the internal consistency and reliability by Coffield et al. (2004). The most well-known researchers covered different issues such as learning styles' tools of measurement (Dunn & Griggs, 2003), tests (Honey & Mumfords, 2000), and inventories (Kolb, 1984). Thus, Fleming's (2001) Visual/ Auditory/ Kinesthetic (VAK) Theory could not sufficiently depict the whole issue. Among these, several models can be extract-

ed from the same origin and are thus able to evaluate the same aspects (Felder & Soloman, 2004; Pask, 1972). Capretz (2006) believes each learning style has its own advantages/disadvantages. Most of the written studies dealing with learning styles are allocated to define learning styles (Lovelace, 2005; Pashler et al., 2009). Some sources consider particular approaches through recognizing classification schemes and stating the connection of such for education (Collinson, 2000; Denig, 2004; Young, 2002). Other sources provide an overview of different models, trying to provide a combined view of different approaches (Felder, 1996; Felder & Brent, 2005; Hall & Moseley, 2005). Not surprisingly, the plurality of learning style models is paralleled by wealth of assessment tools by which they may be recognized (Dunn et al., 1981; Kolb, 1976). However, a review of the important models must include learning modalities, multiple intelligences, and Dunn and Dunn learning styles model.

### ***Learning Style Types***

Fleming (2008) VARK learning style model deals with the way learners receive, interpret and transfer information. It addresses four modes of learning including visual, aural/auditory, reading/writing, and kinesthetic. Visual learners would rather collaborative learning settings, auditory learners feel at ease to work with audio/video materials (Pamela, 2011). Kinesthetic learners prefer to learn by doing/experiencing. Reading/writing learners would rather written/spoken materials and prefer printed texts.

### ***Learning Styles and Academic Achievements***

Many studies have been done, mainly in Western and Asian countries, to find out the correlation between individuals' learning styles and their academic achievements. Kopsovich (2001) investigated the correlation between learners' learning styles and their math results. The analyses revealed that students' learning styles affected their math scores significantly. Gender and ethnicity were contributing factors as well. The study showed that there was a significant correlation between the research variables.

Rezaeinejada et al. (2015) made an attempt to investigate the correlation between high school students' learning styles and their achievement scores. To that end, 3958 students were chosen. The results displayed a meaningful correlation between students' learning styles and their mean scores. In humanities subject field, there was no correlation between students' learning styles and their mean scores though. The analysis of the data showed a substantial difference between mean scores of humanities and mathematics students.

### **Self-efficacy**

Self-efficacy as a trait-like component is manifested in three recognizable ways in relation to learners, instructors, and institutions. The perception of self-

efficacy has a main part in the improvement of learners' self-regulatory skills. In essence, self-efficacy deals with the individuals' views about their own abilities to do an activity successfully (Pajares, 2002). Self-efficacy identifies the way people think, perceive, and finally behave. Self-efficacy deals primarily with cognitive judgments of individuals' own capabilities considering mastery criteria (Bang & Clark as cited in Çubukçu, 2008). Bandura's (1996) main principle considering self-efficacy is that it refers to individuals' affective states. None of these systems are more influential than personal efficacy views (Rahimpour & Nariman-Jahan, 2010). Niemivirta and Tapola (2007) asserted that self-efficacy influences types/levels of learners' objectives to some degree. Therefore, as Schunk (1991) showed, learners' self-efficacy was extracted from their beliefs and ideas under particular settings.

### ***Types and Sources of Self-efficacy***

After the emergence of self-efficacy, great number of categories came into existence. In one of these categories, Barone (2004) presented three kinds of self-efficacy including *self-regulatory* self-efficacy that is the ability to resist pair stress and keep away from demanding tasks, *social* self-efficacy which is the ability to create and keep relationships and be assertive involved in leisure time tasks, and *academic* self-efficacy that is the ability to do course work, organize learning tasks and meet expectations. In another categorization, Bandura (1994) presented four sources of efficacy on which efficacy beliefs are based: *mastery experience* that is past performance of learners and deals with the most influential method for creating a powerful sense of efficacy. The vital and necessary premise in mastery experience is the role of success in building a view in learners' personal efficacy and failures in weakening it. Indeed, learners' successful performance enhance their self-efficacy beliefs and their unsuccessful performance reduce their self-efficacy beliefs. The second way of generating and strengthening self-beliefs of efficacy that is *vicarious experience*. It deals with individuals' desire to pursue some attitudes, ideas, or terms of actions by verbal and/or symbolic means. Self-efficacy leads individuals to attempt strongly to succeed. As a result, they increase individuals' skills and physiological states in a sense the individuals depend on their emotions to some degree.

### ***Self-efficacy and Academic Achievements***

The concept is connected to the beliefs that learners are interested to use their capabilities to do different activities. Thus, decisions about self-efficacy resulted from different experience modeled by others, from past experiences/accomplishments, encouragements, etc. In a study carried out by Bates and Khasawneh (2007), they made attempts to explore the effect of self-efficacy perception on online learning. They found self-efficacy is affected by four elements under such circumstances.

In academic settings, self-efficacy revolves around two major areas (Pajares, 1996). The first area is the connection between efficacy beliefs and college major and career selections, specifically in the areas of mathematics and sciences (Farmer et al., 1995; Lent et al., 1984; Lent & Hackett, 1987). The second area examined the relationship between students' self-efficacy, motivation, and their achievement scores.

It should be mentioned that Pajares (1997) distinguished the self-efficacy for achievement purposes from that for the learning purposes. The study carried out by Rogers (1985) indicated the advantages that adult learners can improve when they find themselves accountable for it. In a study, Goulão (2014) aimed at evaluating the correlation between students' self-efficacy and their achievements. The analysis of the collected data from 63 learners both males/females with the age range of 42 revealed that the participants' levels of self-efficacy were high and there was a meaningful correlation between learners' self-efficacy and their academic achievements. Solheim (2011) examined the effect of self-efficacy on reading comprehension scores of the students. He studied fifth grade students to realize if the students' self-efficacy can predict their reading comprehension scores. He found self-efficacy was a strong predictor of students' reading comprehension scores.

The main purpose of the current research was exploring the effect of learning styles and self-efficacy on Iranian EFL learners' achievement test scores through answering the following research questions:

**RQ1:** Does students' self-efficacy predict their achievement test scores?

**Sub.RQ1.** Does students' self-efficacy predict their vocabulary scores?

**Sub.RQ2.** Does students' self-efficacy predict their reading comprehension scores?

**Sub.RQ3.** Does students' self-efficacy predict their grammar scores?

**RQ2:** Does students' learning style predict their achievement test scores?

**Sub.RQ1.** Does students' learning style predict their vocabulary scores?

**Sub.RQ2.** Does students' learning style predict their reading comprehension scores?

**Sub.RQ3.** Does students' learning style predict their grammar scores?

## Methodology

### Participants

This study included 110 male and female advanced EFL learners. The age range of these students was between 16 ~ 22. They were studying English as a foreign language in an institute in Tehran. They were selected based on their results on the Oxford Placement Test (OPT). All the participants spoke Persian as their L1 and none of them had been in English spoken countries before.

### Instruments

To meet the objectives of the research, the researchers used some instruments as follows:

***Oxford Placement Test (OPT)***

In order to form a homogenized sample, a number of 110 advance EFL learners completed an OPT (version 1). This test is often used by researchers as the language proficiency test in which participants' scores according to the test norms are ranked in 6 levels from beginners to advanced levels. The OPT consists of two parts with 60 multiple-choice/cloze test items. The first part consists of 40 questions measuring learners' grammar knowledge and the second part consists of 20 questions assessing learners' vocabulary knowledge. Participants had 60 minutes to complete this part.

***General Self-efficacy Scale (GSE)***

Schwarzer and Jerusalem's (1995) self-efficacy inventory was utilized in the study. Internal reliability and validity for GSE have been already confirmed in various studies to-date. Responses were made based upon a four-point Likert scale and the total score was between 10 and 40. Those who obtained higher scores were assumed to have more self-efficacy.

***Kolb's Learning Styles Inventory***

Kolb's learning styles inventory (1984) indicates the participants' preference for a learning style. This inventory shows the mode in which learners learn best. These modes include visual, auditory, and kinesthetic. For example, while a learner may prefer an 'active' learning style, s/he may use that style best in the form of a kinesthetic mode, i.e., learning through doing. This scale consists of 36 statements in three sections, visual, auditory, and kinesthetic, 12 statements in each section. Responses were made based upon a five-point Likert scale and the total score was between 36 and 180. Any part the participants get the highest mark represents their favorite learning style.

***Achievement Test***

This test was designed to assess the approximate levels of students' attainments at the end of their terms. It consisted of structure, word expression, and comprehension check items. The grammar part included 30 multiple-choice items; the vocabulary part consisted of 10 multiple-choice items and the reading part consisted of 4 different passages along with 10 multiple-choice items. The total number was 40.

**Design of the Study, Data Collection, and Data Analysis Procedures**

The design of the study was the descriptive correlational design. The researchers of this study applied this method to explore the relationships between three

research variables; learners' self-efficacy and learning styles as independent variables and their achievement test scores as dependent variables. Before starting the experiment, the OPT was administered to all participants to ensure their homogeneity. In the beginning of the term, the Kolb's (1984) learning styles inventory was administered to the sample of the study. The participants were asked to read each statement carefully. To the left of each statement, they had to write the number that best described how each statement applied to them. They were asked to answer honestly as there were no correct or incorrect answers. It was best if they did not think about each question too long, as this could lead them to the wrong conclusions. When the participants completed all 36 statements, 12 statements in each section of visual, auditory, and kinesthetic, the researchers put their scores in the spaces provided. It should be mentioned that the scores of the participants in each section and all three parts were calculated separately. Afterwards, Schwarzer and Jerusalem's (1995) self-efficacy scale was administered to the participants. The respondents were asked to read 10 items and choose one item of the 4-point Likert scale. At the end of the semester, the achievement test was administered to the participants. They were asked to choose the correct answers among alternatives. The scores obtained from this test were used as learners' achievement scores. The researchers put the data in Statistical Package for the Social Sciences (SPSS) program. Then various regression analyses were carried out to analyze, interpret, and report the findings. These analyses were performed between achievement scores as the criterion variables (Plonsky & Ghanbar, 2018) and self-efficacy and learning styles as the predictor ones.

## Results

### First Research Question Analysis Report

Before conducting the regression all its statistical assumptions were checked. First, the assumptions of normality were examined. As can be seen in Table 1, skewness and kurtosis measures were between -2 and +2, so according to Tabachnick and Fidell (2013), the data met the assumption of normality. Second, as it was also displayed in Table 1, the Durbin-Watson test of autocorrelation of residuals showed their independence (Plonsky & Ghanbar, 2018).

**Table 1.**

*The Descriptive Statistics of Predictor and Criterion Variables in Regression Equation (N = 110)*

|       | N         | Mean      | Std. Deviation | Skewness  |            | Kurtosis  |            |
|-------|-----------|-----------|----------------|-----------|------------|-----------|------------|
|       | Statistic | Statistic | Statistic      | Statistic | Std. Error | Statistic | Std. Error |
| GSE   | 110       | 31.35     | 5.94           | -0.38     | 0.23       | -0.78     | 0.46       |
| Total | 110       | 73.94     | 12.88          | 0.08      | 0.23       | 0.34      | 0.46       |

Note : GSE = General Self-Efficacy



The unstandardized regression coefficients (B), standardized regression coefficients ( $\beta$ ), R,  $R^2$ , and adjusted  $R^2$  were shown in Table 2. According to Table 2, Iranian EFL learners' self-efficacy ( $B = 1.91$ ,  $S.E = .10$ ,  $\beta = .88$ ,  $t = 19.31$ ,  $p = .00$ ) did significantly predict their achievement scores.

**Table 2.**  
*Regression Coefficients of Regression Analysis*

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
|       |            | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant) | 14.08                       | 3.15       |                           | 4.46  | 0.00 |
|       | GSE        | 1.91                        | 0.10       | 0.88                      | 19.31 | 0.00 |

*Test of Significance of Regression Equation*

| Model      | Sum of Squares | df     | Mean Square | F      | Sig. |
|------------|----------------|--------|-------------|--------|------|
| Regression | 14013.57       | 1.00   | 14013.57    | 373.05 | .00  |
| Residual   | 4056.98        | 108.00 | 37.56       |        |      |
| Total      | 18070.55       | 109.00 |             |        |      |

*R,  $R^2$ , adjusted  $R^2$ , and Test of Independence of Residuals of Simple Regression Analysis*

| R    | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|------|----------|-------------------|----------------------------|---------------|
| 0.88 | 0.78     | 0.77              | 6.13                       | 1.54          |

As it can be seen in Table 2, R for regression was meaningfully different from zero,  $F(1, 108) = 373.05$ ,  $p = .00$ , with  $R^2$  at .78, suggesting the significance of this regression model. The adjusted  $R^2$  value of .77 indicated that 77% of variability in total scores was predicted by participants' self-efficacy. In conclusion, the answer to the first question was positive.

***First Sub-Research Question Analysis Report***

To answer the first sub-research question, another simple linear regression was carried out. It was implemented between vocabulary scores as the criterion variables and self-efficacy as the predictor one. The unstandardized regression coefficients (B), standardized regression coefficients ( $\beta$ ), R,  $R^2$ , and adjusted  $R^2$  were shown in Table 3. According to Table 3, participants' self-efficacy ( $B = .25$ ,  $S.E. = .12$ ,  $\beta = .18$ ,  $t = .18$ ,  $p = .06$ ) did not significantly predict their vocabulary scores.

**Table 3.**  
*Regression Coefficients of Regression Analysis with Vocabulary Scores as a Criterion Variables*

| Model      | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig. |
|------------|-----------------------------|------------|---------------------------|------|------|
|            | B                           | Std. Error | Beta                      |      |      |
| (Constant) | 14.08                       | 3.15       |                           | 4.46 | 0.00 |
| GSE        | 0.25                        | 0.12       | 0.18                      | 0.18 | 0.06 |

*Test of Significance of Regression Equation*

| Model      | Sum of Squares | df     | Mean Square | F    | Sig. |
|------------|----------------|--------|-------------|------|------|
| Regression | 240.10         | 1.00   | 240.102     | 3.75 | .06  |
| Residual   | 6932.16        | 108.00 | 64.18       |      |      |
| Total      | 7172.28        | 109.00 |             |      |      |

*R, R<sup>2</sup>, adjusted R<sup>2</sup>, and Test of Independence of Residuals of Simple Regression Analysis*

| R    | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|------|----------|-------------------|----------------------------|---------------|
| 0.18 | 0.03     | 0.02              | 8.01                       | 1.32          |

As can be seen in Table 3, R for regression was not meaningfully different from zero,  $F(1, 108) = 3.75$ ,  $p = .06$ , with  $R^2$  at .03, signifying the non-significance of this regression model. The adjusted  $R^2$  value of .02 indicated that only 2% of variability in vocabulary scores was predicted by participants' self-efficacy. In sum, the answer to the first sub-research question was negative.

**Second Sub-Research Question Analysis Report**

To answer the second sub-research question, another simple linear regression was conducted. It was run between reading comprehension scores as the criterion variables (Plonsky & Ghanbar, 2018) and self-efficacy as the predictor one. The unstandardized regression coefficients (B), standardized regression coefficients ( $\beta$ ), R,  $R^2$ , and adjusted  $R^2$  were shown in Table 4. According to Table 4, Iranian EFL learners' self-efficacy ( $B = .72$ ,  $S.E. = .15$ ,  $\beta = .40$ ,  $t = 4.60$ ,  $p = .00$ ) did significantly predict their reading comprehension scores.

**Table 4.**  
*Regression Coefficients of Regression Analysis with Reading Comprehension Scores as the Criterion Variables*

| Model      | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig. |
|------------|-----------------------------|------------|---------------------------|------|------|
|            | B                           | Std. Error | Beta                      |      |      |
| (Constant) | 4.75                        | 5.04       |                           | 0.08 | 0.00 |
| GSE        | 0.72                        | 0.15       | 0.40                      | 4.60 | 0.00 |

*Test of Significance of Regression Equation*

| Model      | Sum of Squares | df     | Mean Square | F     | Sig. |
|------------|----------------|--------|-------------|-------|------|
| Regression | 2034.62        | 1.00   | 2034.92     | 21.20 | ,00  |
| Residual   | 10361.63       | 108.00 | 95.94       |       |      |
| Total      | 12396.55       | 109.00 |             |       |      |

*R, R<sup>2</sup>, adjusted R<sup>2</sup>, and Test of Independence of Residuals of Simple Regression Analysis*

| R    | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|------|----------|-------------------|----------------------------|---------------|
| 0.40 | 0.16     | 0.15              | 9.13                       | 1.25          |

As can be seen in Table 4, R for regression was meaningfully different from zero,  $F(1, 108) = 21.20$ ,  $p = .00$ , with  $R^2$  at .16, representing the significance of this regression model. The adjusted  $R^2$  value of .15 indicated that 15% of variability in reading comprehension scores was predicted by participants' self-efficacy. Consequently, the answer to the second sub-research question was positive.

**Third Sub-Research Question Analysis Report**

To answer the third sub-research question, the last single linear regression was utilized. It was conducted between grammar scores as the criterion variables (Plonsky & Ghanbar, 2018) and self-efficacy as the predictor one. The unstandardized regression coefficients (B), standardized regression coefficients ( $\beta$ ), R,  $R^2$ , and adjusted  $R^2$  were shown in Table 5. According to Table 5, Iranian EFL learners' self-efficacy ( $B = .69$ ,  $S.E. = .10$ ,  $\beta = .53$ ,  $t = 6.51$ ,  $p = .00$ ) did significantly predict their grammar scores.

**Table 5.***Regression Coefficients of Regression Analysis with Grammar Scores as the Criterion Variables*

| Model | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig. |      |
|-------|-----------------------------|------------|---------------------------|------|------|------|
|       | B                           | Std. Error | Beta                      |      |      |      |
| 1     | (Constant)                  | 1.29       | 3.39                      |      | 0.38 | 0.00 |
|       | GSE                         | 0.69       | 0.10                      | 0.53 | 6.51 | 0.00 |

*Test of Significance of Regression Equation*

| Model      | Sum of Squares | df     | Mean Square | F     | Sig. |
|------------|----------------|--------|-------------|-------|------|
| Regression | 1842.61        | 1.00   | 1842.61     | 42.45 | ,00  |
| Residual   | 4687.38        | 108.00 | 43.40       |       |      |
| Total      | 6530.00        | 109.00 |             |       |      |

*R, R<sup>2</sup>, adjusted R<sup>2</sup>, and Test of Independence of Residuals of Simple Regression Analysis*

| R    | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|------|----------|-------------------|----------------------------|---------------|
| 0.53 | 0.28     | 0.27              | 6.58                       | 1.31          |

As can be seen in Table 5,  $R$  for regression was meaningfully different from zero,  $F(1, 108) = 42.45$ ,  $p = .00$ , with  $R^2$  at .28, demonstrating the significance of this regression model. The adjusted  $R^2$  value of .27 indicated that 27% of variability in grammar scores was predicted by participants' self-efficacy. As a result, the answer to the third sub-research question was positive.

## Second Research Question Analysis Report

To answer the second research question, a one-way between-groups ANOVA was exploited to explore any significant differences among different learning style groups on their total achievement scores. Prior to its implementation, all the statistical requirements of ANOVA including skewness and kurtosis measures (that is, all the groups' skewness and kurtosis measures were between -2 and +2) and homogeneity of variance (that is, the non-significance of Test of Homogeneity of Variances) were probed in Table 6.

**Table 6.**  
*The Descriptive Statistics of Different Groups of Learning Style (N = 110)*

| Learning Strategy | N  | Mean  | Std. D | Skewness  |            | Kurtosis  |            |
|-------------------|----|-------|--------|-----------|------------|-----------|------------|
|                   |    |       |        | Statistic | Std. Error | Statistic | Std. Error |
| Visual            | 41 | 73.46 | 12.44  | .03       | .37        | -.86      | .72        |
| Auditory          | 41 | 75.54 | 13.02  | -.05      | .37        | -1.59     | .72        |
| Kinesthetic       | 28 | 72.29 | 13.48  | .33       | .44        | -1.56     | .86        |

**Table 7.**  
*Levene's Test of Homogeneity of Variance*

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| .725             | 2   | 107 | .487 |

ANOVA omnibus test revealed that there was no statistically meaningful difference across different learning style groups on their total achievement scores,  $F(2, 107) = .57$ ,  $p = .56$  (see Table 8), signposting this fact that there was no statistically significant relationship between Iranian EFL learners' learning styles and their achievement scores, something which was lucid when looking at descriptive statistics results which was inferentially tested as well. To sum up, it can be said that there was no statistically significant association between participants' learning styles and their achievement scores and the answer to the second research question was negative.

**Table 8.**  
*ANOVA of Different Groups of Learning Style (N = 110)*

|                | Sum of Squares | df     | Mean Square | F    | Sig. |
|----------------|----------------|--------|-------------|------|------|
| Between Groups | 190.45         | 2.00   | 95.23       | .570 | .567 |
| Within Groups  | 17880.10       | 107.00 | 167.10      |      |      |
| Total          | 18070.55       | 109.00 |             |      |      |

## Discussion

The outcomes of regression analysis concerning first research question and its sub- research questions showed there was a meaningful correlation between participants' self-efficacy and their achievement test scores. Indeed, 77% of variability in achievement test total scores was predicted by learners' self-efficacy. Such result was supported by the findings reported by Rogers (1985), Bates and Khasawneh (2007), Solheim (2011), and Goulão (2014). The results also showed that only 2% of variability in vocabulary scores was predicted by learners' self-efficacy. It means that there was not a significant relationship between learners' vocabulary scores and their self-efficacy. These findings were in line with those reported by the research carried out by Magogwe and Oliver (2007). The results were not consistent with those reported by Zaki and Ellis (1999), Rasekh and Ranjbary (2003), Mizumoto and Takeuchi (2009), and Mizumoto (2013) though. The statistical analyses also confirmed that 15% of variability in reading comprehension scores was predicted by Iranian EFL learners' self-efficacy. These findings were in agreement with those reported by Sani and Zain (2001), Tercanlioglu (2003), Ghonsooly and Ellahi (2011), and Ghabdian and Ghafournia (2016). The analyses also displayed that 27% of variability in grammar scores was predicted by Iranian EFL learners' self-efficacy. It means that learners' self-efficacy significantly predicted their grammar scores. The outcomes of this research are in agreement with those found by Collins and Bissell (2004). They also found a poor correlation between students' self-efficacy and their grammar scores.

To test the second research question, a one-way between-groups ANOVA was run. The results of ANOVA omnibus test of different groups of learning style showed that there was not any statistically meaningful difference across different learning style groups on their total achievement scores. It signposts that there was not any statistically meaningful correlation between participants' learning styles and their achievement test scores, something which was lucid when looking at descriptive statistics results which was inferentially tested as well. To summarize, there was no statistically significant correlation between Iranian EFL learners' learning styles and their achievement scores. The results of this study support those findings reported by Yilmaz-Soylu and Akoyunlu (2002) and Daniel et al. (2002). They found that the type of the learning styles was not significantly influential in learners' achievements in different learning environments. The results are also similar to those results reported by Emamipour and Esfandabad (2007) which showed that there was not any correlation between students' learning styles and educational achievements. However, the findings contradict to those found/reported by Abidin et al. (2011). They found a positive correlation between students' learning styles and their academic achievements. The results of this study were not in agreement with the results of the studies carried out by Izadi and Mohammadzadeh (2007), and Najafi et al., (2010) which indicated relationship between learning styles and learners' educational advancement. They revealed that in examining the relationship between learning styles by Meyers-Brigs and learners' educational advancement, there was relationship between sensational-intuitive dimension

and educational advancement. The results also were not in agreement with the findings of Dunn and Dunn (1986). Their results showed that multi-style students mostly achieved more and scored better than students with one or two learning styles.

The outcomes of this research revealed that the learning styles had no impact on participants' achievement scores. It is due to the fact that it is either impossible to consider all learning styles/priorities or implausible to demonstrate how each student learns best in a stable way. The reason behind that is learning style is only one out of numerous features contributing to students' learning in most of cases. The findings revealed that self-efficacy could predict the learners' achievement scores to some degree. These findings prove that it is necessary for teachers to combine learning styles with other individual differences and bio-psychological features such as learners' motivation, personality traits, language aptitude, etc.

## Conclusions

In educational settings, in most cases, very successful students learn in variety of ways (Dunn & Dunn, 1986). It can be concluded that, when teachers determine using the appropriate way of teaching their learners, it would help them to choose the most suitable teaching strategies/styles. The current research results did not show statistically meaningful correlation between participants' learning styles and their attainment test scores. Considering the self-efficacy dimension of the current study, the findings showed that participants' self-efficacy did well predict their achievement scores; it means that there was a strong correlation between learners' self-efficacy and their attainment scores. To achieve success in EFL setting, it is essential to pay attention to all features of the pedagogical process from learners' self-efficacy to language skills and elements. The findings of this study implicitly indicated that learners' self-efficacy had a contributing impact on participants' attainment in an Iranian context.

The outcomes of this research present pedagogical implications and recommendations for instructors to promote the qualities of materials, syllabi, etc. as these might enable students to achieve good commands of English in instructed settings. Learners need to use their knowledge, different learning styles and self-efficacy to achieve good status in language skills. As for the limitations of the study, it took a limited number of participants from one educational context into account. Further research is thus required to be carried out with a larger number of participants. The scope of the study was limited to the descriptive data obtained from the GSE (1995), Kolb's LSI (1984) and learners' achievement test scores. Further study is required to uncover the existence of various learning styles and a variety of major and minor learning styles among EFL students. Further research with more variables seems necessary in the context of Iran. Examining other variables such as motivation, socioeconomic status or students' personality types would be also suggested for further stud-

ies. Determining classroom interactions between teacher/learners and/or learners/peers is also recommended for future research as they might increase self-efficacy among learners. The effect of gender and cultural variables could be also taken into account in future.

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