# EFL Learners' Language Learning Strategy Use, Instrumental Motivation, Self-efficacy, Self-regulation, Autonomy, and L2 Achievement: A SEM Analysis

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**Abstract:** The idea that individual characteristics impact the language learning process has led scholars to consider various aspects in relation to learners and their learning. The current study explored the associations among EFL learners' language learning strategy use, instrumental motivation, self-efficacy, self-regulation, autonomy, and L2 achievement. To do this, 220 Iranian EFL learners (95 males and 125 females) took part in the study by filling out five questionnaires related to the abovementioned variables. The learners' GPAs were also collected and adjusted and regarded as their L2 achievement. Structural equation modeling (SEM) was performed to examine the causal relationships among the variables. The results showed that the use of language learning strategies, self-efficacy, and autonomy were significant positive predictors of L2 achievement. However, instrumental motivation and self-regulation did not predict L2 achievement. Furthermore, L2 achievement had the highest positive association with autonomy and the lowest positive association with self-regulation. The results are discussed in detail and the implications are presented.

**Keywords:** Language Learning Strategy use, Instrumental Motivation, Self-Efficacy, Self-regulation, Autonomy, L2 Achievement.

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## Introduction

Recently, language learning and teaching have experienced substantial changes in focus from a teacher-oriented perspective toward a student-centered approach (Crane & Sosulski, 2020). As Nyikos and Oxford (1993) maintain, "learning begins with the learner" (p. 11). The importance of student-centered learning has thus led scholars to conduct various studies on learner characteristics and psychological factors that are assumed to accelerate the direction of learning (Benson, 2001). In fact, for some students, acquiring foreign languages can be considered a distressing and frustrating undertaking (Brown, 2000; Griffiths, 2003) that is profoundly influenced by such personal variations and individual learner characteristics as socio-demographic features as well as affective-psychological elements like motivation, self-regulation, and self-efficacy (Kim et al., 2015). Among the individual learner characteristics that are assumed to influence academic achievement during the journey of foreign language learning are language learning strategy use, instrumental motivation, self-efficacy, self-regulation, and autonomy which are examined in the present study.

## Literature Review

### *Instrumental Motivation*

Motivation can be regarded as a notion to clarify why individuals choose to do particular things and how much exertion they invest in doing them (Keller, 2010).  As Brown (2000) stated earlier, motivation can be described as an inner drive that directs one towards a specific action. Using theoretical paradigms from both motivational psychology and L2 motivation research, Dornyei (2009) recommended the concept of the L2 motivational self-system as a different model that takes account of three major dimensions, i.e., the ideal L2 self, the ought-to L2 self, and the L2 learning experience. However, earlier Gardner (1985) proposed the socio-educational model as one of the dominant models in relation to L2 motivation. Gardner (1985, 2000) stated that motivation to learn L2 requires three components including effort, want, and positive attitude.

Gardner and Lambert (1972) presented two classifications in terms of motivation including instrumental motivation and integrative motivation. Instrumental motivation involves individuals' desire to reach their goals through the second language and represents the situation where the learners' goals of learning the language are oriented towards

functional purposes (e.g., job demands, exam purposes, and travel) (Kim & Kim, 2021). Integrative orientation, however, describes the situation in which the learner has an inclination toward the target culture and tends to identify with the members of the target language. As stated by Masgoret and Gardner (2003), a learner with integrative motivation can be considered as a person who is stimulated to acquire a foreign language, can easily identify with the community of the foreign language, and has positive attitudes in relation to the language. According to Brown (2000), instrumental motivation can be defined as the willingness to acquire a language to get a particular job or achieve educational or financial objectives. Integrative motivation, on the other hand, can be defined as the inclination to acquire a language emanating from "a positive affect toward a community of its speakers" (Brown, 2000, p. 75). Gao (2010) also explains that both types of motivation can result in success and that lack of either one might result in failure.

For example, Latifah et al. (2011) investigated the association between anxiety, motivation, instrumental motivation, and English proficiency of Malaysian ESL learners. The results showed that the four variables were significantly correlated with the learners' English proficiency. Moreover, according to the authors, all of the factors excluding personal motivation could affect the performance of learners.

### Language Learning Strategy (LLS) Use

Another significant factor that seems to influence language learning outcomes is LLSs. Numerous researchers have stressed learners' participation in the language learning process since 1970, resulting in some additional studies to illustrate the important impact of using LLSs on learning (e.g., Bai & Wang, 2021; Griffiths, 2003; O'Malley & Chamot, 1990; Phakiti, 2003). Some studies have found that incorporating learning strategies into the learning process will result in more competent and engaged learners (e.g., Bromley, 2013; Dörnyei, 2005).

There are many descriptions and explanations of LLSs. As O'Malley and Chamot (1990) stated, LLSs denote the particular outlooks and ideas that people adopt to understand, acquire, and maintain new information. Rubin (1987) holds that LLSs refer to specific approaches, actions, techniques, and behaviors that learners employ to accelerate the learning of a language. As stated by Lee (2010), the purpose of adopting LLSs is to acquire something more effectively. Learners that use appropriate LLSs have a better comprehension of the learning process, which might lead to learning success.

Various definitions of LLSs have been proposed by such scholars as Rubin (1987), Oxford (1990), and Stern (1992). For example, the proposed classification of LLSs by O'Malley and Chamot (1990) includes cognitive, metacognitive, and socio-affective strategies. Cognitive strategies comprise techniques and strategies that are employed by students to get, save, and use language information. Metacognitive strategies are the abilities that might include preparing for, managing, or assessing the attainment of a learning activity. Socio-affective strategies are those actions that involve either communication with other individuals or ideational regulation over affectation.

Oxford (1990) proposed an LLS classification that divides strategies into two groups of direct and indirect with six subscales in between. Direct strategies are learners' strategies to connect directly to the target language and can be divided into cognitive, memory, and compensation strategies. Conversely, indirect strategies are labelled as affective, metacognitive, and social strategies because they help learners to plan, regulate, and manage their learning irrespective of directly using the L2.

Many studies have investigated the association between the achievement of L2 learners and their LLS use. For one, Wharton (2000) examined the learning strategies employed by students in Singapore acquiring French and Japanese as a second language. As the study results showed, learners' use of LLSs had a positive association with their foreign language competency level.

In the Iranian context, Rahimi, Riazi, and Saif (2008) scrutinized the use of LLSs in terms of the level of proficiency. The researchers found that proficiency level as a key predictor contributed to students' use of LLSs. More recently, Taheri et al. (2020) explored the relationship between learners' acquiring foreign language skills (i.e., writing, reading, listening, and speaking) and LLSs in a mixed-method study. One hundred and twenty Iranian students took part in the research. Results showed that the majority of the students found it beneficial to use LLSs. The researchers also found some differences between low achievers and high achievers in relation to the frequency and kind of LLSs they used.

### Self-efficacy

According to Bandura's Social Cognitive Theory, self-efficacy denotes "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Pajares (2008) stated that self-efficacy relates to students' assessment of their own educational capacity. People who believe they are more effective in

learning a second language, consider themselves more capable of reaching their goals than people who believe that their level of self-efficacy is lower which would usually lead them to avoid admitting difficult tasks and asserting failure from the beginning of the action (Cai et al., 2021). According to Bandura (1997), vicarious experiences, mastery experiences, social persuasion, and affection and physiological states are the four key effective foundations in the progression of self-efficacy.

Self-efficacy has been highlighted as an effectual element in academic achievement (Cai et al., 2021). As Zimmerman and Kitsantas (2005) stated, learners who have high levels of self-efficacy would be more responsible for their learning, and also consider themselves more active learners. Cotterall (1999) considers self-efficacy as one of the most crucial variables in language learning and an important factor in student achievement.

Chen (2007) investigated the connection between learner self-efficacy and English listening performance at two major Taiwanese institutions. The learners' proficiency levels were calculated using their marks in a listening course. The English listening self-efficacy scale and the English anxiety and perceived English value scale were two sub-scales of the questionnaire utilized. The learners' self-efficacy showed a substantial association with their listening performance. Additionally, the results indicated that students' self-efficacy was more predictive of their listening performance than perceived value and anxiety.

Similarly, Ghorbandordinejad and Afshar (2017) studied the correlation between perfectionism, self-efficacy, and success in English among 400 Iranian EFL students. The Self-Efficacy Questionnaire (SEQ) and the Almost Perfect Scale-Revised (APS-R) were completed by the participants. Moreover, data from the learners' final English test were used to determine their English success. The findings showed a substantial positive correlation between self-efficacy and English success among students. Perfectionism was also found to have a negative association with English achievement.

### Autonomy

A widely used description of learner autonomy proposed by Holec (1980) represents it as an individual's ability to take charge of their own learning. Benson (2001) declared that autonomy refers to the ability to "take control of one's own learning" (p. 47). As stated by Benson, autonomy comprises three dependent facets: learning control, cognitive procedure, and learning content, which represents the learners' abilities to manage these three facets.

Along the same lines, Little (1991) states that learners with sufficient autonomy have the ability to communicate competently to fulfill various social, psychological, and discourse roles. According to Scharle and Szabo (2000), autonomy includes increasing consciousness, modifying attitudes, and shifting roles to learners. More autonomous learners are said to have strong enthusiasm for learning and attaining their goals and also possess a high sense of efficacy in their learning (Little, 2022). Moreover, autonomous learners feel responsible for both their learning decisions and the application of their decisions (Benson, 2001).

Nosratinia and Zaker (2013) scrutinized the association between autonomy and critical thinking of 182 EFL learners from two universities in Iran. As the results revealed, autonomy and critical thinking of EFL learners were strongly positively associated.

Additionally, Hashemian and Soureshjani (2011) explored the possible correlation between motivation, autonomy, and academic achievement of 60 L2 students in distance education. The students were administered the Learner Autonomy Questionnaire and the Motivation Questionnaire. The results revealed that there was a significant positive association between academic performance and the autonomy of students. Furthermore, students' motivation was positively correlated with their academic performance.

Furthermore, Sedighi and Hadidi Tamjid (2016) studied the association between students' use of vocabulary strategies and their autonomy. The participants included 82 students. The findings revealed that across both genders there was a significant positive association between students' use of vocabulary learning strategies and autonomy.

## Self-regulation

Recently, various theories in relation to self-regulation have been proposed all of which have many similar characteristics. According to Zimmerman (2000), self-regulation incorporates "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" (p. 14). Generally, self-regulation denotes learners' capability in regulating their own strategies and behaviors to accomplish their academic achievements (Tang & Calafato, 2021). Dörnyei (2005) believes that self-regulation represents the level of student participation in the process of learning, and in contrast to learning strategies, it can be considered more dynamic.

Turan and Demirel (2010), for example, explored the association between self-regulation and learners' achievement. As the findings revealed, learners' self-regulation abilities had a significant positive association with their accomplishment. In another study,

Ghanizadeh and Mirzaee (2012) explored the correlation between critical thinking ability, self-regulation, and language success among Iranian learners. The findings showed that self-regulation skills and critical thinking predicted almost 53% and 28% of EFL learners' language achievement, respectively.

A noteworthy point is that most of the studies reviewed here in this part were either small-scale or associational in nature. However, more large-scale projects and research on causal relations are needed to delve into the topic under investigation more deeply.

### *Significance of the Study and Research Questions*

Overall, many scholars have considered the variables that are critical to the process of language learning to improve the quality of teaching and learning performance that might be affected by some personality traits and learner characteristics (Andreou, Vlachos, & Andreou, 2006; Dörnyei & Ryan, 2015). Even though various elements and factors of individual difference have been extensively explored, our perception of how such elements mediate the learning process is still incomplete and in a status of continuous flux (Pawlak, Csizér, & Soto, 2020). This is mainly due to the fact that current theories are subject to reconceptualization, new notions are suggested, novel frameworks keep developing, and there exist chief variances in how particular elements are operationalized (Pawlak, et al., 2020). Moreover, as aptly asserted by Dornyei and Ryan (2015), individual difference variables should be inspected in different macro-, micro-, or meso- level contexts, and that individual difference variables enter into complicated interactions, with the necessity to investigate interconnection between them. Moreover, individual variations and academic performance are believed to be complicated and context-specific in language learning (Crane & Sosulski, 2020; Dörnyei, 2005), which justifies the need for the conduct of the present study. Hence, since less is known about how constellations of individual difference elements function and how they influence language learning improvements (Perez-Vidal, 2017), the current study aims to investigate the relationship between the five aforementioned variables and determine among use of LLSs, instrumental motivation, self-efficacy, self-regulation, and autonomy, which one best predicts the academic performance of EFL learners. Identifying potential correlations between these variables by using the structural equation modeling (SEM) approach will give a clear understanding of the role of the aforementioned variables in EFL learners' performance. The study thus addressed the following research questions:

1) Is there a significant relationship between Iranian EFL learners' instrumental motivation and their L2 achievement?

2) Is there a significant relationship between Iranian EFL learners' language learning strategy use and their L2 achievement?

3) Is there a significant relationship between Iranian EFL learners' self-efficacy and their L2 achievement?

4) Is there a significant relationship between Iranian EFL learners' autonomy and their L2 achievement?

5) Is there a significant relationship between Iranian EFL learners' self-regulation and their L2 achievement?

6) Do language learning strategy use, instrumental motivation, self-efficacy, self-regulation, and autonomy significantly predict Iranian EFL learners' L2 achievement?

7) What is a valid model of Iranian EFL learners' L2 achievement in terms of language learning strategy use, instrumental motivation, self-efficacy, self-regulation, and autonomy?

## Method

### *Participants*

The present study included 220 (95 male and 125 female) EFL students, who were studying at the Shahid Chamran University of Ahwaz and Islamic Azad University of Behbahan. It is noteworthy that the participants were at BA level who were selected based on convenience sampling. They were, in fact, first-year and second-year students of English Literature or Translation Studies. The participants' age ranged from 19 to 30 and their mother tongue was Persian. The informed consent of the participants was also obtained before the study began.

### *Instruments*

The instruments below were employed to collect the required data in the current study.

### *Instrumental Motivation Questionnaire*

The Instrumental Motivation Questionnaire adapted from Kimura, Nakata, and Okumura (2001), Carreira (2004), and Takagi (2003), was a 14-item Likert scale inventory with five

options for each item, ranging from 'strongly agree' to 'strongly disagree'. The estimated reliability of the questionnaire was 0.83 in this study. Moreover, the acceptable validity of the questionnaire and its subscales has already been widely verified in various EFL contexts including Iran.

### Language Learning Strategy Use Questionnaire

The questionnaire utilized in this study was Oxford's (1990) Strategy Inventory for Language Learning (SILL). This questionnaire has 50 Likert-type questions, which range from 1 (never or almost never true of me) to 5 (always or almost always true of me). Oxford has developed a six-category taxonomy scheme for LLSs (i.e., cognitive, memory, compensation, affective, metacognitive, and social). Mohammadi and Alizadeh (2014) used and verified the Persian version in the EFL context of Iran. In addition, Cronbach's Alpha consistency estimation results revealed that the estimated reliability in this study was 0.80.

### Self-efficacy Questionnaire

Wang et al.'s (2014) adapted version of Wang's (2004) Questionnaire of English Self-efficacy (QESE) was used in this study to assess learners' self-efficacy. The scale was used to measure self-efficacy in reading, listening, speaking, and writing. It consists of 32 items and is scored on the Likert scale, which ranges from 1 (I cannot do it at all) to 7 (I can do it very well). The Cronbach's alpha reliability coefficient calculated in this study turned out to be 0.77.

### Autonomy Questionnaire

Cotterall (1995, 1999) developed the Learner Autonomy Questionnaire, and Soodmand Afshar and Bastami (2012) subjected it to factor analysis and validated it in the context of Iran. This questionnaire is a Likert scale inventory containing 40 items with five options. The estimated reliability of this questionnaire was 0.79 in the current study.

### Self-regulation Questionnaire

The Self-Regulating Trait (SRT) questionnaire, developed by O'Neil and Herl (1998), was used to identify the EFL learners' self-regulatory strategies. It has 32 Likert-type questions that range from almost never, to sometimes, often, and almost always. This questionnaire contains two dimensions: motivation and metacognition. Each dimension has two sub-scales.

Self-monitoring and planning are two concepts of metacognition, whereas effort and self-efficacy are two concepts of motivation. Herl et al. (1999) verified the scale's reliability and validity. Cronbach's Alpha consistency estimation revealed that the reliability in this study was 0.81.

## Procedure

As mentioned earlier, the participants included 220 undergraduate students of English Literature and Translation Studies. First, they were given sufficient information about the goal of this study, as well as clear instructions on how to complete the questionnaires. In terms of the number and length of the questionnaires, each participant was given five days to thoroughly complete them. Participants were further promised that their answers to the questionnaire would be used exclusively for research purposes. The participants' GPAs were also collected from their universities and were adjusted based on Item Response Theory (IRT) proposed by Young (1990). It is believed that the adjusted GPA is better than GPA for the reason that it diminishes the error arising from discrepancies in course-taking models and distinction in course difficulty (Lei, Bassiri & Schultz, 2001). The adjusted GPAs were considered as an indication of their achievement of L2.

## Data Analysis

To answer the first five research questions, Pearson Product Moment correlation analyses were run. Moreover, to answer research question 6, path analysis was employed. Furthermore, a SEM analysis was performed to explore the causal relationships among the learners' LLS use, instrumental motivation, self-efficacy, self-regulation autonomy, and their L2 achievement (i.e., in response to the last research question).

## Results and Discussion

### Results

### Results of Descriptive Statistics

First, the descriptive statistics were calculated, the results of which are presented in Table 1.

**Table 1**. *Descriptive Statistics of the Variables of the Study*

|  | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| **Instrumental Motivation** | 220 | 32.00 | 69.00 | 53.58 | 8.81 |
| **Language Learning Strategy Use** | 220 | 112.00 | 201.00 | 169.86 | 17.47 |
| **Self-Efficacy** | 220 | 67.00 | 141.00 | 107.32 | 16.12 |
| **Autonomy** | 220 | 75.00 | 156.00 | 111.68 | 15.57 |
| **Self-Regulation** | 220 | 78.00 | 129.00 | 109.62 | 11.82 |
| **L2 Achievement** | 220 | 12.00 | 19.00 | 15.64 | 1.80 |

### Results of Research Question 1

In response to research question 1, which examined whether there was a significant association between the learners' instrumental motivation and L2 achievement, a Pearson correlation analysis was run, whose results are shown in Table 2.

**Table 2.** *Results of Pearson Correlation between Instrumental Motivation and L2 Achievement*

|  |  | L2 achievement |
|---|---|---|
|  | Pearson Correlation | .21$^{**}$ |
| *Instrumental Motivation* | Sig. (2-tailed) | .000 |
|  | N | 220 |

**. Correlation is significant at the 0.01 level (2-tailed).

As Table 2 shows, there was a significant positive association between instrumental motivation and L2 achievement (r=.21, p<.05).

### Results of Research Question 2

Research question 2 examined the correlation between the learners' LLS use and L2 achievement. To this end, a Pearson correlation analysis was run, whose results are indicated in Table 3.

**Table 3.** *Results of Pearson Correlation between Language Learning Strategy Use and L2 Achievement*

|  |  | L2 achievement |
|---|---|---|
|  | Pearson Correlation | .24** |
| *language learning strategy use* | Sig. (2-tailed) | .000 |
|  | N | 220 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows a significant positive relationship between LLS use and L2 achievement of the learners (r=.24, p<.05).

### Results of Research Question 3

Research question 3 explored the relationship between the learners' self-efficacy and L2 achievement. A Pearson correlation analysis was run, whose results are shown in Table 4.

**Table 4.** *Results of Pearson Correlation between Self-efficacy and L2 Achievement*

|  |  | L2 achievement |
|---|---|---|
|  | Pearson Correlation | .24** |
| *self-efficacy* | Sig. (2-tailed) | .000 |
|  | N | 220 |

**. Correlation is significant at the 0.01 level (2-tailed).

As Table 4 indicates, there was a significant positive correlation between self-efficacy and L2 achievement of the participants (r=.24, p<.05).

### Results of Research Question 4

Research question 4 examined the relationship between the learners' autonomy and L2 achievement. In so doing, a Pearson correlation analysis was run. Table 5 indicates the results between the two variables.

**Table 5**. *Results of Pearson Correlation between Autonomy and L2 Achievement*

|  |  | L2 achievement |
| --- | --- | --- |
|  | Pearson Correlation | .26** |
| Autonomy | Sig. (2-tailed) | .000 |
|  | N | 200 |

**. Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table 5, there was a significant positive association between autonomy and L2 achievement (r=.26, p<.05).

### Results of Research Question 5

Research question 5 investigated the correlation between the learners' self-regulation and L2 achievement. To this end, a Pearson correlation was performed, whose results are shown in Table 6.

**Table 6.** *Results of Pearson Correlation between Self-regulation and L2 Achievement*

|  |  | L2 achievement |
| --- | --- | --- |
|  | Pearson Correlation | .16** |
| self-regulation | Sig. (2-tailed) | .000 |
|  | N | 200 |

**. Correlation is significant at the 0.01 level (2-tailed).

As Table 6 indicates, there was a significant positive relationship between self-regulation and L2 achievement of the learners (r=.16, p<.05).

### Results of Research Question 6

In response to the sixth research question, path analysis was employed as shown in Figures 2 and 3. The results demonstrated that three variables were positive significant predictors of L2 achievement including language learning strategy use (B=.17, p<.05), self-efficacy (B=.19, p<.05), and autonomy (B=.20, p<.05). However, two variables did not predict L2 achievement comprising instrumental motivation (B=.10, p>.05) and self-regulation (B=.02, p>.05).

***Results of Research Question 7***

In response to the seventh research question, which explored what a valid model of Iranian EFL learners' L2 achievement in terms of LLS use, instrumental motivation, self-efficacy, self-regulation, and autonomy was, a path analysis was adopted. Path analysis is a technique for describing the directed relationships between a set of variables. It can be regarded as a specific case of SEM analysis wherein only single indicators are adopted for each individual variable in the causal model. That is, path analysis is a type of SEM with a structural model, but not a measurement model (Pearl & Mackenzie, 2018). First, the hypothesized model of the study is indicated in Figure 1.
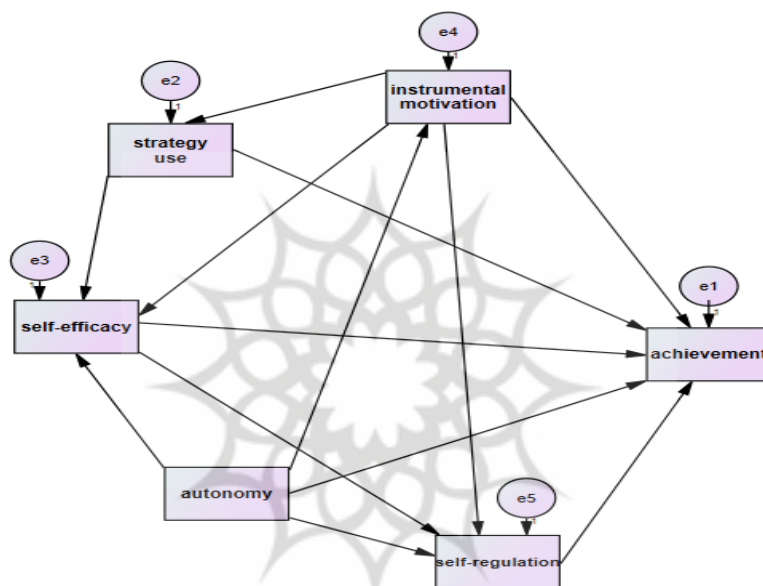


**Figure 1**. *The Hypothesized Model*

To examine the strength of the interrelationship among the components, the standardized estimates were scrutinized. Several fit indices were tested to assess the model fit including the magnitude of chi-square which cannot be significant, the Chi-square/df ratio which needs to be lower than 2 or 3, the good fit index (GFI), the normed fit index (NFI), and the comparative fit index (CFI) with the cut value being greater than 0.90, and the Root Mean Square Error of Approximation (RMSEA) which should be about 0.06 or 0.07 (Schreiber et al., 2006).

Figure 2 indicates the results of the path analysis of the association between LLS use, instrumental motivation, self-efficacy, self-regulation, autonomy, and L2 achievement.
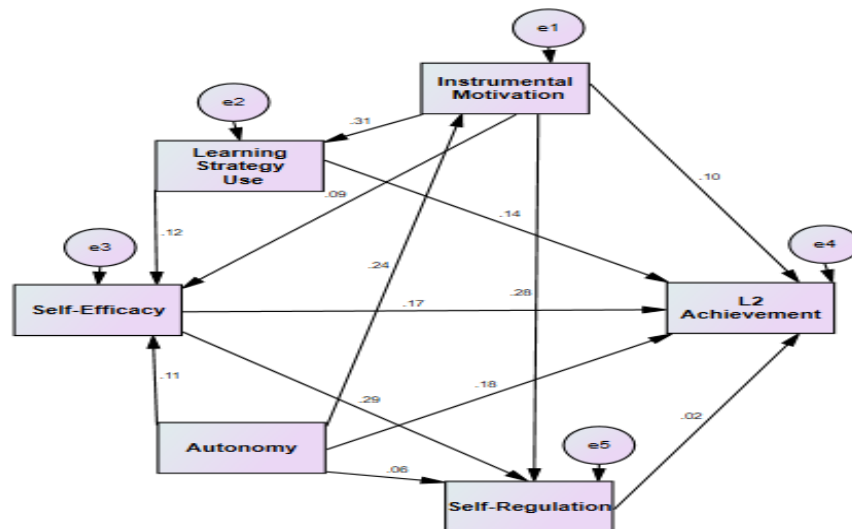
**Figure 2**. *The Path Analysis of the Relationships before Modification*

Table 7 shows the goodness of fit indices before modification.

**Table 7**. *The Goodness of Fit Indices before Modification*

|  | X2/df | GFI | NFI | CFI | RMSEA |
|---|---|---|---|---|---|
| **Acceptable fit** | <3 | >.90 | >.90 | >.90 | <.08 |
| **Model** | 3.13 | .99 | .95 | .96 | .09 |

Table 7 shows the values for chi-square/df ratio (3.13), RMSEA (.09), GFI (.99), NFI (.95), and CFI (.96). As shown in Table 7, all the fit indices except x2/df and RMSEA, lie within the acceptable fit thresholds. Thus, the model needs to be modified. To this end, six non-significant paths were removed: 1) language learning strategy use to self-efficacy (β= .12, p>.01), 2) autonomy to self-efficacy (β= .11, p>.01), 3) instrumental motivation to self-efficacy (β= .09, p>.01), 4) autonomy to self-regulation (β= .06, p>.01), 5) instrumental motivation to L2 achievement (β= .10, p>.01), and 6) self-regulation to L2 achievement (β= .02, p>.01). Table 8 shows the goodness of fit indices after modification.

**Table 8.** *The Goodness of Fit Indices after Modification*

|  | X2/df | GFI | NFI | CFI | RMSEA |
|---|---|---|---|---|---|
| **Acceptable fit** | <3 | >.90 | >.90 | >.90 | <.08 |
| **Revised Model** | 2.61 | .96 | .91 | .90 | .08 |

As shown in Table 8, all the fit indices including the chi-square/df ratio (2.61), RMSEA (.08), GFI (.90), NFI (.91), and CFI (.90), lie within the acceptable fit thresholds. Therefore, we can conclude that, after modification, the proposed model perfectly fitted the empirical data. Figure 3 shows the association between LLS use, instrumental motivation, self-efficacy, self-regulation, and autonomy with L2 achievement after modification.
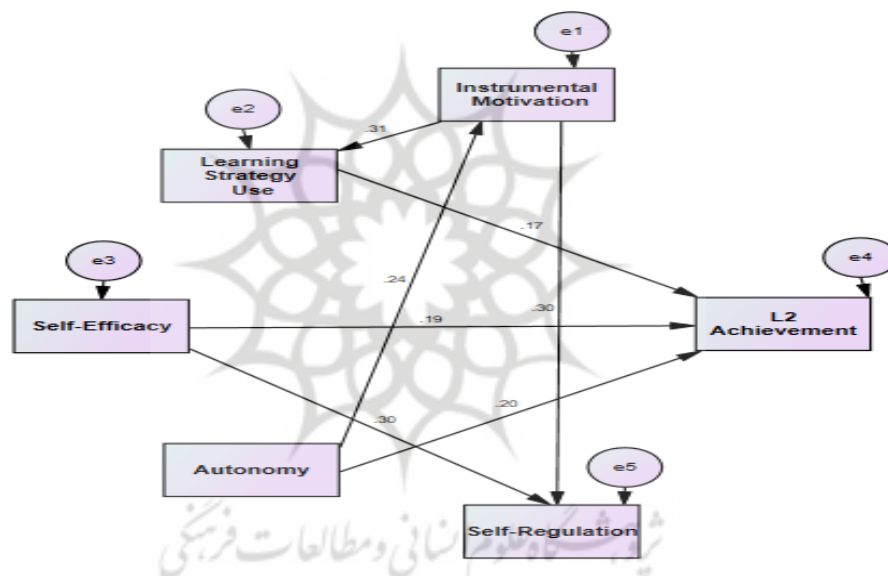


**Figure 3**. *The Path Analysis of the Relationships after Modification*

*Discussion*

The current study aimed to offer a valid model of the interrelationships among Iranian EFL learners' LLS use, instrumental motivation, self-efficacy, self-regulation, autonomy, and L2 achievement. The link between these factors was determined using path analysis.

The first research question explored the association between instrumental motivation and learners' L2 achievement. The path analysis showed that instrumental motivation did not predict EFL learners' L2 achievement. However, Pearson correlation analyses revealed that there was a significant positive, though weak, association between instrumental motivation and L2 achievement. The results here are not very much congruent with those of earlier

studies (e.g., Çetinkaya & Ataman, 2017; Gholami, Allahyar, Rafik-Galea, 2012). Çetinkaya and Ataman (2017), for instance, reported that integrative motivation had a significant correlation with students' achievement scores while instrumental motivation did not. Moreover, Gholami et al. (2012) found that students with integrative motivation did significantly better than their counterparts who were instrumentally motivated. Besides, although both instrumental and integrative motivations are helpful for L2 learning, the latter seems to impact the achievement of L2 more strongly. Furthermore, according to Dörnyei (1990), although instrumental motivation is important to reach higher achievement, there should be integrative motivation along with instrumental motivation. That is, for fresher students, for instance, it might not be a pressing need to get high scores in their exams or find a job. Instrumental motivation thus might not make sense to them and they might have more inclination towards making friends and interacting with others through the L2; thus, integrative motivation might appeal to their current needs in the given context more.

The second research question addressed the association between the learners' LLS use and L2 achievement. As the results demonstrated, LLS use was significantly positively correlated with L2 achievement. This result parallels those of other studies, which showed a significant positive correlation between the use of LLSs and performance in foreign languages (Balcı & Durak Üğüten, 2018; Tam, 2013). Thus, if the learners are conscious of LLSs and choose the most appropriate ones, they can improve their learning. Overall, students who are successful seem to utilize strategies more appropriately than their less successful counterparts (Soodmand Afshar, Ketabi, and Tavakoli, 2010). This means that we should make language learners conscious of the functions and benefits of LLSs, especially those attributable to success in L2 learning so that learners are motivated to choose and use appropriate strategies.

The third research question investigated whether the learners' self-efficacy correlated with their L2 achievement. As the results revealed, the variables correlated significantly positively with each other and that the path leading from self-efficacy to L2 achievement was significant. It could thus be argued that self-efficacy effectively impacts learners' academic achievement. That is, it might accurately predict learners' achievement, helping them in successfully completing their duties in the classroom and pursuing them out of the class and, as a result, improving their autonomy and self-esteem. This result is aligned with those of previous findings (Elahi Motlagh, et al., 2011; Wigfield et al., 2006). For instance, Elahi Motlagh et al. (2011) underlined the significant role of self-efficacy in academic

performance, which shows that significance should be attached to self-efficacy. In fact, learners' language attainment would be enhanced significantly if they believe in their abilities and see themselves as capable of doing the given language tasks. Self-efficacy, in fact, regulates a person's thoughts, feelings, and behaviors; thus, it can aid learners to achieve positive results in their academic performance.

Research question 4 examined the correlation between autonomy and the learners' L2 achievement. The results showed that learners' autonomy correlated significantly and positively with their L2 achievement. Moreover, as the results of path analysis showed, autonomy was found as the strongest predictor of the learners' L2 achievement. It might thus be argued that learners who benefit from higher levels of autonomy have a higher chance of being motivated to learn and gain knowledge, and might have a stronger sense of efficacy in their language learning. Overall, this result is in line with those of earlier studies. For example, Vansteenkiste et al. (2005) claimed that learners' autonomy predicted their academic success significantly positively. In addition, Soodmand Afshar, Rahimi, and Rahimi (2014) and Hu and Zhang (2017) also stated that the students' achievement enhanced with the development of autonomy. Similarly, Mozzon-McPherson and Dantec (2006) highlighted the significance of boosting learner autonomy, which could ultimately improve their language achievement scores. This shows the paramount role autonomy can play in modern world education in general and EFL education in particular, an assertion that is congruent with the principles of recent trends in foreign/second language teaching, especially the post-method debate, at the crux of which lies learner-centered education.

The systematic investigation of the relationship between self-regulation and the learners' L2 achievement was the concern of the fifth research question. As the Pearson correlation results showed, there was a significant positive, though weak, relationship between the two constructs. Our results might partially be aligned with the findings of Alishahi et al. (2016) who, investigating the association between students' conceptions of tasks, self-regulation skills, and language performance, found that students' self-regulation was positively associated with their language performance. The results of path analysis, however, showed that learners' self-regulation did not strongly predict their L2 achievement. In other words, the current study results indicated that self-regulation may not directly influence the L2 performance of EFL learners. Although self-regulatory skills are believed to affect academic achievement and motivation in accomplishing educational objectives (Zimmerman & Schunk, 2001), and though self-regulated learners tend to have a higher

possibility of achievement in their educational and professional life (Tang & Calafato, 2021), our findings in this respect might not be able to corroborate these assertions and might not be in harmony with those of other studies (e.g., Khaleghi et al., 2016; Turan & Demirel, 2010). It might thus be implied that the EFL learners might not have been highly self-regulated in the current study and that other factors than self-regulation such as the participants' social identities, educational system, teachers, and materials might have impacted their academic behaviors and educational objectives.

The findings of the sixth and seventh research questions revealed that LLS use, self-efficacy, and autonomy were significant positive predictors of L2 achievement. However, instrumental motivation and self-regulation did not significantly predict the L2 achievement of the learners. The analyses also showed that autonomy was the strongest predictor of L2 achievement. Benson (2001) argues that learning central theme in language education is the importance of helping learners become autonomous in their learning. In fact, autonomous language learners may be capable of being more creative than other learners who have lower levels of autonomy and might also be able to set their own goals more easily. Learners who benefit from higher levels of autonomy might rely more on themselves in learning a new language, which might eventually lead to success in learning. Therefore, to sum up this part, it should be mentioned that this study's results provide empirical support for the premise that learners' autonomy and their L2 achievement are significantly positively associated. This finding indicates that when learner autonomy improves, so does their L2 accomplishment and vice versa. The findings suggest that promoting learner autonomy can help them achieve better results. It may also be deduced that as learners become more autonomous, they are more likely to achieve better academic results.

## Conclusion and Implications

The current study aimed to examine the interrelationship among Iranian learners' LLS use, instrumental motivation, self-efficacy, self-regulation, autonomy, and L2 achievement. The results demonstrated that three variables including LLS use, self-efficacy, and autonomy were significant positive predictors of L2 achievement. However, two variables did not predict L2 achievement, which were instrumental motivation and self-regulation. Furthermore, the analyses revealed that L2 achievement had the highest positive association with autonomy and the lowest positive correlation with self-regulation. That is, learners who

are more autonomous have the potentiality to use the language without any fear of failing and so their inclination toward using language and achieving their goals will be increased.

The results of the current study may provide some implications for foreign language education. Therefore, teachers' adopted method of instruction should develop learners' autonomy, encourage them to utilize various LLSs, especially those attributable to success, and enhance their self-efficacy. Language education curriculum developers and syllabus designers as well as material developers can also structure their programs so that they foster learner autonomy, incorporate learning strategies in their curricula, syllabi, and materials, and make learners self-efficacious. EFL teachers are also suggested to train and provide ample opportunities for learners in the use and choice of LLSs to promote learner autonomy. However, a limitation of the study is that it only included a small number of students from a single province. As a result, future studies should employ many more participants from all around the country and even the world. Additionally, whether gender plays a moderating role in the association between learner autonomy, LLS use, self-efficacy, self-regulation, and L2 achievement in EFL learners could also be studied.

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## Declaration of Conflicting Interests

We hereby declare that there is no conflict of interest in this study.

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