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# The Relationship between EFL Learners' Language Mindsets and English Achievement: Engagement and Self-regulation as Mediators

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## Abstract

In educational psychology, mindsets refer to a set of core beliefs about intelligence and its role in successful learning in a specific domain. This study investigated the extent to which, the EFL learners' mindsets might predict their English achievement considering the mediating roles of engagement and self-regulation. The data were collected by means of three questionnaires: The Language Mindset Inventory (LMI), the University Student Engagement Inventory (USEI), and the Academic Self-Regulated Learning Scale (A-SRL-S), as well as the institutes' reports on their English achievement. We analyzed the data quantitatively using the SPSS 20 and Amos 8 Software. The results revealed that there was a significant direct relationship between language mindsets and English achievement of the EFL learners. Besides, this relationship was significantly mediated by the learners' engagement and self-regulation. Drawing on the findings of this research, the challenge for teachers is to cultivate in students the mindsets that emphasize growth and potentials rather than constraints and stagnation.

**Keywords:** Engagement, English Achievement, Iranian EFL Learners, Language Mindsets, Self-Regulation

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## 1. Introduction

Language teaching involves several competencies and skills related to language, culture, didactics, and pedagogy, among others. Bandura's (1986) social cognitive learning theory highlights the idea that human learning happens in a social surrounding and that people learn knowledge of rules, skills, strategies, beliefs, and attitudes while inadvertently observing others. Moreover, humanism, as a learning paradigm that emerged in the 1960s, focuses on human freedom, dignity, and potential. Based on humanistic views, it is necessary to explore a person as a whole since an individual grows and develops throughout the lifespan. Hence, we need to understand the psychology of learners to help them become engaged, agentic, and empowered (Mercer, 2015).

In a similar vein, Ryan and Mercer (2012) argue that learners advocate a range of mindsets about the nature of language learning which may affect their motivation, goal-orientation, interests, and self-concept. Moreover, since people's mindsets are largely implicit, the psychology literature names these mindsets as 'implicit theories'.

Many scholars have studied the mindset theory across disciplines (e.g., McEwen & Schmidt, 2007; Schein, 2015); however, Dweck (2006) has developed the most influential theory within various sub-disciplines of psychology. Dweck (2010) indicates that there are two sets of beliefs held by people about students' intelligence: a *fixed mindset*, in which they believe that intelligence is an unchanged trait, or a *growth mindset*, in which they believe that intelligence can grow by various means, for example, through effort and instruction.

In the relevant literature, it has also been argued that mindsets may not directly relate to academic achievement (e.g., Bahnik & Vranka, 2017) and other individual differences might mediate between students' mindsets and their academic achievement. A psychological construct that seems to be highly related to the learners' language mindsets is their engagement (Mercer, 2015); Students' engagement with learning processes could significantly predict their academic achievement as well (e.g. Barnett, Melugin, & Hernandez, 2020).

Student engagement is defined as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (Kuh, Kinzie, Bridges, & Hayek, 2007, p. 168). Despite the important role that student engagement beliefs play

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in the individuals' learning processes, limited attention has been given to this issue in the EFL contexts (Dinçer et al., 2019).

Yet, how can mindsets and students' engagement be related? Mercer (2018) discusses that learners should believe in the developing nature of their foreign language competence so that they can engage with language learning opportunities. Otherwise, although the materials and tasks may be engaging, the learner may find attempts in learning futile. Put differently, the closer students are to a growth mindset, the more likely they are to be highly engaged and more successful.

Besides engagement, there is another construct relevant to language mindsets, called *self-regulation* (Oxford, 2016). Research in TESOL has increasingly focused on metacognitive and self-regulatory aspects of learning (Zhang & Zhang, 2018). However, learners are not the same and demonstrate different degrees of self-regulation in learning.

Mindset theory has extensively been investigated in psychology and across different academic domains, including music, sports, math, and science (Burnette, O'Boyle., VanEpps, Pollack, & Finkel, 2013). As regards language learning, many studies have long argued that it is a characteristic educational domain, and that motivational dynamics outside the classroom can be similarly important for successful learning as dynamics within the language classroom (Gardner, 2010). Consistent with these findings, it is revealed that mindsets about language and not mindsets about general intelligence can well predict language motivation and outcomes (Lou & Noels, 2017). However, mindset studies are still in their infancy in the area of foreign language learning, and little attention was given to this theory until recently (Lou & Noels, 2017).

Nonetheless, how the aforementioned constructs concurrently relate to one another is an unresearched area and an identified gap in the pertinent literature that is the focus of this study. Therefore, to set a thorough analysis, this research applied the Structural Equation Model (SEM) to develop a conceptual model affording a deep understanding of the particular roles that language mindsets might play in the prediction of EFL learners' English achievement via mediating roles of engagement and self-regulation.

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## 2. Literature Review

### *2.1. Mindsets, Academic Achievement, and Foreign Language Learning*

The social-cognitive model of motivation stems from the general motivation literature. It is basically social-cognitive with the components of goal-orientation theory. Dweck's (1999) theory of social cognitive model of motivation posits that individuals have implicit theories about their intelligence. He emphasizes that the beliefs individuals hold about their intelligence originate not only from themselves (i.e., genetics) but also from the hints they receive from their environments. Implicit beliefs about intelligence have been linked to achievement. According to Mercer (2015), language learners' beliefs concerning the role and importance of a natural talent, work, and affordance may be translated into their extended effort, which in turn might lead to academic success if they have a *growth* mindset, or abandonment and failure if they are convinced that everything is fixed and immune to change. Although language mindsets have been recently introduced to the field of EFL learning (Ryan & Mercer, 2012), a growing body of research demonstrates that language mindsets could be considered as one of the critical associates of students' motivations for language learning (e.g. Lou & Noels, 2016) in language-focused learning contexts (e.g., Lou & Noels, 2017).

### *2.2. Mindsets, Engagement, Self-regulation, and Academic Achievement*

In general, students who have a growth mindset believe that their performance can enhance with effort. This heightens their motivation to endeavor to succeed academically and to get engaged in the academic behaviors that result in success at school. Conversely, students who have a fixed mindset tend to engage in performance-avoidance (Farrington et al., 2012) behaviors. Moreover, as Delost (2017) argues, taking a growth mindset can affect behavioral responses and strategies to problem-solving, and change how one approaches and understands challenges.

Concerning the constructs examined in this research, several studies have probed their effects on academic achievement. Zeng, Hou, and Peng (2016) investigated the relationship among growth mindsets, psychological well-being and school engagement considering the mediating role of resilience. The results of the structural equation model showed that the development of high

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levels of growth mindsets in the students predicts higher psychological well-being and school engagement through the enhancement of resilience.

In a similar vein, Li (2017) examined the relationship between prior achievement and school engagement among Chinese high school students. Based on Dweck's social-cognitive theory of motivation, the researcher further examined the moderating effect of the students' theories of intelligence (TOIs) on this relationship. The results showed that (a) the students' prior achievement predicted their engagement and (b) the association between their prior achievement and engagement was strong for the students with an incremental theory. The results of the studies conducted by Lou and Noels (2017) showed that students' language mindsets could be studies based on some individual factors. Similarly, the results of the Noels and Lou (2015) study indicated that, students with incremental mindsets endorsed learning goals and reported greater mastery goals in addition to less helplessness in failure situations, regardless of their actual language competence level. In contrast, students with entity mindsets adopted performance goals and reported a higher level of anxiety.

In a local study, Dehgan and Ajdari (2017) examined how Iranian EFL learners' level of academic self-schema was related to their willingness to communicate (WTC). The findings of their study showed that the incremental self-schema could be an important factor in the EFL learners' willingness to communicate since it is related to the strategies and actions that affect learning.

Likewise, Mallahi, Amirian, Zareian, and Adel (2016) investigated the effect of self-regulatory capacity and self-efficacy beliefs on the writing quality of Iranian EFL learners. They found that highly self-regulated learners managed their writing behavior more efficiently.

Although a plethora of studies have highlighted the significant roles of growth mindsets, beliefs, and self-schema in a) academic achievement in general and foreign language learning in particular, b) engagement, and c) self-regulation, none has considered these constructs concurrently using Structural Equation Modeling to uncover the mediating roles of engagement and self-regulation in foreign language learning. Furthermore, no study investigated the interplay among these constructs. Taking these identified gaps into account, the present study was launched to investigate a mighty relationship between EFL learners' language mindsets and English

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achievement, considering the mediating roles of engagement and self-regulation strategies. To this end, the following hypotheses were formulated:

H1: There is a significant relationship between Iranian EFL learners' engagement and their academic/ English achievement.

H2: There is a significant relationship between Iranian EFL learners' self-regulation and their academic/English achievement.

H3: The relationship between Iranian EFL learners' language mindsets and academic/ English achievement is significantly mediated by engagement.

H4: The relationship between Iranian EFL learners' language mindsets and academic/ English achievement is significantly mediated by self-regulation.

## 3. Method

### *3.1. Participants*

The target population was the Iranian EFL learners studying English in language institutes. To fulfill the objectives of the study, through stratified sampling, the researchers selected 370 EFL learners, including 276 females and 94 males, within the age range of 16-40, They were studying English as a foreign language in Goldis, Language Institute in Tabriz, Iran. Their first and second languages were Azeri Turkish and Persian, respectively. The participants' proficiency levels fell within the range of upper-intermediate based on ACTFL Proficiency Guidelines, as determined by a placement test already administered by the institutes.

### *3.2. Instruments*

To investigate the role of language mindsets, engagement, and self-regulation among EFL students, the researchers employed three questionnaires. In the initial part of the data collection procedure, some demographic information of the participants such as age, gender, birthplace, and native language were gathered. The first questionnaire, Lou and Noels' (2017) Language Mindset

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Inventory (LMI), estimated language learners' mindsets. It included 18 items that reflected incremental (Growth) and entity (Fixed) beliefs across the three aspects of language mindsets, including general language intelligence beliefs (GLI), second language aptitude beliefs (L2B), and age sensitivity beliefs about language learning (ASB). Each dimension included three entity (Fixed) and three incremental (Growth) mindset items, to which the participants responded on a 6-point Likert scale from "strongly disagree" to "strongly agree". There was strong evidence that the LMI validly measured language mindsets in terms of its content, internal structure and relations to other variables (AERA, APA, & NCME, 2014 as cited in Lou &Noels, 2017).

To measure the learners' engagement, the researchers used the University Student Engagement Inventory (USEI), developed by Maroco et al., (2016). The measure documented evidence of adequate reliability, and factorial, convergent and discriminant validities. The validated USEI composed of 32 items and rated on a '1-never' to '5-always' response scale. Moreover, the study used the Academic Self-Regulated Learning Scale (A-SRL-S), developed by Magno (2010). The items of the A-SRL-S were loaded under seven factors, including memory strategy, goal setting, self-evaluation, seeking assistance, environmental structuring, learning responsibility, and organizing. This questionnaire could provide good evidence of validity and reliability based on the intercorrelations among the factor scores. Each item was answered by a four-point scale (strongly agree=4, agree=3, disagree=2, strongly disagree=1). Lastly, the scores regarding the participants' English Language Achievement were obtained from their final English grades that were gathered by the permission of the institutes. Academic achievement was operationally defined as English language achievement, which was determined through the total score achieved from the learners' final exam.

All of the questionnaires were administered to a small sample group similar to the main participants in a pilot study before the main study, and the Cronbach alpha coefficients for reliability, means, and standard deviations were computed for each questionnaire.

### *3.3. Procedure*

To verify the structural relationship among the variables, this study investigated about 370 Iranian EFL learners' fixed and growth mindsets, engagement, self-regulation, and language achievement. To this end, the participants filled out the related questionnaires.

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Samples are considered as the representative of populations. To draw the sample, the researchers used probability sampling. The type of probability sampling in this study was Stratified sampling, that is, six institutes were selected randomly as the accessible population. Among many issues related to research planning and design, statistical power considerations are an important issue (Baroudi & Orlikowski, 1989). Power analysis can calculate the minimum sample size required so that one can reasonably detect the effect of a given size. For this study, the prior Sample Size Calculator for structural equation models was utilized. Based on this calculator (Version 4.0), given the number of observed (4) and latent (4) variables, the anticipated effect size (0.1), the desired probability (0.05), and the statistical power levels (0.8), the sample size required for the SEM model was 700 EFL learners.

To collect the data, the researchers selected three questionnaires which were reviewed by three experienced university experts so that they could decide whether the questionnaires needed any modification before. To assure that the questions were well understood by the respondents, the questionnaires were piloted with a similar small sample (N= 25). Also, the internal consistency of the instruments was measured by Cronbach alpha using SPSS version 20. Since this study was conducted in the Iranian context, the content validity with regards to this context was examined by a panel of psychologists and ELT experts. They were faculty members at the Islamic Azad University – Tabriz Branch and enjoyed over 25 years of teaching experience in psychology and language teaching. The questionnaires were all in English, and no translation into the participants' main language, Persian, was required since the participants ranged from upper intermediate to advanced levels of English language proficiency.

All the instruments were administered by regular EFL teachers—with the support of bilingual aides when needed. Prior to the administration of the questionnaires, the teachers were briefed about the purpose and directions of the questionnaire so that they could guide the participants in completing the survey. All study measures were administered to the participants in the form of a take-home survey that was to be returned in the next session of the class. The students' voluntary participation was sought, and the participants' anonymity and confidentiality were ensured.

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### *3.4. Design*

The type of research design employed in this quantitative study was a descriptive correlational design. Through descriptive research, the researchers organized, summarized, and described observation, that is, the researchers assessed the extent of the relationship between the research variables and used these relationships to make predictions. In this design, the independent variable was two types of language mindsets (i.e., fixed and growth mindsets) while English achievement was the dependent variable. Moreover, engagement and self-regulation were regarded as the mediating variables.

## 4. Results

This study explored the relationship between language mindsets and Iranian EFL learners' English achievement by taking into account the roles of engagement and self-regulation as mediating factors. The data were collected by three questionnaires on the learners' language mindsets, engagement, and self-regulation, in addition to their scores on the final reports, and then analyzed by the SPSS 20 and Amos 8 software. The results of the analysis are provided in Table 1.

Table 1. *Demographic Information of the Respondents*

| Demographic of variables | Level | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 94 | 25.4 |
| | Female | 276 | 74.6 |
| Level | Advanced | 90 | 24.3 |
| | Upper-intermediate | 280 | 75.7 |
| Age | Minimum | 16 | |
| | Maximum | 40 | |
| | Mean | 18.72 | |
| | Standard Deviation | 4.57 | |

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Table 1 illustrates the demographic information of the respondents. In Table 1, we can observe that out of 370 respondents, 94 students were male (25.4%), and 276 students (74.6%) were female. Ninety students (24.3%) were at the advanced level, and 280 students (75.7%) were at the upper-intermediate level. The minimum, maximum, mean, and standard deviation of the age of the respondents were 16, 40, 18.72, and 4.57, respectively.

Table 2. *Descriptive Statistics of the Scales and Subscales of the Questionnaires*

| | | N | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|---|---|
| GLB_F | | 370 | 1.00 | 6.00 | 2.7261 | 1.26093 |
| GLB_I | | 370 | 1.00 | 6.00 | 4.3847 | 1.09833 |
| L2B_F | Mindsets | 370 | 1.00 | 6.00 | 3.4468 | 1.04622 |
| L2B_I | | 370 | 1.33 | 6.00 | 5.0450 | .92137 |
| ASB_F | | 370 | 1.00 | 6.00 | 3.4676 | .99396 |
| ASB_I | | 370 | 1.67 | 6.00 | 4.6333 | 1.04912 |
| Behavioral | Engagement | 370 | 1.91 | 4.64 | 3.5162 | .36819 |
| Emotional | | 370 | 1.40 | 5.00 | 3.2938 | .59089 |
| Cognitive | | 370 | 1.55 | 5.00 | 3.6796 | .52920 |
| Memory Strategy | | 370 | 1.71 | 4.00 | 2.9012 | .38513 |
| Goal Settings | Self-regulation | 370 | 1.00 | 4.00 | 2.8486 | .65221 |
| Self-evaluation | | 370 | 1.42 | 4.00 | 2.9511 | .43498 |
| Seeking Assistance | | 370 | 1.38 | 4.00 | 2.9976 | .44899 |
| Environmental Structuring | | 370 | 1.00 | 4.00 | 2.9800 | .59822 |
| Learning Responsibility | | 370 | 1.00 | 4.00 | 3.0081 | .52083 |
| Organizing | | 370 | 1.00 | 4.00 | 3.1748 | .47213 |
| Academic Achievement | | 370 | 61.00 | 100.00 | 79.5514 | 7.70792 |
| Learners Engagement | | 370 | 2.13 | 4.67 | 3.4965 | .39554 |
| Self-regulation Strategies | | 370 | 1.51 | 4.00 | 2.9803 | .35872 |
| Mindset F | | 370 | 1.11 | 5.78 | 3.2135 | .75356 |
| Mindset I | | 370 | 2.56 | 6.00 | 4.6877 | .77635 |
| Valid N (listwise) | | 370 | | | | |

GLI: General Language Intelligence Beliefs, L2B: Second Language Aptitude Beliefs, ASB: Age Sensitivity Beliefs, I: Incremental Mindset, and F: Fixed Mindset

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Table 2 displays the mean rates of the scales and subscales of the questionnaires. The General Language Intelligence Beliefs subscale is represented in two GLB-Fixed and GLB-Incremental sets. The respondents obtained a mean score of 2.72 in the GLB-Fixed, which was smaller than the median spectrum. They also obtained a mean score of 4.38 in the GLB-Incremental, which was larger than the median spectrum.

The Second Language Aptitude Beliefs subscale is represented in two $L_2$B-Fixed and $L_2$B-Incremental sets. In these sets, the respondents obtained a mean score of 3.45 in the $L_2$B-Fixed subscale, which was larger than the median spectrum. They also obtained a mean score of 5.04 in the $L_2$B-Incremental subscale, which was larger than the mean spectrum.

The Age Sensitivity Beliefs about language learning (ASB) is represented in the two ASB-Fixed and ASB-incremental sets. The respondents obtained a mean score of 3.47 in the ASB-Fixed subscale, which was larger than the median spectrum. They also obtained a mean score of 4.63 in the ASB-Incremental, which was larger than the mean spectrum.

The sum of the means of the three subscales mentioned above is represented in the Mindset-Fixed and Mindset-Incremental scales. Both scales, with mean scores of 3.21 and 4.68, respectively, are larger than the median spectrum.

The respondents' rates in the behavioral, emotional, and cognitive subscales were 3.51, 3.29, and 3.68, respectively, given the median spectrum of 2.5 for the total scale. All three mean rates are larger than the median spectrum. The sum of these three subscales is represented in the Learners' engagement scale. This scale has a mean rate of 3.47, which is larger than the median spectrum.

The respondents gained a mean score of 2.90 in the memory strategy subscale, 2.84 in the goal-setting subscale, 2.95 in the self-evaluation subscale, 2.99 in the seeking assistance subscale, 2.98 in the environmental structuring subscale, 3.00 in the learning responsibility subscale, and 3.7 in the organizing subscale. The means of all these subscales are larger than the median spectrum, which equals 2. The sum of the means of these subscales is represented in the self-regulation scale. This scale, with a mean score of 2.98, has a value that is larger than the median spectrum.

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The mean score of the respondents in English achievement is 79.55 out of 100, indicating that their learning condition is at a desirable level. Figure 1 illustrates graphically the means of all scales and subscales.

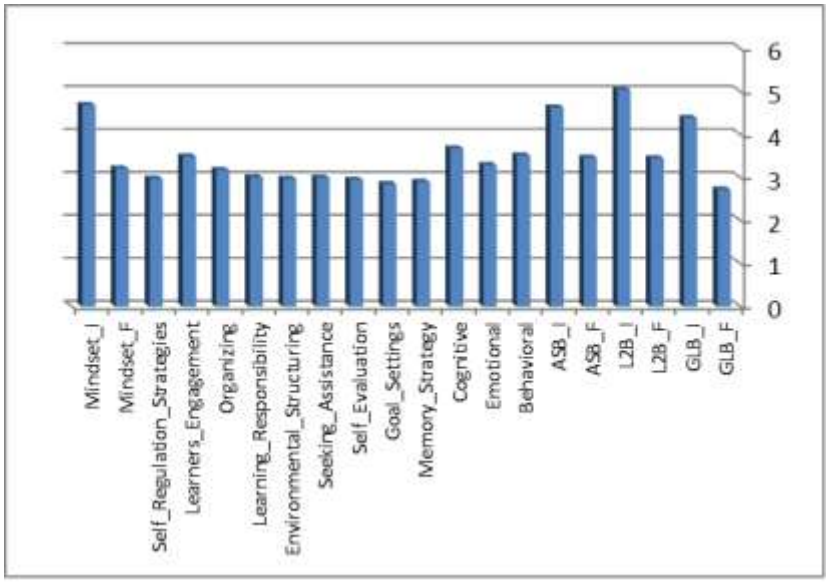



*Figure 1.* Mean Rates of the Scales and Subscales of the Questionnaires

## *4.1. Validation of the Measurement Instruments*

This study uses factor loadings and goodness of fit indices to confirm the validity of the instruments. Table 3 represents the results of the confirmatory analysis of the research variables.

Table 3. *The Results of the Confirmatory Factor Analysis of the Research Variables*

| | | | Estimate | S.E. | C.R. | P | Standardized Regression Weights |
|---|---|---|---|---|---|---|---|
| ASB | <--- | Mindset | 1.000 | | | | 0.485 |
| L2B | <--- | Mindset | 1.412 | 0.212 | 6.654 | *** | 0.780 |
| GLB | <--- | Mindset | 1.333 | 0.192 | 6.944 | *** | 0.618 |
| Self-Evaluation | <--- | Regulation | 1.000 | | | | 0.772 |
| Goal-Settings | <--- | Regulation | 1.184 | 0.108 | 10.950 | *** | 0.600 |
| Memory-Strategy | <--- | Regulation | 0.862 | 0.064 | 13.532 | *** | 0.737 |
| Seeking-Assistance | <--- | Regulation | 0.879 | 0.074 | 11.940 | *** | 0.652 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Environmental-Structuring | <--- | Regulation | 0.916 | 0.099 | 9.210 | *** | 0.515 |
| Learning-Responsibility | <--- | Regulation | 1.083 | 0.086 | 12.519 | *** | 0.685 |
| Organizing | <--- | Regulation | 0.897 | 0.078 | 11.445 | *** | 0.626 |
| Behavioral1 | <--- | Engagement | 1.000 | | | | 0.838 |
| Emotional1 | <--- | Engagement | 0.762 | 0.048 | 15.932 | *** | 0.772 |
| Cognitive1 | <--- | Engagement | 0.896 | 0.052 | 17.329 | *** | 0.867 |

GLI: General Language Intelligence Beliefs, L2B: Second Language Aptitude Beliefs, ASB: Age Sensitivity Beliefs, I: Incremental Mindset, and F: Fixed Mindset

As illustrated in Table 3, the regression coefficients, representing factor loadings or the rate of the relationships between the observed and latent variables, are suitable coefficients, being all at significant and acceptable levels (P>0.001). For example, the factor loading coefficient of the observed $L_2B$ variable in the Mindsets variable equals 1.412, and its standard regression weight equals 0.78. These values indicate that when the Mindset goes up by 1 standard deviation, $L_2B$ goes up by 0.78 standard deviations. The magnitude of the standard error (S.E.) equals 0.212, indicating that the regression weight estimate (1.412) has a standard error of 0.212. The magnitude of the critical ratio (C.R.) equals 6.944, indicating that dividing the regression weight estimate by the estimate of its standard error gives $z = 1.412/0.212 = 6.944$. In other words, the regression weight estimate is 6.944 standard errors above zero. Moreover, the p-value> 0.001 means that the probability of getting a critical ratio as large as 6.944 in the absolute value is less than 0.001. In other words, the regression weight for the Mindset in the prediction of L2B is significantly different from zero at the 0.001 level (two-tailed). Figure 2 illustrates the confirmatory factor analysis as well as the standard coefficients of the factor loadings.

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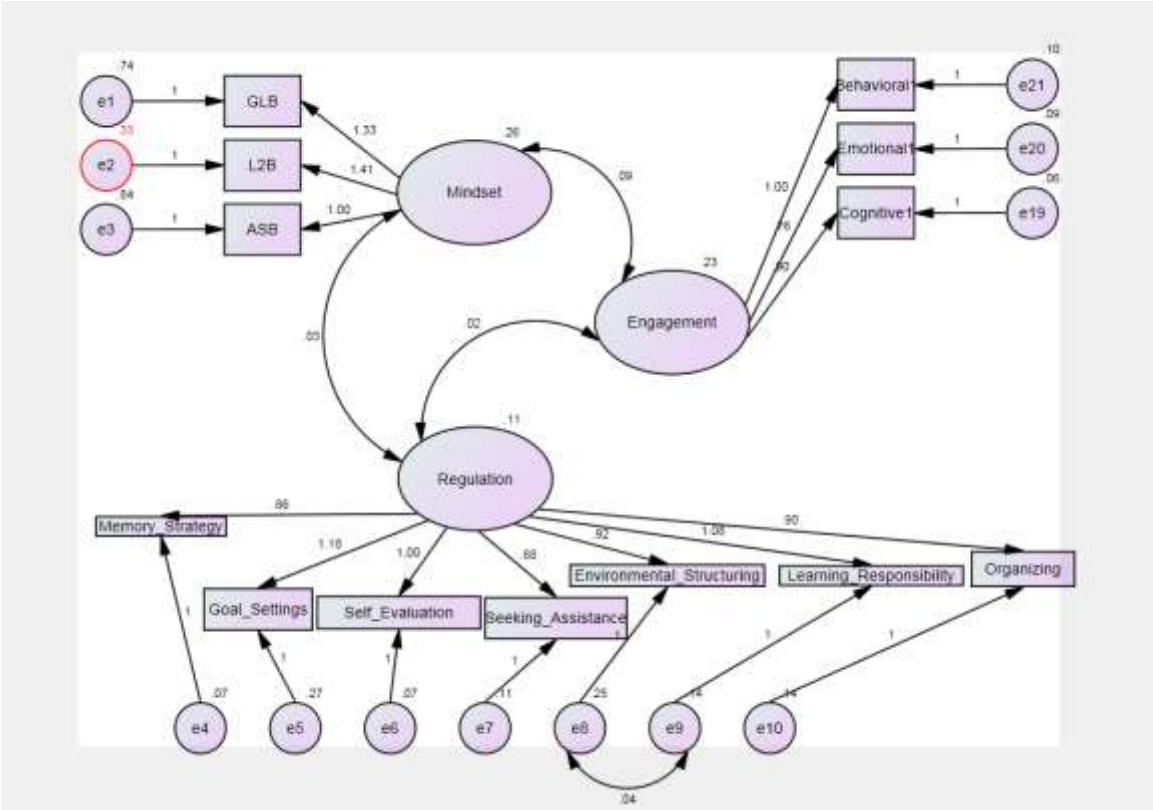



*Figure 2.* The Results of the Confirmatory Factor Analysis of the Research Variables

Particular measures can be evaluated for determining the goodness of fit along with their threshold values as indicated below:

Degrees of freedom equal and below 3.0 and 5.0 indicate good and sometimes acceptable levels, respectively (Wheaton et al., 1977, Tabachnick & Fidell, 2007, Kline, 2005) while ≥0.90 is an acceptable criterion for both the goodness of fit index (GFI) (Mac Cullum & Hong, 1997) and the adjusted goodness of fit index (AGFI) (Hooper et al.,2008). Likewise, the normed fit index (NFI) should enjoy a value of ≥ 0.8 to be accepted, and the comparative fit indices (CFI) of ≥ 0.950, >0.9, and >0.8 indicate very good, traditional, and sometimes acceptable levels, respectively. A root mean square error of approximation (RMSEA) below 0.050 predicts a close fit while values in the range of 0.050–0.080 predict a fair fit, values in the range of 0.080 to 0.1 predict mediocre fit, and the values > 0.1 predict a poor fit (Hu & Bentler, 1999).

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Table 4 illustrates the goodness of fit indices of the confirmatory factor analysis. Since all indices have acquired acceptable values based on the mentioned criteria, we can conclude that the designed conceptual model fits the observed empirical data.

Table 4. *Fit Indices of Confirmatory Factor Analysis*

| Indices | CMIN/DF | NFI | GFI | AGFI | CFI | RMSEA |
|---|---|---|---|---|---|---|
| Value | 2.061 | .926 | .952 | .928 | .960 | .054 |

## *4.2. Testing the Research Hypotheses*

The first research hypothesis addressed the relationship between the learners' engagement and English language achievement. To test this hypothesis, Pearson Correlation Coefficient was calculated (Table 5).

Table5. *The Pearson correlation Coefficients for Engagement and English Achievement*

| | | Iranian EFL learners' engagement |
|---|---|---|
| English-Achievement | Pearson Correlation | 0.123* |
| | Sig. (2-tailed) | 0.018 |
| | N | 370 |

The results in Table 5 revealed that there was a direct significant relationship between Iranian EFL learners' engagement and their academic/ English achievement, r= 0.123, p= 0.018.

The second research hypothesis addressed the relationship between the learners' self-regulation and their English language achievement. To test this hypothesis, the Pearson Correlation Coefficient was calculated (Table 6).

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Table 6. *Pearson Correlation Coefficients for Self-regulation and English Achievement*

| | | Iranian EFL learners' self-regulation |
|---|---|---|
| English-Achievement | Pearson Correlation | .117* |
| | Sig. (2-tailed) | .025 |
| | N | 370 |

The results of the Pearson Correlation test revealed that there was a direct and significant relationship between Iranian EFL learners' self-regulation and their academic/ English achievement, r = 0.117, p= 0.025.

## *4.3. Path Analysis*

To test the hypotheses 3 and 4 of the present research as well as to investigate the mediating roles of the independent variables, the researchers employed path analysis, the results of which are illustrated in Table 7.

Table 7. *Path Analysis Coefficients for Independent, Mediatory, and Dependent Variables*

| | | | Estimate | S.E. | C.R. | P | Standardized Regression Weights |
|---|---|---|---|---|---|---|---|
| Engagement | <--- | Mindset | 0.363 | 0.074 | 4.927 | *** | 0.381 |
| Self-Regulation | <--- | Mindset | 0.109 | 0.045 | 2.434 | 0.015 | 0.168 |
| ASB | <--- | Mindset | 1.000 | | | | 0.485 |
| L2B | <--- | Mindset | 1.400 | 0.209 | 6.692 | *** | 0.773 |
| GLB | <--- | Mindset | 1.341 | 0.194 | 6.925 | *** | 0.622 |
| Self-Evaluation | <--- | Regulation | 1.000 | | | | 0.772 |
| Goal-Settings | <--- | Regulation | 1.188 | 0.108 | 10.986 | *** | 0.602 |
| Memory-Strategy | <--- | Regulation | 0.860 | 0.064 | 13.520 | *** | 0.736 |
| Seeking-Assistance | <--- | Regulation | 0.881 | 0.074 | 11.962 | *** | 0.653 |
| Environmental-Structuring | <--- | Regulation | 0.916 | 0.099 | 9.206 | *** | 0.515 |
| Learning-Responsibility | <--- | Regulation | 1.082 | 0.086 | 12.515 | *** | 0.685 |
| Organizing | <--- | Regulation | 0.896 | 0.078 | 11.431 | *** | 0.625 |
| Behavioral1 | <--- | Engagement | 1.000 | | | | 0.839 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Emotional1 | <--- | Engagement | 0.761 | 0.048 | 15.963 | *** | 0.772 |
| Cognitive1 | <--- | Engagement | 0.893 | 0.051 | 17.365 | *** | 0.866 |
| Academic-Achievement | <--- | Engagement | 2.009 | 0.878 | 2.287 | 0.022 | 0.126 |
| Academic-Achievement | <--- | Self-Regulation | 2.676 | 1.311 | 2.041 | 0.041 | 0.114 |

The results in Table 7 show that the pure effect of the Iranian EFL learners' language mindsets on the learners' engagement is positive and significant, $\beta$ = 0.381, p = 0.000. The pure effect of the learners' engagement on their academic achievement is positive and significant as well, $\beta$ = 0.126, p = 0.022. Thus, we can conclude that Hypothesis 3 is confirmed.

As depicted in Table 7, the pure effect of the Iranian EFL learners' language mindsets on their self-regulation is positive and significant, $\beta$ = 0.168, p = 0.015. The pure effect of the participants' self-regulation on their academic achievement is also positive and significant,$\beta$ = 0.114, p = 0.041. Hence, we can conclude that Hypothesis 4 is confirmed.

Figure 3 reveals the path analysis model for independent, mediatory, and dependent variables more vividly.

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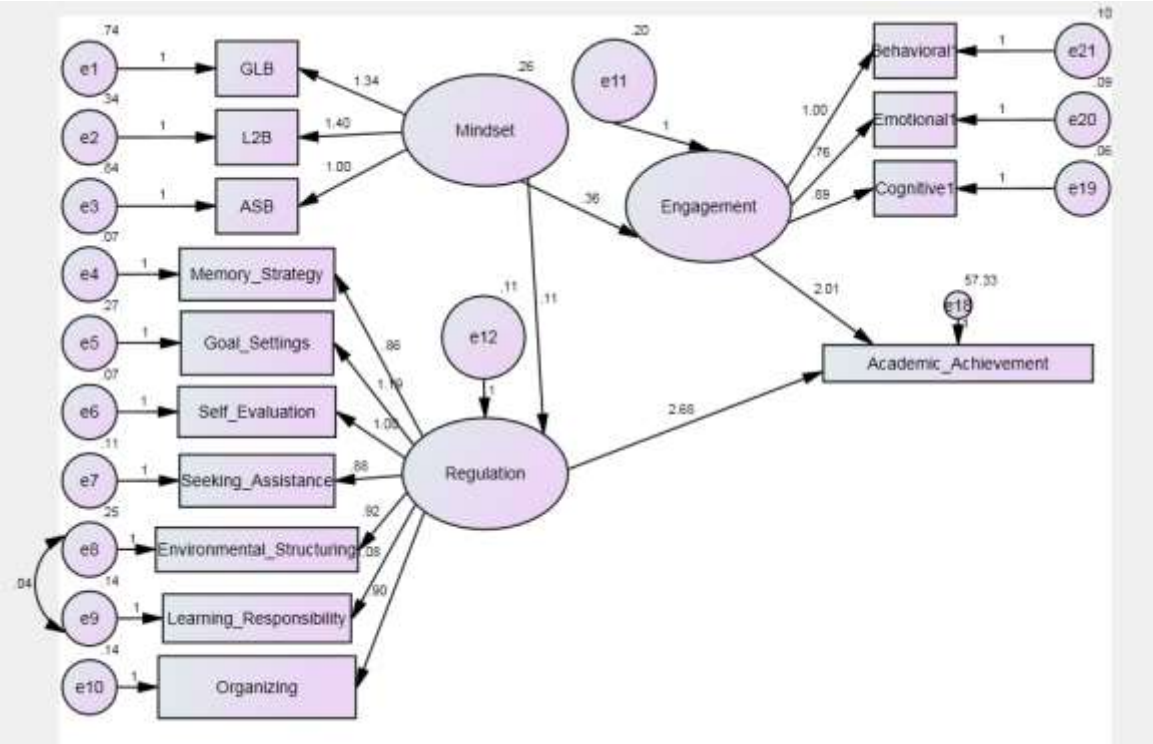



*Figure 3.* Path Analysis Model for Independent, Mediatory, and Dependent Variables

The Path Analysis model (Figure 3) indicates an acceptable model fit of the data. Table 8 represents the fit indices of the confirmatory factor analysis.

Table 8. *Fit Indices of Confirmatory Factor Analysis*

| Indices | CFI | TLI | IFI | CMIN/DF | NFI | RFI | GFI | RMR | RMSEA |
|---|---|---|---|---|---|---|---|---|---|
| Value | 0.958 | 0.948 | 0.959 | 1.939 | 0.918 | 0.898 | 0.950 | 0.117 | 0.050 |

The fit indices in Table 8 indicate an acceptable model fit of the data: comparative fit index (CFI) = 0.958, tucker Lewis index (TLI) = 0.948, incremental fit index (IFI) = 0.959, normed-fit index (NFI) = 0.918, relative fit index (RFI) = 0.898, goodness-of-fit index (GFI) = 0.950, root mean square residual (RMR) = 0.117, and root mean square error of approximation (RMSEA)= 0.050 (Anderson & Gerbing,1988). The values of the fit indices show a reasonable fit of the Path Analysis model with the data (Byrne, 2006).

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## 5. Discussion

The present study explored the relationship between language mindsets and Iranian EFL learners' English achievement by taking into account the roles of engagement and self-regulation as the mediating factors. As the results of the study revealed, there were direct and significant relationships between learners' language mindsets and their English language achievement, language mindsets and engagement, and language mindsets and self-regulation. Besides, the relationship between the learners' language mindsets and their English achievement was significantly mediated by their engagement and self-regulation. Mercer (2018) discusses that learners should believe that their foreign language abilities can be improved by engaging in language learning opportunities they have a degree of control and influence over them. If not, the learner may earmark effort and investment worthless even if the subject matters and tasks are engaging. According to Oxford (2016), a growth mindset is much more helpful than a fixed mindset in learning a second language because the former recognizes the learner as a strategic agent actively developing his or her abilities, contrary to the latter, a fixed mindset, that rejects agency and learning strategies. A growth mindset, as Williams (2015, p.71, as cited in Oxford, 2016) states, "can function as a powerful resource, influencing learners' motivation, the setting of a goal, and how learners respond to the setbacks and failures that are an essential part of language learning". If learners have a growth mindset, they are likely to believe in the cost of L2 learning strategies and exploit those strategies in a highly task-oriented way, giving rise to success. A growth mindset also brings about self-regulation. Learners with a growth mindset have enormous superiority in L2 learning since they can overcome obstacles resiliently and employ creative methods of learning. Learners with this mindset are agentic and hopeful. In contrast, as related to L2 learning, a fixed mindset might incorporate the idea that innate language aptitude ascertains success, and those without such aptitude will fail (Williams, et al, 2015, as cited in Oxford, 2016). A fixed mindset is an impediment to learning. Learners with a fixed mindset usually set goals low, so as to keep away from failures and steer clear of risk-taking; in this way, they block opportunities for learning. If learners possess fixed mindsets, they do not usually figure out the value in learning strategies because the situation is already despairing. Therefore, learners with a fixed mindset either avoid using strategies or utilize them only unenthusiastically (Oxford. 2016).

In a similar vein, the results of the correlational analysis conducted recently by Eren and Rakicioglu- Soylemes (2020) showed that, regardless of their specific aspects

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(e.g., ASB, L2B, and GLB), incremental mindsets were moderately and positively related to the four aspects of engagement and perceived instrumentality whereas entity mindsets were weakly and negatively related to the four aspects of engagement and perceived instrumentality.

The findings of this study also conformed the results of the study conducted by Lou and Noels (2017) aiming to (a) introduce the Language Mindsets Inventory (LMI), and (b) test the mindsets–goals–responses model. The path analyses showed that greater endorsement of an incremental mindset was associated with learning more about the language. Greater endorsement of an entity mindset predicted the goal of demonstrating competence when the students believed that they had stronger language skills. The findings of this study also corresponded to Lou's (2014) research which showed that priming for incremental mindsets, the participants set higher learning goals and expressed more mastery-orientated responses in failure situations.

In a similar vein, Ryan and Mercer (2012) study also yielded similar results, arguing that the concept of mindset could play an important role within the ELT context, given its potentially powerful influence on the learners' approaches to language learning, their goals, and ultimately their success and eventual level of attainment. The reason for the conformity between the results of these studies and the present study may lie in the learners' beliefs that their competence and abilities in a foreign language are something that can be developed and that they have a degree of control and influence over them. If learners do not believe that they can change their abilities and their competences in the language, no matter how engaging a teacher's materials and tasks may be, the learner may see all effort and investment in learning as pointless (Mercer, 2018).

Congruent results were also obtained by Khalkhali (2018) who investigated growth versus fixed mindsets in medical education and inferred that mindset theory could predict that physicians with various mindsets might respond differently to committing or admitting to medical errors.

Despite the congruency of the results of the current study with the above-mentioned studies, the relationships among these constructs were weak in our study. The size of the relationships was not as strong as the researchers expected. It may be due to non-linear relationships, which resulted in smaller than expected correlation coefficients; outliers, which can deflate or inflate by the correlations; excessive uncontrolled variance, which is the most common cause of smaller than

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expected correlations; inappropriate sample, which was not representative of the population being analyzed, and thus confound any calculated statistics; and inefficient metrics, which means that variables used in the analysis might not be appropriate for investigating the phenomenon in question. As a consequence, the strength of a relationship was smaller than expected.

Therefore, the current study yielded results similar to a new study co-authored by Sisk, Burgoyne, Sun, Butler, and Brooke (2018). They found that *growth mindset interventions* did not work for the students in most circumstances. Therefore, we can argue that the popularity of growth mindset interventions based on the claims that we show are not supported by all evidence. It is not the case that most students benefit academically from being taught growth mindsets. In this respect, Sisk et al. (2018) recommend researchers to use the highest standard of research practices to test whether mindset interventions can consistently benefit any group of students and whether the benefit is substantial.

## 6. Conclusion

The findings of the present study suggest that the learners who tend to give up in the struggle perhaps do so because they possess the belief that language aptitude is fixed, and it determines their language success. More importantly, fostering growth beliefs can help them to value the effort required to improve their language ability and to set goals in which they pursue mastery and thus react more positively and persistently when coping with language barriers (Blackwell, Trzesniewski, & Dweck, 2007)

The study of mindsets within an EFL context may offer several implications for language educators, who can promote growth beliefs in multiple ways. It might be effective to explicitly teach students the scientific evidence about growth theories through lectures and other types of intervention, through which students can learn that they can improve their language ability and establish a sense of mastery over the learning process (Blackwell et al., 2007). Language instructors can also encourage perseverance by highlighting the importance of growth and the positive role of failure in improvement (Rattan, Savani, Chugh, & Dweck, 2015). Learners' mindsets can be subtly influenced by the learning environment, including interactions with teachers (Rattan et al., 2015). Therefore, as Dweck (2012) states, L2 teachers should be mindful

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of the implicit messages contained in their feedback to their students, and be sure to emphasize the importance of effort and learning goals (instead of performance goals), as well as trying different learning strategies in challenging situations.

This study like other studies is not devoid of limitations and delimitations. First, the participants in this study were limited to a sample of 370 students with Azeri as their first language; therefore, a replication of this study with large samples from different institutes in different parts of the country will imply and provide further support of higher degree of randomization and generalizability of the findings. Second, concerning the broad age range of the sample, the researchers can confidently argue that over 90% of the participants were between 20 and 30 years old, and thus the results might not be significantly influenced by this age range. Third, though acknowledging the diversity of human experience, while the combinations of qualitative and quantitative methods will often result in the most accurate and complete depiction of the researched phenomenon as well as increased research validity (Creswell & Garrett, 2008), the proposed variables in question were assessed by questionnaires, and no qualitative approaches such as interviews, case studies, or observations were used. This might perhaps not offer a more comprehensive picture than any mixed- methods would. Forth, all measures were self-reported and consequently subjective in nature; accordingly, the results may be different with an objective outcome variable, such as GPA in lieu of achievement.

Also, given the self-report method of the data collection, the high achieving students might be less likely to respond without bias to the potentially negative items related to the fixed and growth mindset items. Furthermore, the researchers limited the scope by considering the only bi-dimensional mode of the mindset construct. However, as Dweck (2006) mentions, this construct can be viewed in a continuum with the fixed mindset in one end and the growth mindset in the other end. Finally, since there was a need to collect and obtain the data from the learners with sufficient command of the English language in order to be assured of their comprehension of the questionnaire items, the researchers delimited the study to the students studying English in language institutes at higher levels and not considering the learners at lower intermediate and elementary levels and from other academic contexts.

Furthermore, despite delving into the literature to find similar studies in the EFL context of Iran, the researchers could not encounter any relevant local research that investigated the role of

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mindsets in language development and achievement. Thus, to the best of the researchers' knowledge, no study has been documented in this context, owing to the novelty of the topic in education.

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