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Research Article

Growth Mindset and Cognitive Engagement of Female EFL Learners: Contribution of Risk-Taking as a Mediator

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Abstract

Many difficulties learners experience during language learning interfere with their performance, and those associated with their psychology play an integral role in this process. Underpinned by Bandura's social cognitive theory and Dweck's implicit theory of intelligence, this article explored how language mindsets influenced female EFL learners' cognitive engagement through the mediation of risk-taking. Following a quantitative design and drawing on stratified sampling, the researchers ran the Power Analysis Calculator and selected 384 language learners from six institutes in Tabriz, Iran. The data were collected by three questionnaires, including the Language Mindset Inventory of Lou and Noels (2017), the University Student Engagement Inventory (USEI) designed by Maroco et al. (2016), and the Barratt Impulsiveness Scale (BIS) by Patton, Stanford, and Barratt (1995). The PLS-SEM analysis showed that learners' growth mindsets were directly related to cognitive engagement. Furthermore, risk-taking significantly mediated this relationship. This finding provides some implications for school psychology to make students develop self-theories that foreground growth and competence rather than limitation and stagnation.

***Keywords*:** Growth Mindset, Dweck's Mindset Theory, Cognitive Engagement, Risk-taking, Female EFL Learners

Introduction

Mindset theory

Mindset theory represents principal assumptions about the changeability of personal qualities (Dweck & Leggett, 1988). The theory delineates a social-cognitive approach that originates from goals and goal-oriented behavior and associates with individual differences in beliefs and values (Dweck & Leggett, 1988). Rooted in identifying children's conceptions of their intelligence in school environments, mindset theory explains how we perceive responses to challenges or difficulties (Yeager & Dweck, 2020). Early attempts to know how children react to a challenge displayed two patterns of performance: mastery-oriented and helpless responses (Dweck & Leggett, 1988). The helpless response is distinguished by avoidance of challenges and problems in encountering barriers, while the mastery-oriented response includes searching for challenging tasks and determination after failure.

Attempting to explain these patterns, Elliot and Dweck (1988) set forth that there are likely different achievement goals inherent in the observed behavior. Some students consider achievement as a measurement of their competence (i.e., performance goals), while others regard them as learning opportunities that may enhance their ability or perception (i.e., mastery or learning goals). Students with mastery goals tend to counter challenges, make more efforts, be optimistic, and strategize effectively. According to Schunk et al. (2008), however, those with performance goals are inclined to display their competence, acquire positive judgments of their ability, and use social comparison criteria. Individuals with performance goals are also more subject to helpless responses (Dweck & Leggett, 1988).

Mindset research has unveiled that implicit theories can predict numerous educational, cognitive, motivational, affective, and even socioeconomic achievements (Zhang, Kuusisto, & Tirri, 2017). Dweck's (2012) social cognitive theory regarding mindsets is based on positive psychology, where individuals' intelligence is recognized as a malleable entity. Dweck (2006) claims that mindsets intensely influence how you direct your life. She attempted to figure out why some students enjoyed learning difficult tasks, whereas other students were reluctant to try the tasks that looked challenging. She developed the mindset theory and classified ability beliefs into two broad groups—a fixed and a growth mindset. A fixed mindset describes the belief that one's intelligence is uncontrollable, constant, and unchanging (Dweck & Leggett, 1988). On the contrary, a growth mindset argues that intelligence is changeable and can develop

with effort and experience, despite differences in aptitude, interest, or personality (Dweck, 1998). Children with a growth mindset are more likely to adopt a mastery-oriented pattern because they hold a positive affection for the task and may raise their strategy use (Dweck & Leggett, 1988).

Given mindsets are related to numerous motivational and educational results and interventions designed to alter learners' mindsets render long-lasting consequences (Claro, Paunesku, & Dweck, 2016; Yeager et al., 2019), language teachers have been attracted by the concept of "mindsets." Hence, recent research in second language acquisition (SLA) has addressed the conceptualization and measurement of language mindsets and revealed that language mindsets were associated with language learners' motivation and, thus, achievement (Lou & Noels, 2017; Ryan & Mercer, 2012).

Risk-taking

A construct nearly associated with mindsets is risk-taking. Beebe (1983), a leading researcher, presented one of the most inclusive definitions of risk-taking. She describes the term as a condition where one has to select an alternative, the outcome of which is unknown. Risk-taking is a significant feature of learning a foreign language successfully. Learners should gamble a bit and take the risk of making mistakes (Brown, 1994). Tied to the properties of a "good" language learner, risk-taking is considered a pivotal parameter in language learning achievement. Risk-taking is an aspect of individual differences and is crucial in learning a second language while being a language learning tool for thriving language learners tending to take risks (Gass & Selinker, 2000).

Engagement

Mindsets are also linked to student engagement, which is the extent to which students engage with their lessons and are motivated to apply their intellectual perceptions deeply. Engaged learners take responsibility for their own learning and accept the role of engaged and eager apprentice in academic mastery (Velden, 2013). The respective research on student engagement reveals an association between students' high level of engagement and academic outcomes (Dotterer & Lowe, 2011; Wang & Holcombe, 2010).

Mindsets, Risk-taking, and Engagement

Mindsets about intelligence interrogate whether individuals believe determination is constrained or not (Job, Dweck, & Walton, 2010). Determination

or self-discipline depicts individuals' ability to change their demeanors, reflections, and feelings to conform them to their long-lasting purposes (Baumeister, 2002). Several people think that this capacity is constrained and exhausted when utilized. Other people, however, reject this perspective and consider that employing their self-control can develop their mental ability and make them ready for subsequent challenges.

In educational contexts, learners are recognized as the acquisition and learning agents, and their conceptualization of what precludes their success is a clue to teachers/learners to increase the product of learning. Risk-taking is how learners conceive ambiguous conditions as sources of threat (Budner, 1962, as cited in Johnson, 2001). Concerning the mindset theory, the fixed mindset students keep away from activities they may not succeed in. These challenges avoided by fixed mindset students are external forces the students confront when displaying what they know. Building on Dweck's theory of mindsets, Mercer (2018) argues that learners need to be convinced that their abilities can grow and they are able to control them to engage with learning tasks. If learners do not think that they can alter their abilities, they will see all attempts and expenditures in learning as fruitless.

Numerous researchers have investigated the association between students' mindsets and their achievement in education (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013; Dweck, 2012; Tirri & Kujala, 2016; Yeager & Walton, 2011). Despite these rich and outnumbering research programs, limited research has integrated Dweck's work on mindsets with language learning beliefs. Notably, it is argued that mindsets function in a domain-specific mode, and they vary among individuals and educational areas (Dweck, et al., 1995; Leslie, Cimpian, Meyer & Freeland, 2015, as cited in Lou & Noels, 2017). For example, Ryan and Mercer (2012) probed language learning mindsets across cultural settings by examining English learners in Austria and Japan. Molway and Mutton (2020) focused on the relationship between language-learning mindsets and reading strategies. Lou and Noels (2019) examined language-based rejection in intercultural communication. Abedini, Rahimi, and Zare-ee (2011) examined a group of Iranian EFL learners for their beliefs associated with language learning, strategy use, and general achievement. Dehbozorgi (2012) investigated the impact of attitude toward language learning and risk-taking on EFL learners' achievement. Clark and Soutter (2022) described how growth mindsets were related to intellectual risk-taking. Eren and Rakıcıoğlu-Söylemez (2020) examined the relationships between EFL students' language mindsets and graded performance by considering the mediating

roles of their perceived instrumentality as well as four aspects of engagement in English classes. Hassanzadeh, Ahangari, and Hadidi (2020) found a direct relationship between EFL learners' mindsets and their engagement. Karimi and Biria (2017) investigated the impact of risk-taking strategies on EFL learners' performance. Zhao, Xiong, Zhang, and Qi (2021) probed the impact of the growth mindset on learning engagement during the outbreak of COVID-19.

These studies revealed that beliefs about language rather than those about overall perceptivity could better predict language motivation and results (Lou & Noels, 2017). The conduction of such quests may be fruitful since many language teachers and learners are unaware of the presence of these mindsets and how they contribute to final achievement. Furthermore, as Mercer (2015) argues, individuals' mindsets influence strongly how they step into the learning process and the sense of agency they possess in education. Having a mindset impacts a person's attitude to investing time and effort. If learners have a fixed mindset, they will lack any good reason for making any effort to learn and, hence, feel helpless. Likewise, in the face of difficulties, fixed-mindset learners are likely to give up easily, considering that there can do nothing to change things. Another consequence of such thinking is that these types of learners mostly avoid challenges due to perceiving them as risks that pose a possible chance of failure.

Taking this literature-provided information into consideration, this article embarked on investigating the growth mindset pertaining to language intelligence and its implication for risk-taking and cognitive engagement. By browsing the literature on language mindsets, the researchers encountered no domestic or foreign inquiries concurrently probing these constructs using Partial Least Squares Structural Equation Modeling to find the subtle interrelationships among the sub-scale items of such variables, model the relations among the predictor variables, and take into account differences in the reliability of the measures. The researchers postulated that there should be a relationship between the growth mindset and cognitive engagement, and risk-taking might play a mediating role in this respect (Figure 1).

Figure1. *Postulated relationships among growth mindset, risk-taking, and cognitive engagement*

To examine these assumptions, the present research employed this method of analysis to delve into the specific contribution of growth language mindset to predicting EFL learners' cognitive engagement through the mediation of risk-taking in some language institutes of Tabriz in Iran to find out the strength, effects, and direction of the relationships between the variables. It was hoped that the results of this study be helpful to language teachers, learners, and educators. In this respect, the below research questions were raised:

1) Is there any significant relationship between Iranian EFL learners' growth language mindsets and their cognitive engagement?
2) Is there any significant relationship between Iranian EFL learners' growth mindsets and the attentional subscale of risk-taking?
3) Is there any significant relationship between Iranian EFL learners' growth language mindsets and the motor subscale of risk-taking?
4) Is there any significant relationship between Iranian EFL learners' growth language mindsets and the non-planning subscale of risk-taking?
5) Is there a significant relationship between the attentional subscale of risk-taking and EFL learners' cognitive engagement?
6) Is there a significant relationship between the motor subscale of risk-taking and EFL learners' cognitive engagement?
7) Is there a relationship between the non-planning subscale of risk-taking and EFL learners' cognitive engagement?
8) Do the three subscales of risk-taking (motor, attentional, and non-planning) mediate the relationship between EFL learners' growth mindsets and cognitive engagement?

Method

Participants

The target population included Iranian EFL learners studying English at language institutes in Tabriz. To draw the sample, the researchers used stratified sampling since this method allowed the researchers to obtain a sample population that best represented the entire population being studied. The considered strata were the institutes where language learners were studying English, and the researchers selected their sample from Goldis, Asa, Chekad, Afra, Novin, and Iran Language Institutes in Tabriz, Iran. They also employed power analysis to estimate the minimum sample size needed for identifying the impact of a certain size. As a result, 384 female EFL learners whose ages ranged from 16 to 25 participated in

this research. They were learning English in Goldis, Asa, Chekad, Afra, Novin, and Iran Language Institute in Tabriz, Iran. They were upper-intermediate and advanced learners whose first language was Azeri Turkish. The students' informed consent and free-will participation were pursued, and they were assured of their voluntary participation and the confidentiality of the data.

Instruments

To examine the contributions of the growth language mindset and risk-taking to the cognitive engagement of female EFL students, this study used three questionnaires. The first one, i.e., Lou and Noels' (2017) Language Mindset Inventory (LMI) that measured language learners' mindsets, comprised 18 questions mirroring Growth and Fixed mindsets from three aspects, including general language intelligence beliefs (GLI), second language aptitude beliefs (L2B), and age sensitivity beliefs about language learning (ASB). Every aspect entailed three fixed and three growth mindset questions. The researchers selected items associated with the growth mindset, and participants provided their answers based on a 6-point Likert scale. Lou and Noels (2017) argued that LMI possessed proper psychometric properties regarding reliability and validity. The instrument showed reliability in two ways: the questions of the tool's subscales and the whole scale revealed high internal consistency, and their one-month moderate association depicted excellent test-retest reliability. Meanwhile, there was robust proof that the LMI soundly estimated language mindsets concerning its items, inner structure, and links to other constructs (AERA, APA, & NCME, 2014, as cited in Lou and Noels, 2017). The reliability of this instrument for the present context and participants was also estimated by Cronbach alpha, which was 0.71, 0.76, and 0.79 for GLI, L2B, and ASB, respectively.

To estimate learners' engagement, the researchers employed the University Student Engagement Inventory designed by Maroco et al. (2016). This questionnaire, with satisfactory reliability and acceptable factorial, convergent, and discriminant validities, consisted of 32 questions based on a '1-never' to '5-always' response scale and measured learners' cognitive, behavioral, and affective engagement. In the current study, the Cronbach alpha estimates of the subscales of this inventory were 0.80, 0.85, and 0.83, respectively, for cognitive, behavioral, and emotional engagement. These measures proved the appropriate internal consistency and reliability of the instrument. Meanwhile, only the cognitive engagement subscale and its respective items were used for the purposes of this

study. Besides, the researchers used the self-report Barratt Impulsiveness Scale of Patton, Stanford, and Barratt (1995) to determine the subjects' risk-taking. The scale was one of the regularly employed instruments for the assessment of impulsivity, rendering extensive evidence regarding its validity, reliability, and predictive value. In short, BIS-11 possessed 30 questions based on a Likert scale and measured the three impulsive actions: attentional (an absence of concentration on the current task), motor (performing without reflecting), and non-planning impulsivity (inclination to the present instead of the future). Similarly, the reliability of the subscales of this tool was calculated at 0.79, 0.76, and 0.72, respectively, for the attentional, motor, and non-planning, rendering adequate evidence of the test's internal consistency.

Procedure

As a pilot study, the questionnaires were selected and reviewed by three experienced university experts in language learning and psychology so that we could decide whether they needed to be refined before carrying out the main study and determine the amount of time needed to fill in the questionnaire. Owing to contextual differences, the researchers piloted the scales with an identical sample of 25 and estimated their internal consistencies by Cronbach alpha. Due to the implementation of the study in the Iranian context, a group of psychologists and ELT specialists in Iran examined the content validity of the scales. The questionnaires were not translated into the participants' main language, Persian, since their phrasing was suitable for the learners' understanding level. All questionnaires were administered by normal EFL teachers, the students' informed consent and free-will participation were pursued, and their impersonality and privacy were secured.

Design

The present quantitative study followed a descriptive-correlational design and evaluated the relationships among research variables to make predictions. In this regard, the independent, dependent, and mediating variables in this study were the growth language mindset, cognitive engagement, and risk-taking, respectively.

Results

Before testing the hypotheses, we first report the descriptive statistics of the research variables and present the results in Table 1.

Table 1
Descriptive statistics of growth mindset, risk –taking (motor, attentional, and non-planning), and cognitive engagement

	N	Minimum	Maximum	Mean	Std. Deviation
Growth Mindset	384	9.00	47.00	24.2083	6.25217
Attentional	384	8.00	32.00	24.6120	5.14976
Motor	384	11.00	44.00	32.2943	6.73864
Non-planning	384	11.00	44.00	34.8203	7.89166
Cognitive Engagement	384	11.00	53.00	32.4974	7.13503
Valid N (listwise)	384				

The structural equation modeling with Partial Least Squares method was used to test the hypotheses. Structural equation modeling tests the model in two phases, i.e., testing the measurement and structural model. In PLS modeling, the measurement model is called the outer model, while the structural model is called the inner model. The measurement model examines the validity and reliability of the measurement instruments and research constructs, and the structural model tests the hypotheses and the relationships between latent variables.

For probing the validity of constructs, Fornell and Larcker (1981) suggest three criteria: 1. The reliability of individual items, 2. Composite Reliability (CR), and 3. Average Variance Extracted (AVE). Concerning the reliability of every item, the factor loading of ≥0.5 of every item in confirmatory factor analysis indicates a well-defined construct. Also, the factor loading of items should be minimally significant at the 0.01 level (Gefen, 2005) (Tables 2, 3, 4).

Table 2
Standardized factor loadings, t statistic, and VIF index for items of the growth mindset questionnaire

Item code	Standardized factor loading	T statistic	VIF
G1	0.606	15.983	1.376
G2	0.683	20.295	1.690
G3	0.651	17.945	1.459
G4	0.679	20.178	1.556
G5	0.558	7.088	1.262
G6	0.640	16.833	1.694
G7	0.580	12.805	1.647
G8	0.722	25.794	1.700
G9	0.634	17.673	1.525

Table 3
Standardized factor loadings, t statistic, and VIF index for items of Cognitive Engagement Questionnaire

Item code	Standardized factor loading	T statistic	VIF
C1	0.755	26.011	2.194
C10	0.592	10.807	1.292
C11	0.590	13.793	1.366
C2	0.720	24.480	2.100
C3	0.809	44.068	2.496
C4	0.537	4.442	1.280
C5	0.600	11.970	1.676
C6	0.738	23.423	2.386
C7	0.714	20.054	2.775
C8	0.702	18.082	2.405
C9	0.608	19.139	1.373

Table 4
Standardized factor loadings, t statistic, and VIF index for items of Risk-taking Questionnaire

	Item code	Standardized factor loading	T statistic	VIF
Attentional	A1	0.642	15.866	3.249
	A2	0.608	14.536	3.098
	A3	0.735	26.415	1.695
	A4	0.797	35.345	2.330
	A5	0.748	26.671	1.765
	A6	0.813	41.653	2.395
	A7	0.795	35.554	2.374
	A8	0.536	10.413	1.293
Motor	M1	0.663	18.378	1.678
	M10	0.587	11.469	1.322
	M11	0.634	17.085	1.673
	M2	0.603	14.301	1.566
	M3	0.536	9.811	1.399
	M4	0.613	17.917	1.424
	M5	0.675	16.961	1.705
	M6	0.611	14.187	1.417
	M7	0.806	40.209	2.364
	M8	0.760	30.627	2.083
	M9	0.703	22.760	1.933
Non-Pl	N1	0.702	23.107	1.791
	N10	0.780	33.871	2.488
	N11	0.784	30.339	2.459
	N2	0.802	33.797	2.730

	N3	0.761	29.209	2.370
	N4	0.791	34.465	2.441
	N5	0.742	25.579	2.022
	N6	0.789	32.006	2.325
	N7	0.779	31.453	2.491
	N8	0.791	29.232	2.503
	N9	0.801	38.366	2.650

With regard to the results of Tables 2, 3, and 4, the absolute value of the standardized factor loadings of all research items is >0.5 and significant at the 0.01 level. Thus, all items of the questionnaires are adequately reliable.

The researchers used the Variance Inflation Factor (VIF) to examine the lack of multicollinearity. This test evaluates the intensity of multicollinearity in ordinary least squares regression analysis. If the VIF statistic approximates 1, it indicates the lack of collinearity, and as an empirical rule, if the VIF value is >5, multicollinearity is high. The outcomes of this test are presented in Table A in Appendix I. As observed, the VIF value of no item is >5; thus, there is not a multicollinearity problem in testing the research model.

As an alternative for Cronbach alpha, composite reliability is the ratio of the total factor loading of the latent variables to the total factor loading plus the error variance and ranges from 0 to 1. The value of this index, which is also called the Dillon-Goldstein coefficient, should not be below 0.7. The third criterion is to investigate the AVE reliability. Fornell and Larcker (1981) propose values of ≥0.5 for AVE, indicating that the considered construct explains ≥50% of the variance of its indicators. Table 5 displays the Composite reliability, Cronbach alpha, and AVE index for the variables.

Table 5
Examining the reliability of growth mindset, risk-taking (motor, attentional, and non-planning), and cognitive engagement

Variables	Cronbach Alpha	Composite Reliability	Average Variance Extracted (AVE)
Attentional	0.860	0.892	0.592
Cognitive Engagement	0.862	0.888	0.529
Growth Mindset	0.810	0.855	0.505
Motor	0.860	0.888	0.523
Non-planning	0.933	0.943	0.601

As shown in Table 5, the composite reliability and Cronbach alpha values of research variables are above 0.7, and the AVE index is larger than 0.5 for these variables, indicating the convergent validity and correlation of the constructs. Hence, the validity of the measurement instruments and research constructs is confirmed.

Table 6 displays the Pearson correlation coefficient and discriminant validity. The values on the main diameter of this matrix show the square root of AVE. The antecedent for the confirmation of the discriminant validity is the higher value of the squared root of AVE than the absolute value of all correlations of the respective variable with the other variables.

Table 6
Pearson correlation coefficients and discriminant validity index of research variables

Variables	Attentional	Cognitive Engagement	Growth Mindset	Motor	Non-planning
Attentional	0.769				
Cognitive Engagement	0.632	0.727			
Growth Mindset	0.629	0.586	0.711		
Motor	0.743	0.673	0.637	0.723	
Non-planning	0.609	0.673	0.507	0.666	0.775

*The main diameter displays the square root of AVE.

Concerning the table above, the values on the main diameter are maximal in the column. Thus, the validity of the constructs is also confirmed.

After examining the reliability and validity of the measurement tools and research constructs, we need to test the relationships between latent variables (inner model). Figures 1 and 2 illustrate the tested model according to the path coefficients and t statistic, respectively. It is worth noting that the Goodness of Fit (GOF) index in this model equals 0.407 and indicates the fit of the model for testing the research hypotheses (GOF>0.4).

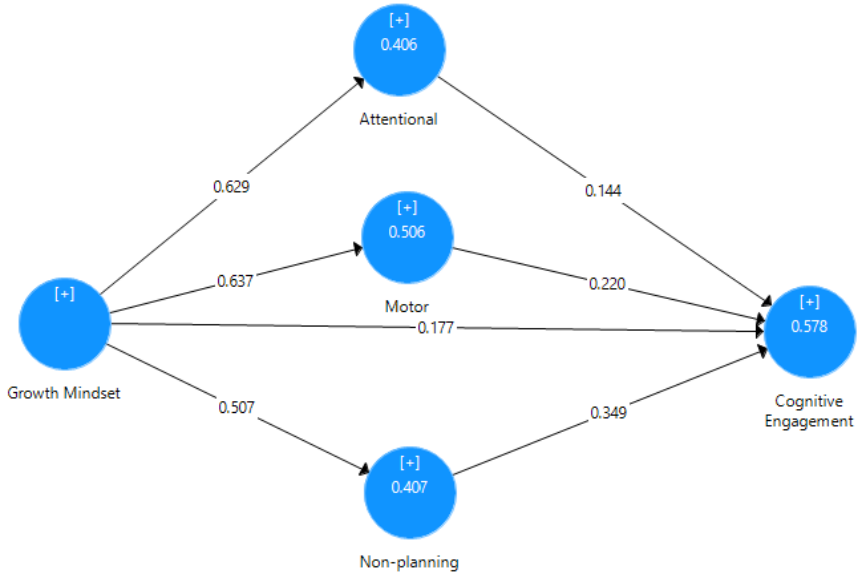

Figure 1. *Tested model according to path coefficients*

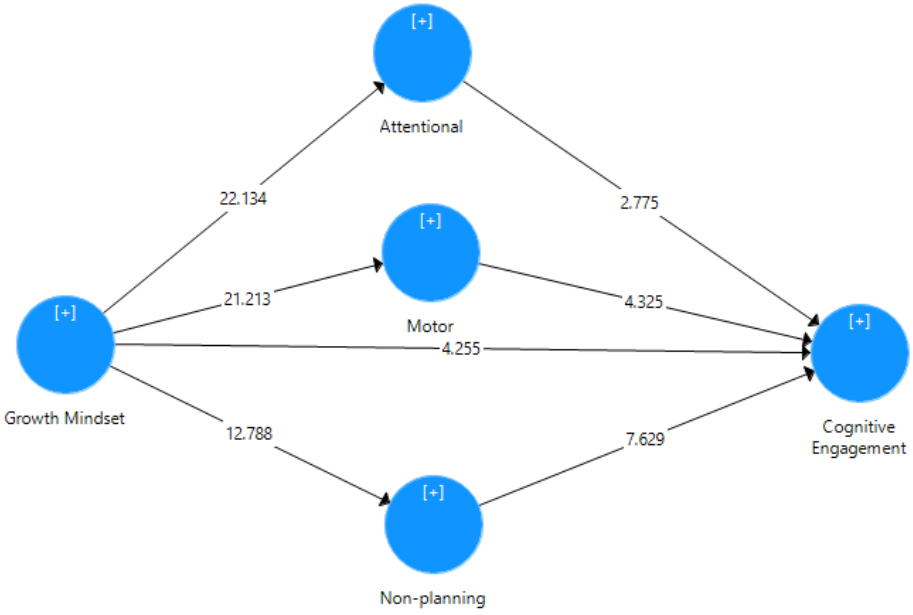

Figure 2. *Tested model according to t statistic*

The results of testing the research hypotheses by PLS structural equations modeling are shown in Table 7. The results in this table reveal that all hypotheses are confirmed at the 0.01 significance level since their t values are larger than 2.58.

Table 7
Testing research hypotheses through path coefficients and t statistic

Hypothesis		Path Coefficients	Standard Deviation	T Statistics	P Values
1	Attentional -> Cognitive Engagement	0.144	0.052	2.775	0.006
2	Growth Mindset -> Attentional	0.629	0.028	22.134	0.000
3	Growth Mindset -> Cognitive Engagement	0.177	0.042	4.255	0.000
4	Growth Mindset -> Motor	0.637	0.030	21.213	0.000
5	Growth Mindset -> Non-planning	0.507	0.040	12.788	0.000
6	Motor -> Cognitive Engagement	0.220	0.051	4.325	0.000
7	Non-planning -> Cognitive Engagement	0.349	0.046	7.629	0.000

**|t|> 2.58 indicates significance at the 0.01 level.

The validity of the model is specified by the coefficient of determination (R^2), which measures the explanatory variance of an endogenous variable with exogenous variables. The R^2 value equals 0.406, 0.506, 0.407, and 0.578 for the endogenous variables, i.e., attentional, motor, non-planning, and cognitive engagement. This means that 40.6% of the variance in the attentional variable, 50.6% of the variance in the motor variable, and 40.7% of the variance in the non-planning variable have been explained by the changes in the growth mindset variable. Likewise, 57.8% of the variance in the cognitive engagement variable has been explained by the variations in the growth mindset, attentional, motor, and non-planning variables.

The Sobel test was used to examine if the indirect effect of the growth mindset on cognitive engagement was significant through the mediation of attentional, motor, and non-planning variables (Table 8). In this table, the Z values of >2.58 mean the significance of the effect at the 0.01 level.

Table 8
Sobel test results for Hypotheses 8-10 (examining indirect effect of growth mindset on cognitive engagement)

HYPOTHESIS	Growth Mindset -> Attentional -> Cognitive Engagement			RESULT
	Variable	Value	Z-value	
8	a	0.629	2.746**	Accept
	b	0.144		
	S_a	0.028		
	S_b	0.052		
HYPOTHESIS	Growth Mindset -> Motor -> Cognitive Engagement			RESULT
	Variable	Value	Z-value	
9	a	0.637	4.223**	Accept
	b	0.220		
	S_a	0.030		
	S_b	0.051		
HYPOTHESIS	Growth Mindset -> Non- Planning-> Cognitive Engagement			RESULT
	Variable	Value	Z-value	
10	a	0.507	6.495**	Accept
	b	0.349		
	S_a	0.040		
	S_b	0.046		

Note: **P<0.01, *P<0.05

According to the results of Table 8, the effect of the growth mindset on cognitive engagement through the mediation of attentional, motor, and non-planning is significant at the 0.01 level since their Z values are >2.58.

Discussion

This study examined the relationship between the growth language mindset and Iranian EFL learners' cognitive engagement by considering the mediation of risk-taking. As the findings unveiled, there was a direct and significant correlation between Iranian EFL learners' growth mindsets and cognitive engagement, language mindsets and risk-taking, and risk-taking and cognitive engagement. In addition, the association between the growth language mindset and cognitive engagement was significantly mediated by risk-taking. To justify these outcomes, the researchers borrow the words of Mercer (2018), who argues that learners need to know that their language competencies can be enhanced by engaging in activities that give rise to language learning and they are able to handle and influence. Furthermore, according

to Lou and Noels (2020), students see success as controllable when they adhere to a growth mindset and uncontrollable when they adopt a fixed mindset to learning.

The results of this research corresponded to the results of Lou and Noels (2017), who tested the mindsets–goals–responses model and showed that learners' implicit beliefs predicted their goals for language learning, and these goals influenced the way they reacted to intricate educational challenges. Their path analyses showed that irrespective of competencies and abilities, a growth mindset helped with further language learning, and this learning objective, in turn, predicted further mastery and fewer helpless reactions to unsuccess. We can justify this outcome by attributing mindsets to many motivational phenomena. A long history of socio-cognitive research highlights the significance of mindsets in motivational processes, including theories of locus of control/causality, achievement goals theory, social learning theory, and learned helplessness (Dweck & Leggett, 1988). As Molden and Dweck (2006) assert, these motivational processes can be perceived as mindset-based meaning structures that direct students to make sense of their abilities and learning situations.

Zhu's (2010) survey displayed a significant and relatively strong association between student engagement and achievement, and King's (2015) research found a positive correlation between achievement and behavioral and emotional engagement. Such findings are consistent with the results of the present study in that the cognitive school engagement of students influences students' learning achievement since learners believe in their competence as something that can progress and that they can somehow regulate and impact them.

The results also aligned with the findings of the study by Derakhshan et al. (2022), who presented a model of classroom social climate, growth language mindset, boredom, and student engagement in an EFL setting. They found that classroom social climate and boredom significantly predicated EFL students' engagement directly. Furthermore, the relationship between the growth language mindset and student engagement was mediated by boredom. Lam et al. (2022) examined whether mindsets were related to school engagement and subjective well-being in first-grade students. Reaching similar results, they found that students adopting a growth mindset reported enhanced engagement and subjective well-being. These outcomes display the significance of the growth mindset for optimal functioning. Likewise, the growth mindset may need to be nurtured at early ages as a potential pathway to improving students' academic engagement.

The results were also aligned with the results of Ely (1986) who found that students' tendency to take risks in using Spanish in L2 classes was crucially associated with their participation, which in turn foretold their proficiency. Therefore, language teachers need to develop a positive classroom atmosphere in which students feel confident and intelligent and risk-taking is awarded (Oxford, 1992).

Here, we can refer to Dweck's (2006) claim to support and justify our results. She believed that taking risks and challenges and working hard are directly rooted in people's basic growth mindset (Dweck, 2006). That is to say, people holding high levels of the growth mindset will value challenges more and tend to invest more time and effort to improve their situation constantly (Liu et al., 2014). Previous studies in the field of education have shown that the growth mindset is positively related to academic self-efficacy and academic performance (Diao et al., 2020). As Yeager et al. (2019) argue, the growth mindset cannot only increase students' effort, energy, and perseverance to complete learning tasks but also encourage learners to achieve higher academic achievement. According to Claro et al. (2016), the growth mindset is a recognized predictor of academic achievement since learners with this mindset try new strategies, seek assistance when needed, and make more effort. Therefore, it can be inferred that students' learning is linked to the growth mindset. Studies on learning engagement have also confirmed that growth mindset interventions can alter students' motivational beliefs and boost their learning engagement (Lin-Siegler et al., 2016). Moreover, the growth mindset can also improve students' sense of control, stimulate their interest and expectancy in learning, and help them maintain learning engagement (Schmidt et al., 2017).

To sum up, we can claim that language acquisition shares a common conviction that successful mastery of a second language depends on several factors, including implicit theories, risk-taking, and engagement. Although they contribute positively or negatively to the examined subjects' English achievement, the generalizability of the results and conclusions drawn from research findings should be carried out cautiously due to the concurrent interaction of many variables, whose ignorance may negatively impact the interpretation of the results.

Mindset theories propose that the decline of self-regulation is partly formed by conceptions of effort. Hence, one hopeful solution to maintain self-regulation may be to develop a growth mindset, which influences behavior partially by changing effort attributions. A growth mindset towards self-regulation meaningfully modifies attributions and attempts and impacts the willingness to try risky and challenging

activities and the requisite perseverance and engagement for their completion. However, it's not true that most students take advantage of growth mindset interventions; therefore, future investigations have to concentrate on research activities that examine if the implicit theory can congruently help all students.

This study has some implications for language practitioners who can improve growth beliefs differently. First, the current study proposes that it would be useful to vividly teach learners the scientific confirmations about growth beliefs through presentations and other kinds of mediations, by which learners are able to acquire, promote their language competence, and develop mastery over learning. Second, language educators can reinforce persistence by emphasizing the significance of development and the positive effect of non-fulfillment on success. Therefore, L2 practitioners have to be aware of the implied meaning their feedback carries for learners and be confident to highlight the significance of endeavor and learning goals besides attempting diverse learning strategies in challenging conditions.

This study was limited and delimited in many respects. First, the participants were limited to 384 Azeri students; hence, carrying out similar research with bigger samples from varying language centers of the country will support the generalizability of the results. Second, the considered variables were evaluated by the questionnaire instruments, and no qualitative methods were applied. Thus, the outcomes may not be as inclusive as those rendered by mixed-method approaches. Likewise, the authors limited the scope by taking into account only the bidimensional state of the mindset variable. Yet, as Dweck (2012) discusses, mindsets can be regarded as a continuum with fixed and growth mindsets at two extremes. Finally, the researchers delimited the study to learners from higher language levels and excluded lower intermediate and elementary learners.

To delve into the topic, future researchers can triangulate their data collection methods and use larger samples to yield more comprehensive and accurate results. Furthermore, owing to the presence of diverse cultures, backgrounds, and first languages in the EFL context of Iran, future studies can provide the research milieu with findings specific to each situation. The last point is that the sizes of the associations were not as strong as the researchers anticipated. It might have some reasons, including non-linear relationships, outliers, excessive uncontrolled variance, the unrepresentativeness of the population, and inefficient metrics. The researchers recommend using alternative data collection instruments to collect

data on these variables, controlling outliers, employing different sampling methods, and examining the mediation or moderation of other variables.

Declaration of Interest: None

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