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Research Article

Examining the Roles of Language Mindsets in Iranian EFL Learners' Feedback Literacy, Feedback Engagement, and Writing Performance

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ABSTRACT

This study examined the role of Iranian EFL learners' language mindsets in developing their feedback literacy, feedback engagement, and writing performance. Data were collected from 210 Iranian EFL learners via a battery of questionnaires validated for language mindsets, feedback literacy, and feedback engagement, alongside a standardized writing test to assess writing performance. Structural equation modeling (SEM) was used to analyze the data. The initial model included all theoretically relevant paths; however, it provided a poor fit to the data. After removing non-significant paths, the revised model fit the data satisfactorily. The results pinpointed fixed language mindset as a negative predictor of writing performance, whereas growth language mindset positively predicted feedback literacy and feedback engagement. Moreover, feedback literacy and feedback engagement were found to mediate the relationship between growth mindset and writing performance. Given these findings, it becomes paramount to nurture growth mindset among learners while enhancing their abilities to effectively engage with feedback for the betterment of writing outcomes. The study inspired useful ideas for educators and policymakers, pointing toward a more integrated approach between mindset theories and feedback practices in language-learning curricula.

Introduction

Individual beliefs and their impact on learning trajectories have been a major topic of educational research, especially in the domain of language acquisition. Research coming from a vastly different and growing body of literature highlights the significance of learners' beliefs regarding their capacity to develop language skills-often labeled as language mindsets- in determining motivation, engagement, and eventual academic outcomes (Bai & Wang, 2024; Shirvan et al., 2024; Derakhshan & Fathi, 2024). Language mindsets are defined in terms of the psychological framework of implicit theories and deal with individuals' beliefs concerning how much their language-related capacities can be developed (Lou & Noels, 2017). The last decade has seen growing research attention to the role of these mindsets in learning a second or foreign language (L2), and studies using the Language Mindset Inventory (Lou & Noels, 2017) have provided critical insights about how these mindsets influence motivational and behavioral patterns exhibited by learners. Recent studies have extended this line of inquiry by exploring how language mindsets operate on learners' perceptions of and responses to feedback, perceived as an important component of the L2 writing process (Xu, 2022; Yao et al., 2021a). Teacher feedback, defined as the assessment given by teachers to students on their writing regarding its strengths and weaknesses, is largely acknowledged to be one of the most effective pedagogical tools for improving students' writing abilities (Alsahil et al., 2024). In support of such claims, it is backed by empirical evidence for use as a scaffold on the writing development of L2 learners, enhancing their confidence and competence (Bitchener & Storch, 2016; Lee, 2020).

Although feedback literacy and feedback engagement are being increasingly cited as critical determinants of feedback effectiveness (Yu et al., 2023; Zhang & Hyland, 2022), scant research has been conducted into the extent to which language learners' mindsets may actually influence these variables. Feedback literacy, which involves the understanding, interpretation, evaluation, and application of feedback in varying educational contexts (Carless & Boud, 2018; Yu & Liu, 2021), and feedback engagement, which takes cognizance of the behavioral, cognitive, and affective responses of learners upon receiving feedback (Zhang & Hyland, 2022), are concepts that are yet to be mapped onto the world of L2 writing. Whereas available studies have mostly tackled feedback literacy concepts and feedback engagement through case studies in university settings (Han & Xu, 2019; Yu & Liu, 2021), research on language mindsets as determinants of these constructs and the subsequent effects on writing performance has received little attention so far. This study addressed this gap by investigating the causal relationship between language learners' mindsets, feedback literacy, and feedback engagement, as well as the collective contribution of these variables to writing performance. By doing so, it contributed to the broader discourse on the role of psychological and pedagogical variables in foreign language acquisition. This study advanced toward a more comprehensive understanding of language learning by elucidating the mediating roles of feedback literacy and feedback engagement within the context of L2 writing, paving the way for more integrated and effective instructional practices.

Literature Review

Language Mindsets

Language mindsets, rooted in the broader psychological framework of implicit theories, have garnered significant attention in educational research, particularly in the context of second language acquisition. Mindsets are those views of the person regarding the changeability of such

personal attributes as intelligence, aptitude, or personality (Mercer & Ryan, 2010). These views may be described broadly by an orientation towards fixed mindsets or growth mindsets. A fixed mindset regards personal qualities as largely static and unchangeable, thus often leading its owner to avoid challenges and to withdraw from opportunities for any sort of growth. Conversely, a growth mindset is the belief that personal qualities are malleable and can thus be developed when effort is put in and obstacles are persevered with; it, then, shows itself through resilience and proactivity in learning (Dweck, 2012; Lou & Noels, 2017). The dichotomy has been well established in language learning, where many studies have validated that mindsets can be best accounted for through a two-factor structure (Khajavy et al., 2022; Papi et al., 2021; Yao et al., 2021b).

To operationalize the study of language mindsets, Lou and Noels (2017) developed the Language Mindset Inventory, which assesses learners' beliefs across three key dimensions: general language intelligence, language aptitude, and age sensitivity. This instrument has been instrumental in exploring the relationship between language mindsets and various motivational and behavioral outcomes in SLA. People with growth mindsets, for instance, are said to pursue mastery-oriented goals, to persist despite challenge, and to employ adaptive learning strategies; whereas people with fixed mindsets often tend to show avoidance behaviors and reduced effort (Dweck, 2012; Lou, & Noels, 2017). In addition, language mindset has been conceptualized as another motivational variable that affects both goal-setting and effort spent in language study and interpretation of language learning outcomes (Papi et al., 2021). Lou et al. (2021) further emphasized the systemic nature of mindsets, describing them as deep-seated ontological and epistemological beliefs that interact with other psychological and contextual factors to shape learning trajectories.

A critical aspect of language mindsets is their domain specificity (Khajavy et al., 2022). Research has demonstrated that learners may hold distinct mindsets for different language skills or domains, such as reading, speaking, or writing (Ryan & Mercer, 2012). For example, Khajavy et al. (2022) found that both domain-specific (L2 reading) and domain-general growth mindsets predicted reading achievement among Iranian EFL learners. However, Cho et al. (2021) observed that only domain-general growth mindsets significantly influenced reading achievement among sixth-grade students in the United States, suggesting that the impact of mindsets may vary across cultural and educational contexts. Despite these variations, domain-general growth mindsets consistently emerge as a robust predictor of language learning outcomes, underscoring their overarching influence on achievement (Khajavy et al., 2021; Lou et al., 2021; Zarrinabadi et al., 2024).

Empirical research has also investigated the relationship of language mindsets with affective and cognitive factors in SLA. Growth mindsets are positively associated with effort beliefs, learning goals, adaptive strategies, and positive emotions such as joy and resilience (Lou & Noels, 2106; Lou & Zarrinabadi, 2022; Zarrinabadi et al., 2022, 2023). On the contrary, fixed mindsets are associated with anxiety, avoidance behaviors, and fear of failure, which are detrimental to any language learning (Burnette et al., 2013; Dweck & Yeager, 2019). This finding indicates that mindsets serve as both facilitators and inhibitors to language learning, depending on the orientation.

Recent meta-analytic research by Shirvan et al. (2024) provides a comprehensive synthesis of the relationship between language mindsets and L2 achievement. Analyzing 22 studies and 50 effect sizes, the study revealed a moderate positive

correlation between growth mindsets and language outcomes, encompassing overall performance, grammar, pragmatics, and specific skills such as reading, speaking, and writing. In contrast, fixed mindsets exhibited a small negative correlation with achievement. These findings underscore the pivotal role of growth mindsets in enhancing language learning outcomes and suggest that fostering such beliefs could be a key strategy for improving L2 proficiency.

EFL Learners' Writing Feedback Literacy

According to Sutton (2012), student feedback literacy is a useful consideration that has become a framework by which one may understand how learners interact with feedback and utilize it for improvements in their academic performance. Feedback literacy is defined as "the understandings, capacities and dispositions needed to make sense of information and use it for enhancing work or learning strategies" (Carless & Boud, 2018, p. 1315), encompassing four core components: appreciation of feedback, judgment, affect management, and action (Winstone & Carless, 2020). These dimensions collectively enable learners to maximize the potential of feedback processes, particularly in the context of second language writing, where feedback plays a pivotal role in skill development (Han & Xu, 2019; Yu et al., 2022).

The first dimension, appreciating the feedback, involves students' valuing feedback and understanding their active role in this process. Learners should see feedback not merely as an evaluation of their current knowledge but more as a tool for developing future skills (Sutton, 2012; Zhu et al., 2025). This requires students to actively seek, interpret, and use feedback to improve their learning strategies and performance (Carless & Boud, 2018). Empirical studies by Tian and Zhou (2020), for instance, have shown that students' perceptions of feedback correlate positively with their uptake of this feedback, further emphasizing the importance of developing an appreciation for feedback in L2 writing contexts.

The second dimension, making judgments, deals with students' ability to make evaluative judgments to assess the quality of their own work and that of others. This ability is often fostered through peer feedback and analysis of exemplars, which guide students in internalizing criteria for good writing (Carless & Boud, 2018). Studies conducted by Yu and Liu (2021) and Ghaffar et al. (2020) have also highlighted the importance of students' use of assessment criteria for informed judgment on feedback, thereby emphasizing the importance of this component in developing feedback literacy.

Managing affect, the third component, addresses the emotional and attitudinal aspects of feedback engagement. Feedback-literate students are equipped to navigate their emotional responses to feedback, maintaining a focus on its formative potential despite potential setbacks (Carless & Boud, 2018). Studies by Mahfoodh (2017) and To (2016) have shown that emotional resilience is crucial for students to effectively utilize feedback, particularly in L2 writing, where affective factors can significantly influence feedback uptake. The final component, taking action, emphasizes the practical application of feedback. For feedback to be effective, students must possess strategies and motivation to act on it, integrating feedback into their learning processes and refining their work accordingly (Boud & Molloy, 2013). This proactive approach to feedback is essential for fostering a sense of agency and continuous improvement among L2 learners (Yu, 2019).

Rad and Mirzaei (2024) investigated the impact of a social-constructionist approach to feedback literacy on students' development of feedback literacy, scaffolded learning, and resilience. Their

study involved enhancing students' understanding of feedback mechanisms within the Zone of Proximal Development (ZPD) during collaborative writing tasks. Posttest results indicated statistically significant improvements in the experimental group's feedback literacy, writing competence, and resilience. In a related study, Xie and Liu (2024) examined the perceptions of university EFL instructors regarding the cultivation of student feedback literacy, alongside their pedagogical practices. Thematic analysis was applied to data collected from semi-structured interviews with nine Chinese university EFL teachers and classroom observations. Findings indicated a notable absence of deliberate efforts to foster student feedback literacy, influenced by a teacher-centered feedback paradigm and a lack of institutional guidelines.

Despite the growing recognition of feedback literacy as a critical construct, empirical research in this area remains limited, particularly in the context of second language (L2) writing. Studies have identified significant gaps in students' feedback literacy, such as low motivation to act on written corrective feedback and limited engagement with peer feedback activities (Han & Xu, 2019). These findings highlight the urgent need to enhance L2 students' feedback literacy to optimize the benefits of feedback processes. Recent research has expanded the conceptualization of feedback literacy to include additional dimensions, such as acknowledging different feedback sources. Yu et al. (2022) proposed a refined model that incorporates students' ability to identify and utilize feedback from diverse sources, including teachers, peers, self-assessment, and automated systems. Their findings suggest that teacher feedback is associated with high levels of feedback uptake, while peer feedback often addresses higher-order writing issues and is more comprehensible to L2 learners (Yu, 2019; Zhao, 2010). Self-feedback, on the other hand, enhances students' agency, and automated feedback provides extended language guidance beyond immediate writing tasks (Lam, 2013).

Feedback Engagement

Feedback engagement specifically refers to students' active responses to feedback and interaction with feedback, unlike feedback literacy, which involves students' abilities to interpret feedback and utilize it appropriately (Ellis, 2010). In this way, both paradigms interplay to maximize the benefits flowing from feedback streams. Feedback engagement is mostly construed as a higher-order construct, although the actual constituents have remained in dispute (Tsao et al., 2021; Zhang & Hyland, 2022). Within the broader scheme of student engagement in education, Fredricks et al. (2004) wisely proposed a tripartite description comprising an affective, a cognitive, and a behavioral dimension. Affective engagement includes students' emotional and attitudinal responses to their learning; cognitive engagement refers to those cognitive and metacognitive strategies by which they consciously engage with their learning; and behavioral engagement signifies students' active participation in learning tasks and activities. All these dimensions are intrinsically interconnected and interactively influence students' academic achievement (Finn & Zimmer, 2012).

Ellis (2010) took Fredricks et al.'s (2004) framework concerning feedback and investigated corrective feedback in relation to second-language learners' engagement. Ellis proposes that engagement with feedback consists of three sub-dimensions: affective, cognitive, and behavioral. Affective engagement relates to how students feel about the feedback they receive; cognitive engagement is about how students psychologically commit to and use cognitive strategies to process feedback; and behavioral engagement pertains to what students actually do to cope with feedback,

especially to revise their work. In keeping with this framework, Han and Hyland (2015) made further refinements with regard to the notion in the area of written corrective feedback. They defined affective engagement as students' attitudes toward teacher-generated written corrective feedback and their immediate emotional responses; cognitive engagement as the depth of processing and use of metacognitive strategies; and behavioral engagement as the actual revision practices and strategies based on the response to feedback. They, like Zhang and Hyland (2018), who further expanded Ellis' model to engage with teacher and automated feedback, alighted on how emotional reactions, cognitive processing, and behavioral responses work together.

Feedback engagement is a term that refers to the degree to which learners actively involve themselves in the giving and receiving of feedback for the improvement of their own learning (Vattoy et al., 2021). Engaging in feedback is of utmost importance for everyone's learning, as it assists in user-friendly feedback in the learning situation (Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006). The important factors of feedback engagement include the quality and quantity of feedback, feedback interactions between teachers and students being dialogic in nature, and the extent to which students exert effort into utilizing feedback (Carless, 2006; Gamlem & Smith, 2013; Gamlem & Munthe, 2014; Nicol, 2010). Vattoy et al. (2021) pointed out a feedback engagement model that looks at learner engagement in terms of feedback quantity, feedback quality, effort, learning with examinations, use of feedback, and study and learning behaviors. This model provides a cycle that attempts to look over all facets of feedback engagement comprehensively.

In conclusion, the literature review highlighted the pivotal roles of language mindsets, feedback literacy, and feedback engagement in shaping second language learning outcomes, particularly within the domain of writing. While extensive research had explored the influence of fixed and growth mindsets on motivational, affective, and achievement-related variables, a significant gap remained in understanding how these mindsets predicted feedback literacy, feedback engagement, and writing performance, especially among Iranian EFL learners. This study addressed this gap by examining the predictive power of fixed and growth language mindsets on these critical constructs. It sought to determine whether language mindsets influenced feedback literacy, various dimensions of feedback engagement, and writing performance, thereby providing deeper insights into the psychological and behavioral mechanisms underlying effective feedback utilization and writing development. Based on these research objectives, the following research questions were posed:

RQ1: To what extent do fixed and growth language mindsets predict Iranian EFL learners' feedback literacy?

RQ2: To what extent do fixed and growth language mindsets predict Iranian EFL learners' feedback engagement?

RQ3: To what extent do fixed and growth language mindsets predict Iranian EFL learners' writing performance?

Method

Participants

The study comprised a sample of 210 Iranian IELTS candidates residing in the cities of Ahvaz, Bousher, and Hormozgan. The participants had a minimum of one year's experience in IELTS preparation courses, and so they had a fair knowledge of the IELTS examination. The age of the participants varied between 18 and 29 years, with 22.5 years as the average age (SD=2.4). These participants were classified at the intermediate level of English proficiency according to their scores on

the Oxford Placement Test (OPT), a standardized test generally accepted as a good measure of language competence. All the participants at the time of data collection were in active attendance at classes for the preparation of the IELTS examination. Before the commencement of the process, all matters concerning anonymity and confidentiality of personal information were addressed and assured to the participants. Data collection was carried out in June 2023.

Instruments

Language Mindsets Inventory

The Language Mindsets Inventory (LMI), developed by Lou and Noels (2017), is a valid tool designed to measure language learners' implicit beliefs about language learning, particularly fixed and growth language mindsets. This scale is widely recognized for its effectiveness in measuring the ways in which learners perceive their language ability as either a stable or a malleable skill that can be fostered over time. It has 18 items, equally divided into two subscales: nine items to measure a fixed mindset (beliefs that language ability is innate and unchangeable) and nine items to measure a growth mindset (beliefs that language ability can improve with effort and appropriate strategies).

The responses to the scale are on a six-point Likert scale, varying from "1" (strongly agree) to "6" (strongly disagree), allowing for a spectrum of answers on participants' beliefs with a high degree of sensitivity. The dual structure of the LMI makes it possible for scholars to examine the coexistence or dominance of each mindset type within individuals, which is especially useful for specifying how learners' beliefs may affect different language learning behaviors. Lou and Noels (2017) planned the LMI to ensure reliability and validity across diverse EFL populations. The reliability of the total scale and subscales of LMI was from .81 to .92 as assessed by Cronbach's alpha. The reliability of the fixed and growth mindsets scale in the present study was .77 and .83, respectively. The validity and reliability of the scale have been confirmed in the Iranian EFL context (Zarrinabadi et al., 2021). The minimum score for each subscale is 9, and the maximum is 54.

Feedback Literacy Scale

The Feedback Literacy Scale developed by Zhan (2021) was used to assess the participants' beliefs about feedback literacy. This scale has 24 items on a five-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree), that assesses students' feedback literacy in six subscales. The 6 subscales include eliciting, processing, enacting, appreciation of feedback, readiness to engage, and commitment to change. Each of the subscales has four items, and higher scores on each subscale show higher feedback literacy skill. By segmenting feedback literacy into these six specific areas, the scale makes it possible for a detailed analysis of where strengths and potential growth areas lie, thus providing insights into how student might engage with feedback across diverse stages of their academic and personal development. This deep insight is instrumental for educators and researchers aiming to foster effective feedback engagement strategies that support sustained academic and skill development.

Zhan (2021) reported that different subscales of the Feedback Literacy Scale had acceptable levels of reliability, with all of the subscales ranging from .852 to .857, as measured by Cronbach's alpha. In the present study, the Cronbach's alpha for the scales were: eliciting (.71), processing (.76), enacting (.76), appreciation of feedback (.80), readiness to engage (.76) and commitment to change (.80). The minimum and maximum scores for each of the subscales are calculated by multiplying the number of items by 5, i.e. the minimum score for each subscale is 4, and the

maximum is 20. The validity of the scale has been confirmed in the Iranian EFL context (Rashtchi et al., 2025; Rad & Mirzaei, 2024).

Feedback Engagement Scale

Feedback engagement was assessed using the Assessment Experience Questionnaire (AEQ), developed by Pettersen and Karlsen (2011). Later, Vattøy et al. (2021) revised the scale a little bit and adapted it to writing, which included five subscales. The scale has 15 items on a five-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree), and measures participants' feedback quantity, feedback quality, quantity of effort, learning from the examination, and use of feedback. Higher scores on each subscale reflect greater engagement with feedback in the corresponding domain.

Pettersen and Karlsen (2011) reported the Cronbach's reliability for the subscales as feedback quantity (.61), feedback quality (.72), quantity of effort (.82), learning from the examination (.64), and use of feedback (.54). The reliability indices of the scale in the present study were as follows: feedback quantity (.73), feedback quality (.79), quantity of effort (.81), learning from the examination (.81), use of feedback (.78). The minimum and maximum scores for each subscale are calculated by multiplying the number of its items by 1 and 5, respectively. The scale has been validated in the Iranian context by Zarrinabadi (2025) and Zarrinabadi et al. (2023).

Writing Assessment

The researcher administered a writing test to the participants to obtain their writing scores. The writing task was an IELTS writing Task 2, and the scoring was based on the official IELTS writing rubric. The researcher scored the writing performance by giving a score from 0 to 9. In order to ensure the reliability of the scoring, the researcher asked a colleague to read the writings and score them. The inter-rater reliability of Cohen's Kappa of .83 was found, which is acceptable.

For the writing task, participants were asked to write a 250-word essay on a topic that was not disclosed to them before the class. No alternative topics were provided to ensure that their writing quality was not influenced by choice. In addition, to maintain consistent performance conditions, all participants were asked to write their essays in the classrooms in a 50-minute time frame. The researcher assessed the writing tasks based on the following five criteria: 1) content- effectiveness and relatedness of the task to the topic, 2) organization-full support of the position stated, 3) Sentence Construction, 4) Voice- active engagement through explicit themes and real scenes, and 5) Mechanics-spelling, punctuation, margin, capitalization and other face features of the writing performances. Finally, to ensure scoring reliability, the researcher asked a colleague to independently evaluate the participants' writings, after which inter-rater reliability was calculated.

Data Collection and Analysis

Before the start of data collection, ethical approval was obtained from the head of the English department of the participating institutions. Data collection was carried out in one session lasting around 90 minutes. The participants undertook the IELTS writing task first, then the self-report questionnaires on language mindsets, feedback literacy, and feedback engagement. After completion of the writing tasks, scoring took place, followed by the collection of the questionnaires for analysis. The data were entered into SPSS version 24 for statistical analysis. Descriptive statistics were calculated for the purpose of presenting the data, and structural equation modeling (SEM) applied in SPSS Amos version 24 was used for examining the

relationships among the variables. The whole process of data collection and analysis was carried out in the summer of 2023. This methodological approach ensured the rigorous and systematic examination of the research questions and, therefore, the validity and reliability of the findings of the study.

Results

Firstly, descriptive statistics of the study variables, including measures of central tendency (mean), dispersion (standard deviation and range), and methods concerning the distributional shape (skewness and kurtosis) were conducted. Therefore, Cronbach's alpha was applied to check for internal consistency among the constructs, and all relevant values were provided in detail in Table 1. In this analysis, the assumption of normality was confirmed as all variables satisfactorily fell within the accepted range of skewness and kurtosis values of +2 to -2, as prescribed by Kim (2012). Hence, the data agreed on the normality assumption, thereby allowing the application of parametric statistical methods for further analyses. Moreover, keeping in line with Dörnyei's (2007) accepted criterion for reliability in the domain of second language acquisition, internal consistency indices for all variables surpassed the .70 threshold, an indisputable cutoff generally accepted as the minimum for proclaiming measurement instruments to be sufficiently robust. Thus, the outcome gave credence to the findings from the constructs in question, supporting the validity of the research findings.

Before the structural analysis was carried out, the researchers also looked into the possible presence of gender differences in the study variables. Independent-samples t-tests were used to compare male and female participants on each variable. The analyses indicated no significant difference between males and females in any of the constructs, namely, fixed mindsets ($t = 1.48$, $p = .062$), growth mindsets ($t = -0.45$, $p = .964$), various facets of feedback literacy, such as eliciting ($t = 1.96$, $p = .056$), processing ($t = 1.08$, $p = .105$), enacting ($t = 1.32$, $p = .185$), feedback appreciation ($t = -0.92$, $p = .358$), readiness to engage ($t = -0.707$, $p = .480$), and commitment to change ($t = 0.012$, $p = .990$). No significant gender difference was found either for the subscales assessing engagement with feedback, which included quality of effort ($t = -1.90$, $p = .058$), feedback quantity ($t = -1.42$, $p = .112$), feedback quality ($t = -0.232$, $p = .745$), learning from examinations ($t = -1.62$, $p = .105$), and use of feedback ($t = 0.440$, $p = .246$). Last, the analysis showed that no significant difference existed with regard to the writing scores of the participants, $t(309) = 1.00$, $p = .317$. Collectively, these findings indicate that gender did not significantly impact the variables under consideration, and hence, the researchers felt it was unnecessary to control for gender when proceeding with the structural analysis.

Table 1.
Descriptive Statistics

	Mean	SD	Skewness	Kurtosis	Cronbach's Alpha	Scale
Fixed	2.31	1.06	.56	-.28	.77	1-6
Growth	4.74	0.95	-.87	-1.15	.83	1-6
Eliciting	3.89	1.60	-.54	-.81	.71	1-5
Processing	4.30	1.41	-.79	-.07	.76	1-5
Enacting	4.24	1.40	-.66	-.23	.80	1-5
Appreciation	4.53	1.35	-.88	-.27	.77	1-5

	Mean	SD	Skewness	Kurtosis	Cronbach's Alpha	Scale
Readiness to change	4.03	1.57	-.56	-.70	.82	1-5
Commitment	3.68	1.52	-.19	-.85	.84	1-5
Quality of effort	3.55	1.61	-.14	-1.03	.81	1-5
Feedback quality	4.19	1.49	-.64	-.38	.73	1-5
Feedback quantity	3.46	1.66	-.02	-1.12	.79	1-5
Learning from exam	4.24	1.53	-.74	-.32	.81	1-5
Use of feedback	4.31	1.55	-.69	-.42	.78	1-5
Score	6.44	1.35	-.41	-.90	.75	0-9

The subsequent phase of data analysis involved computing the intercorrelations among the variables under investigation. These intercorrelations, which elucidate the bivariate relationships between the constructs, are comprehensively presented in Table 2. As illustrated in the table, several statistically significant correlations emerged between fixed and growth language mindsets and the various subscales of feedback literacy, feedback engagement, and writing scores. These correlations provide preliminary insights into the potential relationships and patterns within the data, serving as a foundational step for further structural analyses. In accordance with established conventions for reporting structural equation modeling (SEM) studies, the detailed correlation coefficients are not discussed extensively within the text. Instead, they are succinctly summarized and presented in tabular form (Table 2), allowing readers to examine the specific relationships at their discretion. This approach aligns with best practices in SEM reporting, which prioritize clarity and conciseness while ensuring that all relevant statistical information is accessible to the audience. By adhering to these conventions, the study maintains methodological rigor and transparency, facilitating a thorough understanding of the relationships among the variables without overwhelming the narrative with excessive statistical detail.

Table 2.

The Intercorrelations between the Variables of the Study

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
Fix	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth	-.35**	-	-	-	-	-	-	-	-	-	-	-	-
Eliciting	-.07	.20**	-	-	-	-	-	-	-	-	-	-	-
Processing	-.22**	.33*	.54**	-	-	-	-	-	-	-	-	-	-
Enacting	-.09	.25**	.45**	.51**	-	-	-	-	-	-	-	-	-
Appreciation of feedback	-.02	.35**	.48**	.41**	.51**	-	-	-	-	-	-	-	-
Readiness to engage	-.19**	.30**	.46**	.47**	.30*	.31**	-	-	-	-	-	-	-
Commitment to change	-.12	.33**	.54**	.50**	.49**	.56**	.46**	-	-	-	-	-	-
Quality of effort	-.10	.25**	.46**	.38**	.44**	.46**	.38**	.42**	-	-	-	-	-
Feedback quantity	-.15*	.18**	.48**	.49**	.49*	.44**	.38**	.51**	.62**	-	-	-	-
Feedback quantity	-.10	.22**	.42**	.33**	.30**	.42**	.32**	.54**	.47**	.45**	-	-	-
Use of feedback	-.21**	.28**	.43**	.46**	.48**	.41**	.45**	.4**5	.53**	.56**	.58**	-	-
Learning from examination	-.04	.14*	.24**	.27**	.19**	.27**	.20**	.18**	.36**	.38**	.34**	.49**	-
Writing Performance	-.19**	.08	.22**	.21**	.15**	.14*	.25**	.19**	.12	.24**	.17**	.27**	.13*

The subsequent phase of data analysis involved testing the structural model. Initially, a model incorporating all theoretically significant paths was constructed. The SEM analysis was then conducted to evaluate the model's fit to the data. The results revealed that the initial model demonstrated a poor fit, as evidenced by the following indices: χ^2 = 231.856, degrees of freedom (df) = 70.000, χ^2/df ratio = 3.31, Comparative Fit Index (CFI) = .811, PClose = .042, and Root Mean Square Error of Approximation (RMSEA) = .141. These fit indices collectively indicate that the initial model did not adequately represent the data structure. The initial model, as tested, is depicted in Figure 1. This outcome necessitated further refinement of the model to achieve a better fit, which was addressed in subsequent analyses.

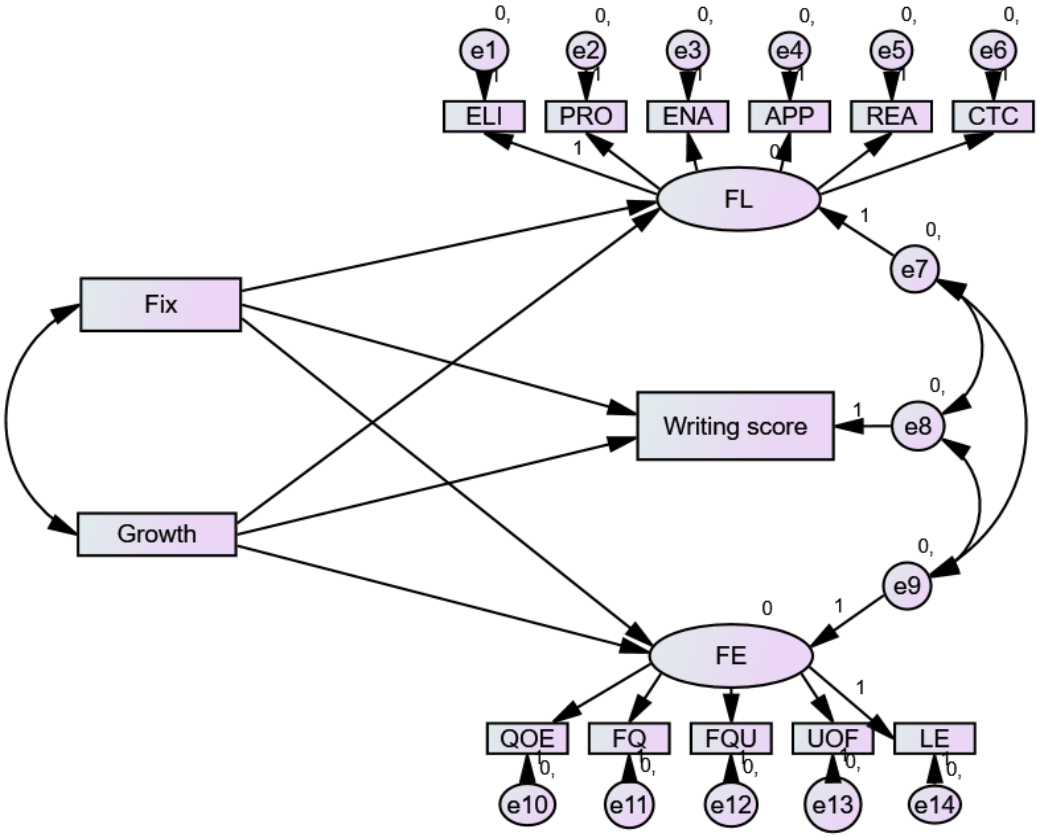

Figure 1. *The Initial Model with All Possible Paths*

Subsequently, the non-significant paths were removed from the initial model, and the SEM analysis was reconducted. The results demonstrated that the revised model exhibited a satisfactory fit to the data, as indicated by the following fit indices: χ^2 = 134.090, degrees of freedom (df) = 73.000, χ^2/df ratio = 1.837, Comparative Fit Index (CFI) = .941, PClose = .097, and Root Mean Square Error of Approximation (RMSEA) = .063. These indices collectively suggest that the model adequately represents the underlying data structure. The final, corrected model is illustrated in Figure 2. Additionally, Table 3 provides a detailed summary of the regression weights and direct effects, offering further insights into the relationships among the variables in the model.

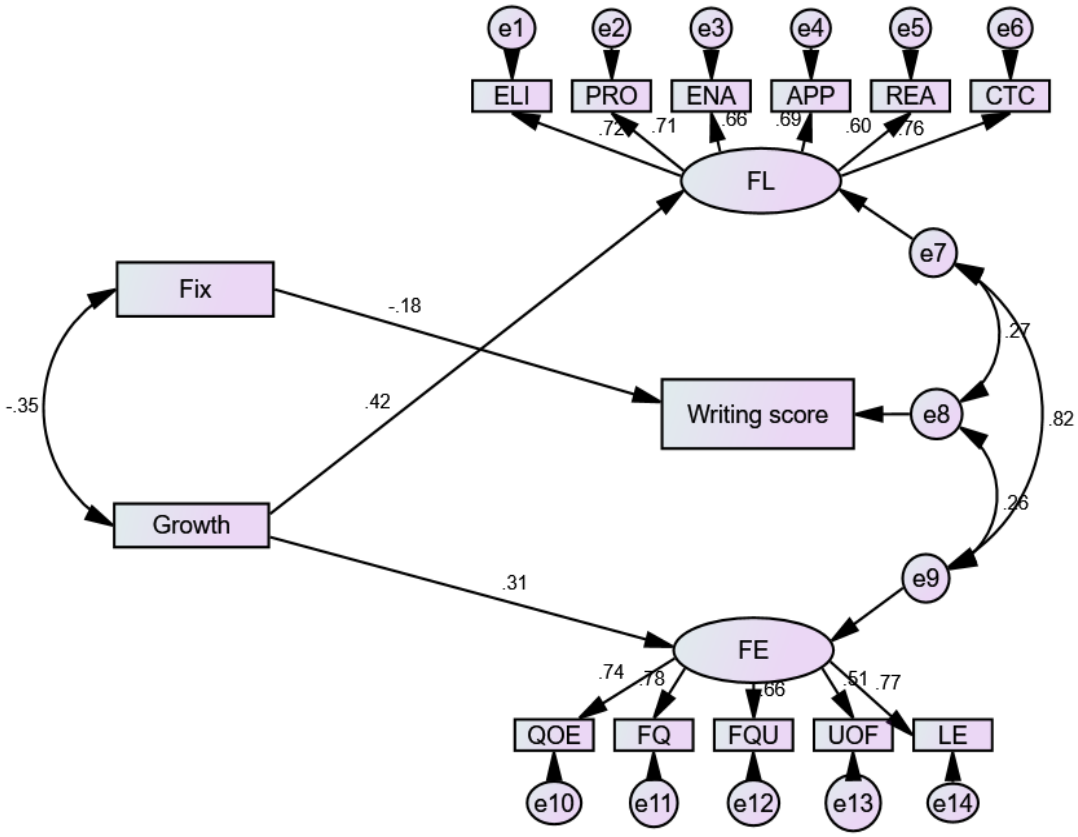

Figure 2. *The Final Corrected with All Significant Paths*

Table 3.

Estimates for the Direct Effects

Path	*B*	*β*	*CR*	*p-value*
Growth → Feedback Literacy	.505	.423	5.806	.000
Growth → Feedback Engagement	.380	.310	4.423	.000
Fix → Writing Score	-.508	-.180	-2.697	.007

As shown in Table 3, fixed mindset did not predict feedback literacy and feedback engagement. However, the results of SEM showed that the fixed mindsets negatively and significantly predicted writing score among the Iranian EFL learners (β = .188, B= -.508, p = 007*)*. Additionally, the growth mindsets did not predict writing score, while they positively and significantly predicted both feedback literacy (β = .087, B= .505, p = 000*)* and feedback engagement (β = .089, B= .380, p = 000*)*.

Discussion

The negative predictive relationship between fixed mindsets and writing performance corroborates Dweck's (2012) mindset theory, which posits that fixed-mindset learners view ability as static and avoid effortful tasks. Hence, such learners are bound to consider effort as insignificant and, rather unwilling, even to participate in tasks that could raise their writing proficiency. Such avoidance of exertion and practice can only be expected to undermine their writing performance, as

demonstrated in the current study and supported by previous research (Zarrinabadi et al., 2022). Our results echo recent studies showing that fixed mindsets correlate with lower resilience in L2 writing, particularly when learners perceive feedback as evaluative rather than developmental (Lou & Noels, 2020). For instance, Guan et al. (2024) found that fixed-mindset L2 writers attributed failures to innate inability, leading to disengagement. This aligns with our observation that fixed-mindset learners undervalue practice, undermining their writing development—a pattern also noted in meta-analyses by Shirvan et al. (2024), who reported a small but significant negative effect of fixed mindsets on language achievement.

The results also showed that a growth mindset had a positive predictive power for feedback literacy, supporting the results of Zhu et al. (2025), who found a strong relationship between growth mindset and student writing feedback literacy. This mirrors findings from Yu et al. (2022), where growth-minded students demonstrated higher feedback uptake by prioritizing actionable feedback over evaluative judgments. This also matches existing research that suggests that students with a growth mindset often view feedback more positively (Yao et al., 2021a) and are more willing to seek feedback from a variety of sources (Papi et al., 2019). These students are more than just receptive; they actively engage with the feedback process by understanding its importance and acting on it (Papi et al., 2020; Xu, 2022). A crucial aspect of this understanding involves recognizing the learning potential of feedback (Carless & Boud, 2018) and appreciating the role of multiple feedback sources in facilitating improvement (Yu et al., 2022). When students see why they should engage with feedback along with the benefits they might receive from various viewpoints, they will engage better—thereby improving feedback-seeking behaviors and their understanding of the value of feedback in learning.

This proactive disposition also extends to written corrective feedback, which growth-mindset students often view as an opportunity for growth rather than criticism (Lou & Noels, 2019; Papi et al., 2020). Consequently, they are more likely to invest effort in both providing and receiving such feedback, striving to optimize its learning benefits. This tendency not only enhances their own development but also contributes to a more dynamic and effective feedback culture, where engagement is driven by a shared commitment to improvement. Learners who believe that their talents can be developed through effort and learning are more likely to solicit, process, and act on feedback (Zhan, 2021). Hence, a growth mindset is a very proactive learning disposition where feedback is regarded as an improvement tool rather than an assessment of ability. Learners with growth mindsets actively seek out feedback, weigh it critically, and then use it in their next tasks (Malecka et al., 2020; Boud & Molloy, 2020). This positively applies to feedback literacy, which involves an understanding of how to use feedback to improve performance (Carless & Boud, 2018). Thus, feedback literacy is also strongly related to the intention to change, which is a hallmark of growth mindsets. If learners feel capable of improving, they are then likely to use that belief to prove and validate their efforts while employing feedback to upgrade their writing. The present finding corroborates studies showing a positive relationship between growth mindsets and feedback beliefs (Papi et al., 2019).

Additionally, the results of the study showed that growth language mindsets were positively predictive of feedback engagement. This corresponds well with the theoretical framework of mindset theory, which states that people with growth mindsets are much more likely to expend effort and maintain

hopefulness when faced with challenges (Dweck, 2017). Feedback engagement, reflecting the amount and quality of initiatives put into the processing and application of feedback, is a crucial mediating element between growth mindsets and performance in writing. Growth mindsets will lead learners to value feedback as a way of strengthening their writing abilities, thereby seeing much more feedback engagement (Gibbs & Dunbar-Goddet, 2007). In turn, this promotes skill in writing, as learners use feedback to improve their work in the areas they are struggling with. The positive relation seen here, between growth mindsets and feedback engagement, can add credence to the notion that learners with growth mindsets view feedback as an opportunity for acquisition and development, rather than a threat to their self-concept (Vattøy et al. 2021). Notably, this aligns with Lou and Noels' (2019) finding that growth mindsets in L2 writing correlate with persistence during revision. The sequential mediation also resonates with recent work by Guan et al. (2024), who identified attributional pathways linking mindsets to engagement in Chinese EFL writers.

The identification of the indirect influence of growth mindsets on writing performance through feedback literacy and feedback engagement plays a crucial role in the findings of this study. This mirrors Yeager et al.'s (2019) large-scale studies, where mindset interventions improved outcomes only when mediated by behavioral changes. Our findings also parallel the "positive feedback loop" observed in STEM contexts, where academic success reinforces growth mindsets, which in turn enhance performance (Khajavy et al., 2021). Therefore, even without a direct link to writing performance, a growth mindset allows learners to build feedback literacy and engage in reflective feedback practices. These mechanisms mediate the ability for learners to convert their conviction concerning the malleability of their abilities for improvements in writing. Such pathways fit well within a broader literature concerning mindset theory, according to which motivational and behavioral factors mediate the relationship between mindsets and academic consequences (Dweck, 2017; Hu et al., 2022). For instance, students with growth mindsets are more resilient, self-regulated, and intrinsically motivated in their own learning, which then increases their ability to engage with the feedback that, in turn, ultimately helps them to succeed in writing (Khajavy et al., 2021).

The results also resonate with the idea of self-transcendence, which has a strong connection with growth mindsets. People with growth mindsets are motivated by a desire to fulfill their potential and elevate their levels of meaning in learning (Wong, 2012; Howell, 2016). This motivational orientation engenders the persistence to overcome adversity and a sustained effort toward learning tasks, which has been popularly termed grit (Papi et al., 2019). When self-transcendence and grit work together, it enables learners to contribute to feedback and use it as a vehicle for advancement, confirming the mediator roles of feedback literacy and engagement in the connection between growth mindsets and writing performance. In conclusion, the study places an important emphasis on cultivating growth mindsets for language learners, which in turn affects feedback literacy and feedback engagement. These mediating factors are important for learners to be able to improve their writing performance by deliberately seeking, processing, and applying feedback.

Conclusion

The study brought to light the interconnectedness of mindsets, feedback literacy, feedback engagement, and writing performance for language learners. Fixed mindsets were found to negatively impact writing performance: when learners see their abilities as fixed, they are less likely to expend

effort in honing their writing skills. Growth mindsets, on the other hand, stood out as a key predictor of both feedback literacy and feedback engagement, signaling the need to instill this belief in the malleability of ability. The study also found that a growth mindset influences writing performance indirectly through learners' capacity to process and engage with feedback. These findings confirm and further extend the framework of mindset theory (Dweck, 2012, 2017), thus highlighting the critical roles that motivation and behavior play in determining academic-related outcomes.

The mediating influence of feedback literacy and feedback engagement essentially offers an avenue for examining the ways in which growth mindsets promote improved writing performance. Students with growth mindsets tend to regard feedback as growth-approaching or enhancing, actively seek it out, and use such feedback to improve their work. This proactive stance not only is a predictor of enhanced writing skills but also strengthens the understanding of potential improvement, which then leads into a positive feedback loop that nurtures motivation and effort. Self-transcendence and grit are dealt with as incentives for intensive engagement with feedback, thereby lending further validation to the idea that growth mindsets are one of the necessities for enduring success in one's academics.

The implications of this study hint at various uses for educators, curriculum designers, and policymakers in language education. Foremost, teachers must work toward instilling growth mindsets in learners by emphasizing that language abilities can be cultivated and that effort counts toward improving them. Teachers can do this by specifically teaching mindset theory while providing learners with ample opportunities to reflect on their own progress and celebrate small successes. In addition, teachers can model a growth mindset by sharing their challenges and peculiarities in language education. Since feedback literacy plays a key role in mediating growth mindset with writing achievement, it is suggested that teachers also begin developing learners' understanding, processing, and applying feedback. Actionable suggestions and recommendations on how to interpret and use feedback must be provided to learners. In addition, peer feedback activities and self-assessment tasks will build feedback literacy skills for learners.

Feedback should be utilized maximally in an environment that supports the openness of learners towards the feedback offered to them. This entails forming a classroom attitude in which feedback takes on a constructive dimension, acting as an integral part of learning rather than as a judgment of ability. Designing tasks that need learners to return to and revise their work on the basis of feedback enforces the connection between feedback and improvement. For this to be honored to its maximum possibilities, professional development opportunities that center around mindset theory, feedback literacy, and strategies for engagement may be useful for the educators concerned. Such appendices could also give teams practical tools and techniques to engender a growth environment in the classroom, encouraging feedback that leads to learning. Thus, the study has foregrounded the change agent role of growth mindsets through feedback literacy and feedback engagement as the mediators in enhancing the writing performance of language learners. By raising growth mindsets and teaching students how to engage in feedback effectively, teachers are preparing the grounds for students to make meaning in their learning experiences towards reaching sustainable academic success. In the extension of this research, more work should begin to clarify the way these notions are related and how their dynamics are contextualized by cultural and institutional factors.

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