

HAYEF: Journal of Education

RESEARCH ARTICLE

The Impact of Growth Language Mindsets on Feedback-Seeking Behavior: The Mediating Role of L2 Grit

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Abstract

Within the positive psychology and growth mindset framework, this quantitative study showcases the impact of growth language mindsets (GLM) on feedback-seeking behavior (FSB), emphasizing the mediating role of second/foreign language (L2) grit. With a cross-sectional design, an L2 grit scale, GLM inventory and FSB scale were used to collect data from EFL students in Turkish state universities. SPSS, AMOS v.23, and PROCESS Macro were used for analyses. The results reveal that the variables were positively and significantly related. The participants had high levels of growth mindset, feedback-seeking behavior, and L2 grit. Moreover, L2 grit mediated the relationship between GLM and FSB. These results are consistent with similar studies and theoretical accounts in the literature, and can be used for inventing teaching strategies and materials to help students develop growth mindsets and grit, such as self-monitoring and peer tutoring.

Keywords: L2 grit, feedback-seeking, growth language mindset, mediation analysis

Introduction

“Personality” has triggered an explosion of research on a wide range of human’s performance, including L2 learning. Because personality traits are layered in complex ways, it is difficult to study all of them in one shot. In L2 contexts, researchers have recently capitalized on learners’ personality traits through correlational studies (Khodaverdian et al., 2021). They correlate some traits with language learning outcomes. One trait that has drawn the attention of educational positive psychology researchers is “grit” (Duckworth et al., 2007; Wang et al., 2021). Grit has also secured a prominent position in SLA contemporary research—particularly in the areas overlaying psychology and L2 learning. Arguably, individuals’ positivity generally results in progress in individuals’ life aspects, including their second or foreign language learning (Zarrinabadi et al., 2022; Teimouri et al., 2022; Wang et al., 2021). Lou and Noels (2017) asserted that the more learners believe that their language ability could change, the more they aim to learn the language, and this learning goal led to more success and less hopelessness when they face failure situations.

Growth Language Mindsets (GLM)

Growth language mindset (GLM), which refers to learners’ thinking about their own potential to acquire language skills (Lou and Noels 2017; Sadoughi et al., 2023), is “essential for developing positive learning emotions and self in foreign language classrooms” (Zarrinabadi et al., 2022, p. 1) and “affect learners’ engagement in learning a foreign language” (Sadoughi & Hejazi, 2023, p.2). Mindsets are of two types: a fixed mindset and growth mindset. The former denotes beliefs that one’s

intelligence and abilities are fixed and cannot be changed or improved, and the latter is the other way around. Individuals with a fixed mindset tend to avoid challenges, give up easily, ignore feedback, and feel threatened by the success of other individuals. Lou and Noels (2020) asserted that “university students who endorse a fixed (vs. growth) mindset about language learning ability (i.e., language mindsets) are more fearful of failure and are more likely to avoid seeking feedback in language classrooms” (p. 2).

Against this backdrop, a series of prior research studies in a multitude of EFL contexts was conducted with important findings that can be used as a point of departure to further investigations. To begin with, Zarrinabadi et al. (2022) explored L2 learners’ grit, language mindsets, and their connection with CALL on 625 EFL learners who responded to a questionnaire on GLM, L2 grit, and attitudes toward CALL. Findings revealed that learners who worked hard and valued CALL and teachers’ role in CALL showed more interest and exposure to CALL. Learners who thought their language ability was fixed had negative views on CALL’s effectiveness and positive views on CALL’s exposure, while learners who thought their language ability could improve had positive views on CALL’s effectiveness. Likewise, Lou et al. (2022) proposed a typology of mindset system profiles based on the combination of growth and fixed mindsets. The authors explained how language learners’ mindsets affect their goals, persistence, anxiety, and challenges. Polirstok (2017) is another important study exploring how mindset and grit intercorrelate, affecting students’ performance. It reviewed relevant research on these concepts’ relation to academic achievement, motivation, engagement, and resilience. Additionally, Lou and Noels

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Cite this article as: Demir, Y., & Al-Kadi, A. (2024). The impact of growth language mindsets on feedback-seeking behavior: The mediating role of L2 grit. *HAYEF: Journal of Education*, 21(3), 252-257.



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(2019) applied the mindset framework (i.e., language learning ability is unchanging as opposed to modifiable) in the L2 study to gain insight into the avoidance goals and anxiety experienced by students.

To this effect, GLMs can be specified as the learners' thinking about their language learning abilities (Zarrinabadi et al., 2022). One way of viewing successful L2 learners is through their GLMs and feedback-seeking. Learners with GLMs believe their language abilities are not fixed but can be improved. They are confident that they can improve skills in L2 through effort, learning, feedback, and by applying effective strategies and seeking opportunities to practice (Khajavy et al., 2021; Lou et al., 2022; Sadoughi & Hejazi, 2023; Sadoughi et al., 2023; Sun & Huang, 2023).

In this landscape of research, GLM is regarded as a generator of feedback-seeking behavior, and both relate to L2 grit, an assumption that charted the landscape of this study. It is possible to argue that GLMs influence the relationship between other variables, such as classroom social climate and student engagement (Derakhshan et al., 2022). For example, a positive classroom social climate may foster GLMs, boosting student engagement in language activities. Alternatively, GLMs may moderate relationships between other variables, meaning that it changes the strength or direction of their associations. Based on Sadoughi et al.'s (2023) contention, GLMs enhance the positive effect of teacher support on academic engagement. In view of this, it is helpful to single out GLM and examine it alongside L2 grit for feedback-seeking enhancement.

Feedback-Seeking Behavior (FSB)

FSB can be conceived of as deliberately seeking information or opinions from others about one's performance or behavior from external sources (Crommelinck & Anseel, 2013; Papi et al., 2019). Such inner zeal has been found to improve individuals' learning, performance, satisfaction, engagement, and adaptation (Krasman, 2011). It may be the case that it helps them receive and use constructive feedback, clarify expectations and goals to develop their skills and competencies, and improve self-awareness (Crans et al., 2022). As with many other human behaviors, FSB is influenced by various factors, including personality traits, self-efficacy, goals, and feedback type. As such, FSB is seen as beneficial to L2 learning as it maximizes motivation for and engagement in language learning (Pan, 2022; Sun & Huang, 2023). It is also a way to adapt and improve.

Crommelinck and Anseel (2013) is among the most noteworthy studies that examined variables that influence FSB, such as individual motives, goals, self-concept, feedback source, and quality. In a relevant context, Sun and Huang (2023) examined the correlation between learners' FSB, GLM, and achievement goals of 677 EFL Chinese learners. The findings showed that learners with GLM proactively seek feedback through direct or indirect questions or watching others, while learners with a fixed mindset only observe feedback because they have different views on the benefits and costs of different ways of getting feedback. As in these two studies, Papi et al. (2019) explored how FSB is influenced by language mindsets and achievement goals using a survey of 287 college L2 students in the United States. Findings showed that learners with GLM and development-approach goals sought feedback from teachers and others through monitoring and inquiry methods. Additionally, learners with a fixed language mindset and demonstration goals sought feedback only by the inquiry method but from different sources depending on the valence of their goals.

L2 Grit

The grit construct has been widely used in the sense of "enthusiasm and persistence in pursuing a goal that takes a long process" (Nacario et al., 2022, p. 626). According to psychologist Angela Duckworth, the key figure of grit, it is passion and perseverance for long-term and

meaningful goals. It has gained a position in positive psychology and language learning nexus. It is increasingly gaining more advocates who consider it as one of the significant individual differences that affect SLA and can be enhanced by positive psychological interventions (Pawlak et al., 2022). Duckworth contends that grit can be viewed as a better predictor of success than intellectual talent (IQ) because grit provides the stamina required to 'stay the course' amid difficulties. Following this, gritty people work hard to overcome challenges and keep their effort and interest over time, even when they face failures and adversities.

Given the significance of grit, there is now a substantial body of research on L2 grit. Results from prior research show grit as one of the other positive variables that Wang et al. (2021) and Nacario et al. (2022) propound as a valuable success determinant and contributor to desirable L2 learning. L2 grit, a relatively new term within ELT, delineates passion and tenacity for L2 long-term learning within surrounding challenges (Lee, 2022; Shirvan et al., 2021). It is a personality trait that positively correlates with students' language learning motivation and achievement (Chen et al., 2021; Teimouri et al., 2022). L2 grit is now set apart from domain-general grit, which is the inclination to achieve long-term goals in diverse life facets. According to Khajavy et al. (2021), both L2 grit and domain-general grit involve long-term goals and working hard to achieve them, but they are not the same in their scope and impact. L2 grit is a specific form of grit that relates to the motivation and performance of L2 learners, while domain-general grit is a broad trait covering different life domains or aspects (Teimouri et al., 2022). Prior research has shown that L2 grit better predicts L2 outcomes, such as academic success, involvement, and motivation than domain-general grit, and hence it may be a more suitable construct for L2 research than domain-general grit (Yang, 2021).

It has been shown repeatedly that L2 grit contributes to L2 learning. Many previous studies on the topic were conducted. For instance, Chen et al. (2021) examined how grit and motivation for learning English are related among Japanese EFL learners. The study found that grit and other positive self-constructs and self-efficacy can enhance motivation and reduce anxiety about learning English. Likewise, Liu and Wang (2021), drawing on a survey of 697 high school students, examined how grit influences foreign language performance in a high school in China and how foreign language enjoyment and foreign language anxiety, two emotional factors, mediate this relationship. The authors surveyed 697 students and took a language test after two weeks. Findings showed that grit was positively related to foreign language enjoyment and performance, but negatively related to foreign language anxiety. Anxiety, as well as enjoyment, influenced the link between grit and performance in a foreign language. However, anxiety had a bigger impact than enjoyment.

Problem Statement

The topic of L2 grit is specific to the context of learning other languages beyond the mother tongue—English is a working example (Liu & Wang, 2021; Teimouri et al., 2022; Wei et al., 2020). Different aspects of the topic have been researched in some L2 contexts, e.g., Japan (Chen et al., 2021), China (Liu & Wang, 2021; Yang, 2021); Korea (Lee, 2022), USA (Papi et al., 2019), Canada (Lou & Noels 2017), and Iran (Jalilzadeh et al., 2022; Sadoughi et al., 2022; Khajavy et al., 2021; Khodaverdian et al., 2021; Zarrinabadi et al., 2022; Shabani et al., 2022). Given the many variables associated with L2 grit including FSB and GLM, there is still room for more research to assess certain variables' influence on feedback-seeking (Chen et al., 2021). A noticeable gap in the existing literature that requires bridging is the mediating role of L2 grit in GLM-FSB linkage. Addressing this gap is expected to make a substantial contribution also because the prevailing L2 grit literature commonly depicts grit as an antecedent to a variety of variables and occasionally as an outcome variable. Yet, there is a

scarcity of studies attributing to grit the role of a mediator. This aspect further underscores the significance of this study.

Building on such prior research in some contexts, the current study investigates the impact of GLM on FSB in the Turkish EFL context, focusing on the mediating role of L2 grit. This area of research has remained with a little undertaking, and thus this work intends to fill part of the void by exploring the impact of GLM on FSB. This study thus explores new avenues of positive psychology research in SLA. The hypothesis of this study echoes prior findings that L2 grit positively correlates with L2 learners' FSB (Nacario et al., 2022; Xu & Wang, 2023) and that growth mindsets predict FSB. These studies suggest that L2 grit and other motivational factors influence how learners seek and use feedback to improve their L2 learning. In this light, the present study adopts Teimouri et al.'s (2022) scale that conceptualizes L2 grit as a sustained "perseverance and passion for second-language learning" (Teimouri, 2022, p. 893). It is closely related to some other factors, primarily feedback-seeking behavior and growth mindset (Khajavy et al., 2021)—both aspects are the thrust of the present study.

Objectives and Hypotheses

The current investigation zooms in on a mediating model of L2 grit in the relationship between GLM and FSB in the Turkish EFL context. The underlying assumption is that L2 learners' language mindsets impact on their perseverance and passion for L2 learning (i.e., grit), subsequently influencing their efforts to seek feedback from others, including teachers, and to monitor such feedback.

Unraveling this relationship will hopefully guide policymakers and educators to pay more attention to the role of positive psychology in the EFL scenario. With such a perspective, this study establishes the following four hypotheses:

- H1: GLMs positively predict L2 grit.
- H2: L2 grit positively predicts FSB.
- H3: GLMs positively predict FSB.
- H4: L2 grit has a mediating effect on the relationship between GLMs and FSB.

Methods

Research Design

Through a cross-sectional survey design, in this study, it was aimed to explore the relationships between the study variables, that is, GLM as the predicting variable, L2 grit as the mediating variable, and FSB as the outcome variable. For this study, FSB refers to L2 learners' adaptive, purposeful, and strategic process of feedback-seeking in their L2 learning (Lou & Noels, 2019), and L2 grit is understood as a sustained "perseverance and passion for second-language learning" (Teimouri, 2022, p. 893) that is closely related to some other factors, primarily FSB and GLM (Khajavy et al., 2021). For the purpose of this study, GLM refers to learners' thinking about their own potential to acquire language skills (Lou & Noels 2017; Sadoughi et al., 2023). The conceptual model is shown in Figure 1.

Participants

In this study, the convenience sampling method, a nonprobability sampling strategy which employs individuals available for the study, was used to collect data. The participants were 279 tertiary EFL students (200 females, 79 males) attending the English preparatory programs of different state universities in Türkiye. In preparatory classes, students receive compulsory or optional one year-long extensive English education before they start faculty courses in their future departments. The participants' departments are of both hard sciences (e.g., chemical engineering, aeronautical engineering, and computer engineering) and soft sciences (e.g., psychology and international

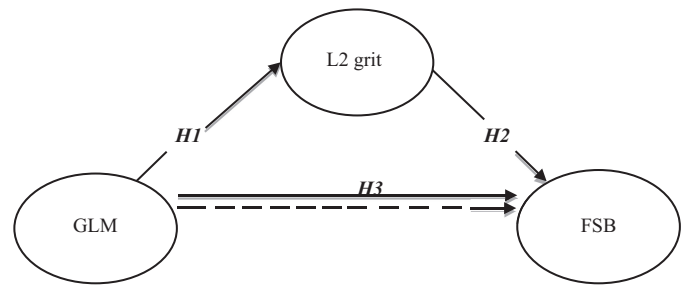


Figure 1.
The Research Model.

relations). The average age of the participants is 19.9. The participants were informed of the purpose of the study in the online data collection form. Their consents and voluntary contribution were ensured. They were also informed that they have the right to drop out of the administration of the scales without any consequences. The ethical permission was also granted from the Ethics Committee of Selçuk University, Faculty of Education (Approval no: E.452643, Date: 25.01.2023).

Instruments

L2 Grit Scale

The 9-item language-specific grit scale, a two-factor (perseverance of effort, consistency of interest) self-report instrument developed by Teimouri et al. (2022) was used to measure the students' level of L2 grit. Since the original instrument was in English, the instrument was first subjected to a translation process. After translating the instrument into Turkish, the Turkish items were back-translated into English by an English language expert. In what follows, the original English items and the back-translated version were compared and contrasted, resulting in the final Turkish version. This process was also applied to the other instruments. The L2 grit scale is 5-point Likert-type and the participants' responses range from "not at all like me" (1) to "very much like me" (5), with items such as "I am not as interested in learning English as I used to be" and "When it comes to English, I am a hard-working learner". The negative items were reverse coded. The internal reliability estimate of the scale was found to be .81 in the current study.

Growth Language Mindsets Inventory

To measure GLM, Lou and Noels's (2017) nine-item five-point Likert-scale inventory was used. Comprising three sub-scales, the scale includes items representing beliefs about L2 aptitude (e.g., How good you are at using a foreign language will always improve if you really work at it), general language intelligence (e.g., You can always substantially change your language intelligence), and age sensitivity (e.g., How well a person learns a foreign language does not depend on age; anyone who works hard can be a fluent speaker in that language). The Cronbach's alpha coefficient of the GLM inventory was 0.89 in the present study.

Feedback-Seeking Behavior Scale

The FSB scale developed by Papi et al. (2019) measured students' feedback-seeking behavior on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The FSB scale is a three-factor instrument having 15 items, comprising feedback monitoring, feedback inquiry/teacher, and feedback inquiry/others, with items such as "I ask my teachers to tell me how I can improve my (L2) speaking" and "When my teachers point out mistakes in my (L2), I try not to make them again." In our sample, the Cronbach α was 0.97 for the overall scale.

Data Analysis

In this study, the necessary statistical analyses were performed through the Statistical Package for Social Sciences version 23.0

software (IBM Corp.; Armonk, NY, USA) and AMOS (version 23.0), and PROCESS Macro (version 4.2). Descriptive statistics of the variables were specified, and Pearson correlation coefficients were calculated for the relationships between the variables. The reliability for each scale was determined with Cronbach's alpha coefficient, and confirmatory factor analyses (CFAs) were performed to determine the construct validity of the scales. PROCESS Model 4 (Hayes, 2012) was used to test the mediation model. The mediation analysis was conducted with a bootstrapping size of 5000 samples, considering 95% CIs for the significance of mediation effects.

In order to check whether the data showed normal distribution, Skewness and Kurtosis indices were used, with the cut-off value of ± 2.0 (Kim, 2013). The Skewness and Kurtosis indices of the scales were found to be .152 and $-.419$ for L2 Grit, -1.161 and .595 for FSB, and $-.674$ and $-.325$ for GLM, indicating normality. Moreover, CFAs were conducted to determine the construct validity of the models. When the goodness of fit indices was checked, it was found that the factor structures had acceptable fits with the data (Schermelel-Engel & Moosbrugger, 2003), except for RMSEA in GLM. The CFA results for L2 Grit, FSB, and GLM scales were, respectively, as follows: X^2/df (2.682, 3.050, 4.190), CFI (.969, .963, .960), NFI (.952, .946, .948), TLI (.954, .953, .937), GFI (.955, .888, .929), IFI (.969, .963, .960), and RMSEA (.078, .086, .11).

Results

This section outlines the descriptive statistics and correlations. Table 1 demonstrates the descriptive statistics and Pearson correlation coefficients among the variables. The descriptive results showed that The GLM and FSB scores of the students were 39.37 and 71.96, respectively ($SD=10.65, 16.91$), indicating high levels of growth mindset and feedback-seeking behavior. Also, the study participants were found to have a relatively high level of L2 grit ($M=29.93, SD=7$). As shown in Table 1, correlation analysis yielded positive and significant relationships between the study variables. GLM showed associations with FSB ($r=.69, p<.01$) and L2 grit ($r=.29, p<.01$). L2 Grit and FSB were also correlated ($r=.35, p<.01$).

The mediation analysis results are displayed in Figure 2. The results of the mediation analysis are portrayed regarding the mediating effect of L2 grit on GLM-FSB linkage. As presented in Figure 2, the direct effect of GLM on the mediator variable L2 grit ($\beta=.19, SE=.04, t=4.94, p<.001$), and the direct effect of L2 grit on the outcome variable FSB ($\beta=.41, SE=.11, t=3.83, p<.001$) were significant.

Table 1.
Descriptive Statistics and Pearson Coefficients Among the Variables

Variables	M	SD	1	2	3
L2 Grit	29.93	7.00	1	.35**	.29**
FSB	71.96	16.91	.35**	1	.69**
GLM	39.37	10.65	.29**	.69**	1

Note: $N=279$, ** $p<.01$.

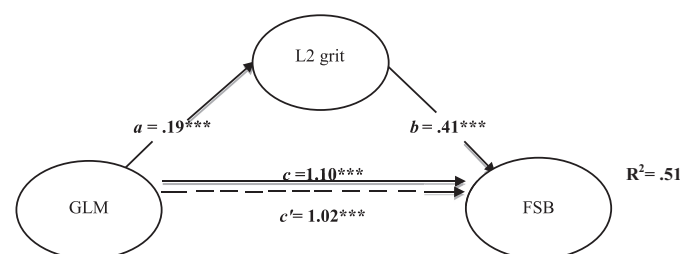


Figure 2.

Mediation Analysis Results with Unstandardized Regression Coefficients (** $p<.001$).

Table 2.
Direct, Indirect, and Total Effects

Effects	Coefficients	95% CI	
		Lower	Upper
Direct effect (GLM \rightarrow FSB)	1.02	.88	1.16
Indirect effect (GLM \rightarrow L2 Grit \rightarrow FSB)	.08	.04	.13
Total effect	1.10	.96	1.23

In addition, the direct effect of GLM on FSB was significant ($\beta=1.02, SE=.07, t=14.58, p<.001$).

These results provide evidence that the first three hypotheses tested in the study were supported. The values related to the effects in the model tested in this study are presented in Table 2. The indirect effect, that is, the difference between the total effect ($\beta=1.10, CI [0.96, 1.23]$) and direct effect, in the path GLM \rightarrow L2 grit \rightarrow FSB (Table 2) was statistically significant ($\beta=.08, CI [0.04, 0.13]$), which means L2 grit mediated the relationship between GLM and FSB, supporting Hypothesis 4. However, the mediation effect was partial because the direct effect was found to be significant. Overall, it was found that the whole model explained 51% of the variance in FSB ($R^2=.51, p<.001$) (see Figure 2).

Discussion and Conclusion

This study aimed to investigate the relationships among GLM as the predicting variable, L2 grit as the mediating variable, and FSB as the outcome variable. The results indicate high levels of GLM, FSB, and L2 grit on the part of the participants. In addition, the results depicted the significant direct effects of GLM on L2 grit and FSB, and L2 grit on FSB. These findings suggest that the students tended to harbor motivated personality assets such as GLM and grit, and they were willing to seek feedback and overcome challenges in their L2 learning process. These results support the theoretical assumptions that growth mindset fosters adaptive learning behaviors and outcomes, such as feedback-seeking and perseverance (Dweck, 2006). Feedback-seeking and grit are important components of motivation and engagement (Duckworth et al., 2007). In terms of empirical studies, the results support previous studies that reported positive associations between growth mindset and FSB (e.g., Zarrinabadi et al., 2022), and between growth mindset and L2 grit (e.g., Lou & Noels, 2016).

An important point the current study has given ground for is that L2 grit partially mediated the relationship between GLM and FSB, as the indirect effect was significant but the direct effect of GLM on FSB remained significant. GLMs predicted an increasing level of L2 grit, which in turn predicted a higher level of FSB. These significant pathways confirm the last hypothesis of this study, suggesting that GLMs also seem to operate through L2 grit, the partial mediator, to enact FSB. In other words, L2 grit is one of the mechanisms through which GLM influences FSB, implying that students with high GLMs develop L2 grit, which in turn, leads them to seek feedback. This result is consistent with Lou and Noels (2016), which found partial mediation effect of L2 grit on the relationship between GLM and other outcomes, such as academic achievement. This interpretation is also supported by earlier work on L2 grit, FSB and GLM (Lou & Noels, 2020; Sadoughi et al., 2023; Sadoughi & Hejazi, 2023; Sun & Huang, 2023) and other studies that reported positive relationships between GLM and L2 grit (e.g., Lou & Noels, 2016), and between L2 grit and FSB (Demir et al., 2024). This also invites a comparison with Lou and Noels (2020) that found GLM helpful for learners to overcome language anxiety which affects their learning performance. The authors supported the assumption that GLM reduces language anxiety and enhances students' willingness to learn effectively.

The results of this study also have assimilation in some other contexts beyond the Turkish EFL context. For example, in the Chinese

context, Sun and Huang (2023) found that students with a growth mindset tend to seek feedback more actively and use various strategies (such as direct inquiry, indirect inquiry, and monitoring), while students with a fixed mindset tend to seek feedback less and use only monitoring. In the Irani context, Zarrinabadi et al. (2021) reported that growth mindsets positively predict academic engagement through adaptability, while fixed mindsets negatively predict academic engagement through adaptability. They also found that adaptability mediates the effects of mindsets on anxiety, enjoyment, self-concept, and self-efficacy. Moreover, they reported that learning experience moderates the effect of mindsets on academic engagement, such that mindsets only positively affect learners with more favorable learning experiences. Relevantly, Sadoughi et al. (2023) concluded that learners' academic engagement is largely influenced by their GLM and learning experiences. The study also showed that mindsets have a positive impact on engagement only for learners who have more positive learning experiences.

In conclusion, this study highlighted the importance of GLM and L2 grit as essential factors to promote FSB among Turkish EFL learners. With the findings outlined, this study is an endeavor to prompt new ways of looking at L2 grit and its interactions with learners' mindsets and feedback-seeking intentions. Based on the results of this study, some teaching strategies and materials can be adopted to help students develop L2 grit and growth mindsets, such as self-monitoring, peer tutoring, praise, and the like.

Regarding the primary limitation of this study, as widely recognized in the literature, one-shot research designs commonly lack the ability to fully elucidate causality among variables. Particularly for variables, such as grit, that encompass a long-term trajectory in their conceptualization, longitudinal designs would be more appropriate for comprehending cause-and-effect relationships and monitoring growth trajectories over time. Subsequent studies might also focus on exploring the impact of L2 grit on language achievement measures, a topic extensively explored on a global scale but currently not addressed within the Turkish context. Another valuable endeavor would be to perform cross-cultural validation of language-domain-specific grit instruments within the Turkish EFL context.

Availability of Data and Materials: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethical approval was obtained by the local Ethics Committee of Selçuk University, Faculty of Education (Approval no: E.452643, Date: 25.01.2023).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Y.D., A.A.; Design – Y.D.; Supervision – Y.D., A.A.; Resource – Y.D., A.A.; Materials – Y.D., A.A.; Data Collection and/or Processing – Y.D.; Analysis and/or Interpretation – Y.D.; Literature Search – A.A.; Writing – Y.D., A.A.; Critical Review – Y.D., A.A.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

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