



Evaluating a Classroom-Based Grit Intervention for L2 Grit and English Proficiency among Iranian EFL Learners

Akram Alaedini ¹

Azizeh Chalak ^{2*}

Ahmad Reza Lotfi ³

Abstract

Despite growing attention to the role of grit in second language learning, empirical evidence on the effectiveness of interventions to increase grit remains limited. A recently identified personality trait known as 'grit' could forecast individual success across various professional and academic fields. This study investigated whether grit, as a noncognitive trait, can be developed through a classroom-based intervention. In a quasi-experimental study, 42 Iranian EFL learners were conveniently selected and randomly assigned to an experimental group (a classroom-based grit intervention designed to foster perseverance and sustained effort) or a control group (standard instruction). The data were collected using the L2-Grit Scale and final exam scores. The grit intervention was implemented over approximately two months across 16 sessions with a two-month follow-up period. A two-way mixed ANOVA with repeated measures indicated that the grit intervention significantly improved learners' grit and English proficiency ($p < 0.01$), and that improvements were maintained at follow-up ($p < 0.01$). The findings may benefit EFL teachers, learners, and curriculum developers, considering the importance of grit on achievement. In the future, classroom-based instruction incorporating grit-oriented activities might be planned to enhance learning by fostering learners' positive attributes.

Keywords: English proficiency, grit intervention, L2 grit, Iranian EFL learners

* Review History:

Received: 14/05/2026

Revised: 07/09/2026

Accepted: 22/09/2026

1. Ph.D. Student, Department of English, Isf.C., Islamic Azad University, Isfahan, Iran. ak.alaedini@iau.ac.ir

2. Professor of Applied Linguistics, Department of English, Isf.C., Islamic Azad University, Isfahan, Iran. (Corresponding Author) azizeh.chalak@iau.ac.ir

3. Assistant Professor of Linguistics, Department of English, Isf.C., Islamic Azad University, Isfahan, Iran. arlotfi@iau.ac.ir

How to cite this article:

Alaedini, A., Chalak, A. & Lotfi, A. (2026). Evaluating a classroom-Based grit intervention for L2 grit and English proficiency among Iranian EFL learners. *Teaching English as a Second Language Quarterly*, 45(4), 133-151. <https://doi.org/10.22099/tesl.2026.56641.3522>



Growing research on language development has highlighted the importance of noncognitive resources in understanding individual differences in attainment (Chisholm-Burns et al., [2021](#)). Recently, positive psychology has advanced significantly in foreign language teaching (Wang et al., [2022](#)). Previous research shows that noncognitive skills, such as motivation and self-regulation, contribute significantly to academic achievement even after accounting for cognitive abilities (Malanchini et al., [2024](#)). Furthermore, previous research provides evidence that educational interventions may enhance some of these variables (Alan et al., [2019](#); Calo et al., [2024](#)). Among these constructs, 'grit' is the focus of this study. Grit is perseverance and passion to achieve long-term objectives (Duckworth et al., [2007](#), p. 1087). In language learning, learners encounter challenging tasks and must make sustained effort (Alan et al., [2019](#); Shirvan et al., [2021](#); Wei et al., [2020](#)). Therefore, understanding the role of grit and investigating how to enhance it may be valuable in L2 learning contexts.

L2 acquisition is a goal-oriented process, and language attainment depends on L2 students' passion and perseverance over a long time (Dörnyei, [2020](#)). Prior research on grit shows that this construct relates to other learning constructs and contributes to educational attainment (Hodge et al., [2018](#); Li, [2025](#); Muenks et al., [2017](#); Sudina & Plonsky, [2021](#); Zheng et al., [2022](#)). Given the context-specific nature of language learning, Teimouri et al. ([2022](#)) stated that grit must be conceptualized in a domain-specific fashion in L2 learning settings. Indeed, previous empirical investigations in L2 learning have shown that L2 grit can strongly predict L2 success (Dale et al., [2018](#); Teimouri et al., [2022](#); Wei et al., [2020](#)). Grit helps individuals manage their energy and distinguish between low- and high-priority goals. Grit and talent are equally important and can ensure learners' success beyond innate talent (Duckworth et al., [2007](#); Teimouri et al., [2022](#)). In this context, L2 student grit is students' determination to tolerate the difficulties and hardships of learning a language. Grittier L2 students have a greater ability to master the target language because they follow the learning process regardless of challenges (Wei et al., [2020](#)).

Intervention studies have proposed strategies to foster grit and promote grit-related skills and attitudes, with researchers developing and evaluating grit-building interventions in educational settings, workplace training programs, and community-based initiatives (Alan et al., [2019](#); Calo et al., [2024](#); Duckworth et al., [2021](#)). Teachers are drawn to grit development because grit is perceived as a changeable individual trait that educational interventions may modify. There is significant variability across human traits regarding the probability of change. Although discussions continue about the malleability of grit as a personal trait, limited empirical research has explicitly investigated grit enhancement in the L2 context. Although previous studies have examined grit-oriented interventions in other EFL/L2 contexts (Alan et al., [2019](#); Calo et al., [2024](#)), to date, no published study, to our knowledge, has systematically examined the effectiveness of a classroom-based grit intervention among Iranian EFL learners. Therefore, this research aimed to investigate the effectiveness of a grit intervention on English proficiency among Iranian EFL learners.

This research would be significant in light of recent developments in language education. Understanding the importance of grit would provide language teachers and students with new pedagogical and theoretical implications. Moreover, unlike language aptitude or intelligence, flexible personality traits like grit could be learned and improved. Furthermore, studying the impact of grit on students' proficiency could provide empirical evidence for positive psychology. Moreover, this study adds empirical, intervention-based evidence to the grit literature. This research contributed to the literature by providing evidence that the noncognitive trait 'grit' may be enhanced through specific instruction.

Literature Review

Grit is persistence in tasks and setting long-term objectives and is characterized as "perseverance and passion for long-term goals" (Duckworth et al., [2007](#), p. 1087). Grit, typically defined as a higher-order construct, has two interrelated lower-order dimensions: Perseverance of Effort (PE) and Consistency of Interest (CI) (Credé et al., [2017](#); Van Zyl et al., [2021](#)). PE denotes effort toward a person's long-term aspiration. CI denotes a person's tendency to maintain goals over extended durations without alteration. Although grit relates to other psychological constructs such as conscientiousness and motivation, it emphasizes sustained effort and interest in long-term goals (like learning a new language) despite obstacles (Duckworth et al., [2007](#)). However, Calo et al. ([2024](#)) emphasized that grit may be teachable, and several educational institutions are focused on enhancing students' grit through instructional courses. Grit significantly influences learners' educational achievement and includes perseverance, resilience, and self-discipline, which are crucial for instructional achievement (Hodge et al., [2018](#); Li, [2025](#); Muenks et al., [2017](#); Teimouri et al., [2022](#)).

Debate continues over strategies that enhance grit (Credé et al., [2017](#)). The first grit-promoting strategy can be attributed to Duckworth's ([2016](#)) introduction of the notion of grit. Her character education program incorporated activities designed to foster grit; however, these activities remain suggestions because insufficient empirical evidence supports their efficacy. She proposed that the internal factors contributing to grit development include a person's interests, practices, objectives, and aspirations, while external factors encompass parental influence, educational experiences, and cultural contexts.

Based on scholarly work on grit development, recent frameworks have emphasized that grit can be developed through regular training in theory-based practices. According to Van Zyl et al. ([2021](#)), there are eight important areas based on Hwang and Nam ([2021](#)) to enhance grit that should be addressed during teaching sessions, including teaching grit, reflecting on past failures, growth mindset, goal setting, deliberate practice, reducing media overuse, emotional regulation, and interest discovery and maintenance. Each of these areas is theoretically related to grit and may help sustain effort and maintain progress toward their goals. For example, a growth mindset and reflection on past failures help learners deal constructively with obstacles

(Hwang & Nam, [2021](#)). These principles provided the information needed to design the grit classroom-based intervention implemented in the present study.

Several empirical studies have demonstrated that grit is, at least in part, malleable. For example, Alan et al. ([2019](#)) showed that character education with modules emphasizing neuroplasticity, the significance of effort in success, constructive failure interpretation, and goal planning enhanced grit. Their findings suggested that treated learners set ambitious objectives and engage in skill-building activities and, therefore, are more successful. Similarly, Sigmundsson and Hauge ([2023](#)) showed that the grit intervention can increase grit, while Calo et al. ([2024](#)), in their systematic review with meta-analysis, found that grit intervention improved grit levels by small amounts. Taken together, these findings provide preliminary support for the potential of educational interventions to enhance grit.

Recent reviews (e.g., Mohammad Hosseini et al., [2024](#); Wang et al., [2022](#); Zhao & Wang, [2023](#); Zou et al., [2025](#)) have emphasized grit and its role in SLA; however, these studies mainly offered descriptive insights without examining interventions. Wang et al. ([2022](#)) reviewed the studies on the correlation among EFL students' grit, willingness to communicate, and L2 anxiety. Their review demonstrated a substantial correlation between students' willingness to communicate and grit. Zhao and Wang ([2023](#)) reviewed multiple aspects of grit, including the effectiveness of PE and CI in enhancing language acquisition. The findings suggested that while research on grit has grown rapidly since 2020, it still needs broader expansion and greater variety in areas, participant demographics, research methodologies, and linguistic contexts.

In Iranian settings, existing studies on L2 grit have mainly used correlational designs rather than intervention-based designs. For example, Azari Noughabi and Ghasemi ([2025](#)) showed that grit is an important psychological factor linking learning experience to communicative achievement. Derakhshan and Fathi ([2025](#)) also found reciprocal interactions among enjoyment, anxiety, and L2 grit. Their research emphasized grit as a key part of the complex system of emotional variables in language learning. Similar evidence from Iranian data also shows that L2 grit correlates with positive language learning outcomes. In addition, Fathi and Hejazi ([2024](#)), emphasizing the motivational role of grit, showed that L2 grit mediates the relationship between L2 self-ideal and foreign language learning. In line with these findings, Fathi and Behzadpoor ([2025](#)), from a positive psychology perspective, showed that L2 speaking grit can predict speaking-related outcomes. Alaedini and Chalak ([2023](#)) investigated the effect of L2 grit on Iranian EFL learners' proficiency. They found a strong relationship between L2 grit and Iranian EFL learners' proficiency and reported that L2 grit was highly effective in predicting student L2 proficiency.

Despite the growing body of evidence supporting the importance of L2 grit in the Iranian EFL context, the studies noted above are observational, and it remains unclear to what extent grit can be purposefully and intentionally developed through classroom-based educational interventions. To address this gap, the present study adopted an intervention-based approach to examine the malleability of L2 grit and its impact on English language learning.

To date, empirical evidence on the effect of grit interventions on EFL learners' English proficiency in Iran remains limited. Therefore, this study aimed to investigate the possible impact of this intervention on Iranian EFL learners' English proficiency. Based on the study objectives, the following research question was formulated: Does a classroom-based grit intervention influence Iranian EFL learners' English proficiency?

Method

Design and Context of the Study

For this study, a quantitative research paradigm was adopted. Specifically, the study employed a quasi-experimental pretest-posttest-follow-up design. A quasi-experimental research design allows examination of potential causal inferences while working within the limitations of real-world academic environments, where complete randomization is usually not possible.

The researcher conveniently selected Prestige Language Institute, where access was guaranteed. The study focused mainly on intermediate participants because they are usually more numerous than learners at other levels. The same level was selected to ensure that participants shared a common linguistic ability for a more reliable evaluation of the intervention's effects. Forty-two intermediate-level learners from this institute were conveniently selected and randomly assigned to the experimental group (EG) ($n = 21$) and the control group (CG) ($n = 21$). In the EG, the grit intervention was conducted during class sessions to enhance grit. The intervention material involved classroom education and activities based on the Hwang and Nam (2021) grit promotion strategies. In contrast, the CG classes used the institution's typical method, without additional grit-oriented activities or intervention-specific strategies. The L2-Grit Scale (Teimouri et al., 2022) was administered to both groups as the pre-test, post-test, and follow-up to assess the intervention's effectiveness.

In the first class session, both EG and CG completed the L2-Grit Scale as the pre-test. Then, the grit intervention was implemented in the EG. At the end of the semester, both EG and CG completed the L2-Grit Scale again as the post-test. Moreover, in the next semester (about two months later), both groups answered the L2-Grit Scale as the follow-up test. We assessed both groups' L2 proficiency using their final exam scores. Although these scores do not constitute a standardized measure of language proficiency, they provide a contextually valid indicator of learners' instructional achievement within the same curriculum, assessment framework, and institutional setting. The previous semester's scores were considered the pre-test, the current semester's scores the post-test, and the next semester's scores the follow-up test. Overall, the intervention took about four months, from September to December 2024. Finally, the data collected from the pre-test, post-test, follow-up test, and final exam scores were statistically analyzed.

Participants

The total population was all Iranian EFL learners in Isfahan City. The target population was all EFL learners registered in private language institutions in Isfahan City between September and December 2024. The sample size was determined using Cohen's (1992) guidelines to ensure sufficient statistical power to detect medium effect sizes in a two-way mixed ANOVA, suggesting approximately 20 participants per group. The sample consisted of 42 intermediate-level EFL learners conveniently selected from Prestige Language Institute and randomly assigned to the EG ($n = 21$) and CG ($n = 21$). In the follow-up phase, two learners dropped out; therefore, we removed their pre-test and post-test data from the analysis and analyzed data from 40 learners (20 in each group). The participants' ages ranged from 18 to 38 years, with a mean age of 26.33 ($SD = 6.3$). The independent t-test showed no significant difference in age between the control and experimental groups ($t = .83$, $sig = .41$), so the two groups were comparable in age at baseline. All participants had at least a high school diploma. The inclusion criterion for participation was being a native Persian-speaking Iranian. The exclusion criterion was incomplete questionnaires in the pre-post or follow-up phases (see Table 1).

Table 1.

Demographic Background of the Participants

Population	Intermediate Iranian EFL learners
No. of Learners	42
Gender	Females & Males
Native Language	Persian
Target Language	English
Institutes	Prestige Language Institute
Academic Years	2024

Instruments

In this study, the L2-Grit Scale was administered before and after the intervention as the pre-test and post-test, and again the following semester as the follow-up test to assess changes in grit. L2 proficiencies were assessed at the end of the semester via final exam scores. The grit intervention was implemented based on the Hwang and Nam (2021) grit promotion strategies.

L2 Grit Scale

One of the questionnaires used to collect data was the 'L2-Grit Scale' (Teimouri et al., 2022). It was utilized to investigate the extent to which Iranian EFL students consider themselves gritty. The scale has nine items, and respondents rate them on a 5-point Likert scale (1 = Not like me at all, 5 = Very much like me). A higher overall score indicates greater grit. The L2-Grit Scale has two sub-components: consistency of interest (CI; items 2, 4, 7, and 8) and perseverance of effort (PE; items 1, 3, 5, 6, and 9). Each subscale's score is shown by dividing the sum of the scores of each subscale by the number of its items. Some examples of the L2-

Grit Scale are 'I am a diligent English language learner' (PE), 'When it comes to English, I am a hard-working learner,' and 'I think I have lost my interest in learning English' (CI).

Previous studies have provided evidence supporting the construct, concurrent, discriminant, and predictive validity, as well as the internal consistency, of the L2-Grit scale (e.g., Teimouri et al., 2022; Wei et al., 2020). In the current study, reliability analyses indicated acceptable internal consistency for this scale ($\alpha = .82$). Since this scale has a strong theoretical foundation, is built on Duckworth's grit theory, and has been adapted specifically for L2 learning, and since it has consistently shown strong Cronbach's alpha values (>0.8) across studies, indicating cross-cultural validity and predictive power for L2 success, it was used as an appropriate tool in this research. The L2-Grit Scale (Teimouri et al., 2022), in its original English version, was given to the learners as a pre-test, post-test, and follow-up test. In the first class session, the two groups completed the pre-test; in the last class session, they completed the post-test; and at the end of the next semester, they completed the follow-up test.

L2 Proficiency

Learners' L2 proficiency was assessed using their final exam scores in the English course at the end of the semester. Using learners' final exam scores in an English course as a measure of L2 proficiency is a common practice in applied linguistic research. The course instructors prepared and marked the exam based on the textbook. Like the final exam common in language institutes in Iran, it included multiple-choice questions in reading, writing, grammar, vocabulary, and listening/speaking sections. Exam grades reflected mastery of course-specific content and varied from 0 to 100.

While these institution-developed tests may lack the standardization of international proficiency tests, several measures were taken to ensure their validity and reliability for this study. The alpha coefficient was calculated ($\alpha = .78$) to assess the test's reliability. This alpha level indicates moderate and acceptable internal consistency. Because the test is based on the textbook, aligned with what has been taught, and designed around the standardized tests introduced by the book writers, its content validity is somewhat assured. Including multiple language skills in the test can provide some indication of its construct validity. This approach to assessing a variable can reflect real classroom performance and could indicate ecological validity. The previous semester's grades were used as the pre-test, the current semester's grades as the post-test, and the next semester's grades as the follow-up test. The examinations across the three semesters followed a comparable format. They were developed from the assessment materials provided with the course textbooks, covered the same language skills, and used the same 0-100 scoring scale. The consistent examination format across semesters allowed these scores to serve as a baseline measure of course-based English achievement. The objective scoring of the multiple-choice questions minimized concerns regarding subjective scoring, except for the writing section.

Grit Intervention

The educational intervention comprises a meticulously designed curriculum for the instructor to implement in the classroom. The instructor introduces each topic using a kit with precise guidelines for implementing activities. The intervention aims to expose learners to a perspective that helps them set English-learning objectives and pursue them through effort. The materials emphasize that it is essential to avoid seeing setbacks as evidence of insufficient intrinsic intelligence or ability to attain goals.

Educators were urged to incorporate the concepts presented in the materials into their teaching philosophy and implement them by commending learners' effort and positive attitudes toward learning rather than only commending successful outcomes. Educators were also advised to emphasize the role of effort in a learner's success and not to praise a successful learner in a way that suggests natural superiority in intelligence. From this perspective, the intervention differs from other curriculum materials, which require covering only some content within a specific time. Instead, it integrated grit-oriented activities into regular classroom instruction. To support treatment fidelity, educators were continuously supervised throughout the intervention, and regular communication was maintained. In this study, the Hwang and Nam (2021) grit promotion strategies were used to instruct and improve learners' grit in the EG. These strategies fall into eight main groups, as shown in Table 2.

Table 2.

Components of Grit Intervention

1. Teaching Grit	Grit meaning presents the definition of grit and its two subcomponents: CI and PE. Grit importance discusses the power of grit. Grit practice is taught through role models or self-reflection practices on grit experiences.
2. Reflecting on Past Failures	The teacher wants the students to write about a failure experience. Grit can increase directly by dealing with failure.
3. Growth Mindset	The growth mindset focuses on accomplishing long-term, high-level goals to help learners overcome current difficulties and frustrations. If learners are taught about the growth mindset, their PE improves.
4. Goal Setting	Grit could be encouraged by helping learners set meaningful goals by explaining why goals are necessary and how to set them appropriately.
5. Deliberate Practice	Deliberate practice is a common behavioral trait among people with grit; therefore, encouraging it is crucial for cultivating grit. Boosting deliberate practice behavior could develop grit itself.
6. Media Use	Behaviors that hinder grit include media overuse, such as internet gaming or smartphone use. The development of grit could be improved by monitoring and identifying excessive media use.
7. Emotional Regulation	Emotional regulation ability is essential to evoke emotions to maintain interest and motivation during deliberate practice while encountering boredom and frustration in the process.
8. Interest Discovery and Maintenance	Positive emotional experiences (interest) are supported by mastery experiences with suitably challenging tasks, which in turn lead to steadier interest in the object.

Data Collection

Prestige Language Institute was conveniently selected. The practical and beneficial outcomes of the research prompted the institute's supervisor to collaborate with the researcher to conduct the study. The study focused mainly on intermediate participants because they usually outnumber learners at other levels. The researcher determined the total estimated number of participants and prepared the necessary instruments. First, the institute's official asked teachers to participate in the research; if they agreed, the researcher provided further explanations. The researcher provided a participation consent letter to the intended sample, inviting them to participate in the research study. The letter outlined the study's main characteristics, discussed compensation and confidentiality, and provided the researcher's contact information. The participants were informed that the research outcomes would be shared with them. A convenience sample of 42 students was selected from the research population based on the availability of eligible learners and intact classes. Because class sizes were insufficient, four intermediate classes were selected on a convenience basis (class A = 13 learners, class B = 8 learners, class C = 11 learners, and class D = 10 learners).

Two classes were randomly selected for the CG (classes A and B = 21 learners), and two classes for the EG (classes C and D = 21 learners). The CG classes used the institution's typical method. Teachers of the two EG classes received the necessary training for grit intervention based on the Hwang and Nam (2021) grit promotion strategies and implemented it during class. This educational intervention seeks to increase grit in the classroom setting (see Table 2). They were told that, in addition to classroom teaching, they should work on grit, teach grit to students using the eight strategies, and incorporate these strategies into classroom activities. For example, during the 16 sessions that you are teaching, implement one of the eight grit strategies every two sessions. For instance, the first strategy was 'Teaching Grit,' in which raising student comprehension of grit is a section covered in the class's content and activities, and it includes explicit instruction on grit knowledge, comprising grit meaning, grit importance, and grit practice. Another strategy was 'Media Overuse.' Behaviors that prevent grit include media overuse, such as internet gaming or smartphone use. Therefore, the EG teachers encouraged learners to practice self-monitoring, avoid using their smartphones during class, and plan specific times for media use outside the classroom. Similarly, the teachers implemented the remaining strategies in the classroom. The teacher should have considered a pedagogical philosophy (e.g., while interpreting test results or giving feedback) that highlighted the significance of effort in routine classroom activities. In this regard, the program was not just a series of materials to be covered within a set timeframe, as in a conventional curriculum. Rather, it sought to change learners' perceptions about the significance of effort by changing teachers' mindsets and the classroom environment (Alan et al., 2019).

The team continuously supervised the implementation of the grit intervention to sustain the program. Teachers reported their experiences and challenges during the intervention period, which helped in refining the delivery of the strategies. Each of the three semesters consisted of

16 90-minute sessions (three sessions a week), and the intervention was delivered over one semester (about two months). Two months later, we administered the follow-up test. Therefore, in total, the intervention phase took about four months.

First, in the first class session, both EG and CG completed the L2-Grit Scale as the pre-test. We assessed their L2 proficiency, serving as the pre-test, using their final exam scores from the previous semester. After the semester ended and the grit intervention was implemented in EG, both groups completed the L2-Grit Scale again in the last class session as the post-test. We assessed L2 proficiency at the post-test using final exam scores from the end of the semester. Moreover, in the next semester (about two months later), both groups completed the L2-Grit Scale as the follow-up test, and their final exam scores again assessed L2 proficiency. In the follow-up phase, two learners dropped out, so the researcher removed their data from the pre-test and post-test and analyzed data from 40 learners (20 in each group). This follow-up phase enabled the researcher to evaluate both the immediate impacts of the intervention and the sustained retention of grit enhancements over time. Therefore, the follow-up test was essential to evaluate the durability of the intervention results and to detect any latent impacts. Overall, the intervention lasted about four months. Finally, the data collected from the pre-test, post-test, follow-up test, and final exam scores were statistically analyzed.

Ethical Considerations

Several ethical issues were carefully considered in conducting this research. Throughout the data collection process, the researcher's primary concern was protecting participants' welfare. Participants were informed that they could decline to participate or withdraw from the study. The researchers assured all supervisors, participants, and instructors of confidentiality when ethical issues were observed.

Participants received detailed information on the research aims, methods, potential risks, and benefits, and after having the chance to ask questions, they provided written consent. The researchers provided a participation consent letter to the intended sample, inviting them to participate in the research study. The letter identified the study's main characteristics, discussed compensation and confidentiality, and provided the researcher's contact information. During data collection, analysis, and reporting from the tests and questionnaires, the researcher adhered to the ethical principle of confidentiality by separating participants' personal information from the data. Accordingly, the researcher obtained the necessary permits from the relevant authorities before conducting the research. All parties were assured that the collected data would be used solely for the current research and kept confidential. The participants were informed that the research outcomes would be shared with them.

Data Analysis

A two-way mixed ANOVA with repeated measures was used to analyze the data and answer the Research Question, while checking the necessary assumptions, including sphericity

(Mauchly's test), normality (Shapiro-Wilk's test), and homogeneity (Levene's test). This statistical method was appropriate for the experimental design. This research aimed to investigate the impact of grit intervention on English proficiency. Therefore, a two-way mixed ANOVA with repeated measures examined the influence of the grit intervention (between-subjects factor) and time (within-subjects factor, representing pre-intervention, post-intervention, and follow-up measurements) on the dependent variables. This statistical method can evaluate interaction effects between the grit intervention and time on English proficiency while accounting for correlations among repeated measurements (Field, 2018). SPSS version 26 was used to input and analyze the data to investigate the effectiveness of the L2 grit intervention on L2 proficiency.

In short, two-way mixed ANOVA with repeated measures is suitable for analyzing the data because it fits experimental designs and can examine within-subjects factors (time: pre-post follow-up) and between-subjects factors (intervention vs. control). In addition to testing whether the intervention is effective, this method can detect interaction effects, meaning it tests whether intervention effects differ over time. It also pinpoints when differences emerge. This method has strong longitudinal rigor because it controls for baseline differences and is therefore more powerful than ANCOVA for pre-post designs. Because no prior power analysis was conducted, we performed a retrospective sensitivity analysis using G*Power. The results indicated that the study could detect minimum effect sizes of $f = .11$ for grit and $f = .17$ for English proficiency with 80% power at $\alpha = .05$.

Results

The means and standard deviations for grit and English proficiency are presented in Table 3.

Table 3.

Means and Standard Deviations for L2 Grit and English Proficiency

Group	Variables		Mean	Std. Deviation
Control (n = 20)	L2 grit	Pre-test	3.31	1.22
		Post-test	3.44	1.12
		Follow-up	3.42	1.10
	E. proficiency	Pre-test	85.30	4.27
		Post-test	86.40	5.85
		Follow-up	86.65	6.11
Experimental (n = 20)	L2 grit	Pre-test	3.62	1.27
		Post-test	4.18	.81
		Follow-up	4.14	.79
	E. proficiency	Pre-test	85.65	6.69
		Post-test	90.85	5.81
		Follow-up	89.85	5.65

Independent-samples *t* tests examined whether EG and CG differed at baseline. The results showed no significant between-group differences in L2 grit, $t(38) = -.8$, $p = .43$, or English proficiency, $t(38) = .19$, $p = .84$, at the pre-test. A two-way mixed ANOVA with repeated measures was conducted to evaluate the impact of the grit intervention on increasing grit. The Shapiro-Wilk test of normality indicated that the scores of grit and English proficiency were normally distributed ($p > .05$). Box's *M* test demonstrated that the assumption of equality of observed covariance matrices of grit across groups had been violated (Box's *M* = 24.20, $p = .01$). Therefore, Pillai's Trace was considered in evaluating the effects as a more robust multivariate test statistic. Mauchly's test revealed that the assumption of sphericity had been violated, $\chi^2(df = 2) = 86.67$, $p < .001$, and therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .52$).

The corrected analysis revealed a significant main effect of time on grit scores, $F(1.05, 39.92) = 20.89$, $p < .001$, $\eta^2 = .36$, indicating that L2 grit scores changed across the three measurement occasions. The interaction of Time $\times$ Group ($F(1.05, 39.92) = 8.10$, $p < .001$, $\eta^2 = .18$) was significant, meaning that the pattern of changes in grit over time (in the three stages of pre-, post-, and follow-up) was different between the experimental and control groups. This indicates that the intervention significantly affected changes in L2 grit over time. Simple main effects analysis with Bonferroni-adjusted pairwise comparisons showed that L2 grit scores increased significantly from pre-test to post-test ($p = .002$) and from pre-test to follow-up ($p = .003$) in the EG, but not in the CG.

The between-subjects effect of Group was not significant ($F(1, 38) = 3.22$, $p = .08$), meaning that when collapsing across time, the two groups did not differ significantly in overall grit levels. However, the significant interaction indicates that the trajectories of change in grit differ fundamentally, increasing much more sharply in the experimental group after the intervention. To further examine the main effect of Time on L2 grit, Bonferroni pairwise comparisons were conducted. The results showed that L2 grit scores increased significantly from pre-test to post-test ($p = .001$) and from pre-test to follow-up ($p = .001$), indicating that the intervention could produce significant improvements in participants' grit scores over time. However, the difference between post-test and follow-up was not significant, meaning the increase in grit that occurred immediately after the intervention remained unchanged through the follow-up phase. Overall, the results show a stable, consistent improvement in L2 grit after the intervention.

A parallel two-way mixed ANOVA with repeated measures was also performed to evaluate the impact of the grit intervention on English proficiency. Box's test demonstrated that the assumption of equality of observed covariance matrices of English proficiency across groups had been met (Box's *M* = 7.29, $p = .35$). Mauchly's test demonstrated that the assumption of sphericity had been met, $\chi^2(df = 2) = .57$, $p = .75$. Thus, the *F*-value for the main effect of repeated measures (and its interaction with the between-group variable) does not need to be corrected for violations of sphericity.

Table 4 presents the summary table of the repeated-measures effects in the ANOVA. The results revealed a significant main effect of Time ($p = .001$), indicating that English Proficiency scores changed across the three measurement occasions. Importantly, a significant Time $\times$ Group interaction ($p = .02$) showed that the pattern of change over time differed between the experimental and control groups. This indicates that the intervention meaningfully influenced changes in English Proficiency over time. The between-subjects effect of Group did not reach statistical significance, suggesting that when collapsing across time, the two groups did not differ significantly in their overall English Proficiency. However, the significant interaction shows that the trajectory of English Proficiency change differed substantially between groups, with the experimental group improving more sharply following the intervention.

Table 4.

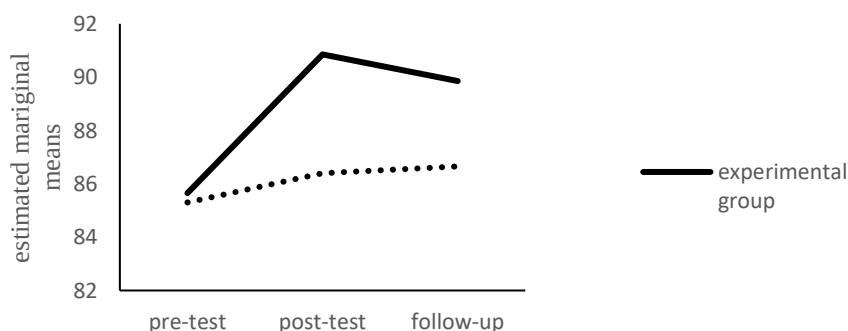
The Summary of the Repeated Measures Effects in the ANOVA on English Proficiency

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power
Time (within-subjects)	236.85	2	118.42	10.14	0.00	.21	.98
Time $\times$ group interaction	88.32	2	44.16	3.78	.027	.10	.70
Error	887.50	76	11.68				
Group (between-subjects)	213.33	1	213.33	2.78	.10	.07	.37
Error (group)	2913.7	38	76.68				

Simple main effects analysis with Bonferroni-adjusted pairwise comparisons showed that English Proficiency scores increased significantly from pre-test to post-test ($p = .001$) and from pre-test to follow-up ($p = .004$) in the EG, but not in the CG (Figure 1). Figure 1 shows that the EG demonstrated a steep positive slope from pre-test ($M = 85.65$) to post-test ($M = 90.85$), indicating a significant increase of 5.20 points following the grit intervention. Despite a slight decline at the two-month follow-up ($M = 89.85$), scores remained significantly above baseline levels, demonstrating generally sustained intervention effects.

Figure 1.

Estimated Marginal Means of English Proficiency



Discussion

The purpose of this research was to show that grit, a noncognitive trait that can strongly predict success, is changeable and can be enhanced in the classroom. The mixed ANOVA results indicated that the grit intervention increased Iranian EFL learners' grit and improved English proficiency. The outcomes showed that the grit intervention helped EFL learners to be grittier. Although grit has received criticism (Credé et al., 2017), researchers still argue that it has significant pedagogical value (Alan et al., 2019).

This study found an increase in grit, which is particularly interesting given the ongoing debate over grit's potential to be enhanced (Hwang & Nam, 2021). In education, it is widely accepted that learners with strong dedication to their studies and perseverance in overcoming educational challenges are more likely to achieve academic success (Hodge et al., 2018; Li, 2025; Muenks et al., 2017). In fact, many studies on grit have focused on academic success (Credé et al., 2017).

The results of this study supported the findings of Alan et al. (2019), Calo et al. (2024), Duckworth (2016), Duckworth et al. (2021), Eskreis-Winkler et al. (2016), Rimfeld et al. (2016), and Sigmundsson and Hauge (2023), which showed that grit intervention can help to increase the performance of people in different fields, including educational settings.

Alan et al. (2019) observed grit development in the intervention group during a two-and-a-half-year follow-up evaluation of Turkish learners. The grit intervention of this study exhibits significant content overlap with Alan et al. (2019), including growth mindset, the significance of effort in enhancing abilities and achieving goals, and the value of engaging in activities of interest. Despite this content being presented differently in this study from Alan et al. (2019), their inclusion in both interventions may offer a possible interpretation for the observed increase in grit. Nevertheless, the present research and earlier interventions have shown only moderate post-measurement impacts, and the literature remains insufficiently developed to draw definitive conclusions about the extent to which grit can be enhanced and how interventions should be designed.

An effective intervention to increase grit may encourage learners to engage with English learning through personally meaningful goals and opportunities to develop new competencies. Such activities may be consistent with principles associated with mastery goal orientation (as a possible theoretical mechanism), whereby learners focus on developing skills and improving their competence.

The results showed that English proficiency was higher in the EG after the intervention than in the CG. This may be partly consistent with the possibility that the course activities created a supportive learning environment and facilitated learners' pursuit of their goals. Grit may serve as a protective factor for learners and enhance progress, mitigating poor performance among EFL learners.

One possible explanation is that the intervention may have helped learners view effort as an important factor in achieving success rather than relying primarily on perceived inherent

abilities. From this perspective, learners may have interpreted difficulties in English learning as opportunities for further development rather than as evidence of limited ability. Such an interpretation may make continued effort and persistence more meaningful, particularly if learners see sustained engagement as contributing to skill improvement. This shift in beliefs could support greater investment in learning activities and persistence when facing challenges, which may, in turn, create more opportunities for skill development.

The improvement in English proficiency following the grit intervention may be partly explained by the possibility that grittier learners are more likely to sustain their effort in the learning process despite challenges over a long time. Moreover, sustained effort may have allowed learners to continue repeated practice, which could likely contribute to English achievement. This finding could also be supported by the idea that grit helps students to persevere during the learning process.

This study explored the effectiveness of grit intervention on increasing English proficiency. The study suggests that teachers could improve L2 learners' proficiency by incorporating grit-oriented activities in the classroom. Incorporating strategies to increase grit may be useful in EFL contexts. EFL instructors may promote students' grit by integrating it as a guiding principle in educational settings and dedicating time to developing it in assignments. For example, EFL teachers' communication with students may help them understand the importance of their ongoing language learning efforts, and teachers can ask students to set practical, comprehensive, and specific long-term educational goals with a clear timeframe in mind. Moreover, EFL teachers should set clear expectations for learning and communication settings and support learners to persist and persevere.

Conclusion

This study attempted to identify the effectiveness of grit intervention in increasing Iranian EFL learners' English proficiency. Results indicated that learners who participated in the grit intervention improved their English proficiency. These findings provide preliminary evidence that classroom-based activities incorporating grit-oriented strategies may help support both learners' grit and language achievement.

The findings also have potential pedagogical implications for EFL instruction. EFL instructors may consider incorporating grit-promotion activities into their classroom practices. However, the findings reflect the potential effect of the intervention package as a whole rather than the independent effect of any single component. Therefore, further research is needed to determine which specific intervention components are most effective. The findings may also be relevant to language program designers. Grit-oriented activities could potentially be incorporated into supplementary classroom materials and tasks. Future studies using larger, more diverse samples and multiple measures of language proficiency could provide further evidence on the effectiveness of grit interventions.

The findings also contribute to discussions about the changeability of noncognitive constructs and the potential role of educational programs (Calo et al., 2024; Credé et al., 2017). The findings provided preliminary evidence of the malleability of a significant noncognitive factor and underscored a strategy that may be used to cultivate it in the classroom's natural setting.

This study has some limitations that should be acknowledged. One limitation was the number of participants; therefore, its generalizability is limited. The grit intervention was implemented in one private language institute in one city. Because the study focused on educational, cultural, and teacher quality in specific regions of Iran, the findings may not generalize to learners in other provinces or institutional contexts. The study used a quantitative method; qualitative methods could provide deeper insights. This study used self-report measures and may have been subject to biases, including social desirability. Another limitation was using institutional final exam scores as a proxy for L2 proficiency, which may differ in content, difficulty, and reliability. The absence of a standardized proficiency test might have influenced the accuracy of the outcome. Another aspect this inquiry did not address was the potential influence of age on the effectiveness of the grit intervention. The relatively broad age range of the participants may have introduced age-related variability. Potential teacher effects could not be completely ruled out because different educators taught the CG and EG. Another limitation is the study's sectional design.

The findings underscored domains for further research on grit in language acquisition. Future studies should use larger samples across multiple classrooms or institutions to increase statistical power and reduce sampling variability. Because participants in this research came from a private institute, future studies should recruit learners from different institutional and regional contexts to examine the generalizability of the findings. Future research on this topic should use different research methods, such as qualitative or mixed-methods studies. Using different data collection tools (that is, open-ended scales, narrative inquiry, interviews, and behavioral observation) is also recommended to achieve more comprehensive results. Future research should use standardized English proficiency tests. This would provide more reliable assessments of language proficiency and yield stronger evidence regarding the intervention's efficacy. A further study could also investigate the influence of age on the effectiveness of the grit intervention using more homogeneous age groups. Further investigations could involve the same educator for both the EG and CG to minimize potential teacher effects. Further studies can concentrate on the time-based covariance of L2 grit in longitudinal designs. Future research investigating the impacts of these aspects would be attractive. Another significant issue is that the current study's results are confined to the participants engaged and should not be generalized to other educational environments or populations without further examination.

Acknowledgments

We thank the editorial team of TESL Quarterly for the opportunity to submit and publish this synthesis. We also thank the anonymous reviewers for their careful, detailed reading of our manuscript and their insightful comments and suggestions. We also acknowledge all the participants who took part in this study.

Declaration of conflicting interests

The authors declare no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for this article's research, authorship, and/or publication.

References

- Alaedini, A., & Chalak, A. (2023, June 3). *Relationship between L2 grit and Iranian EFL learners' proficiency: Gender as a moderator*. Paper presented at the 3rd International ILTERG Conference, Online, Turkey.
- Alan, S., Boneva, T., & Ertac, S. (2019). Ever failed, try again, succeed better: Results from a randomized educational intervention on grit. *The Quarterly Journal of Economics*, 134(3), 1121–1162. <https://doi.org/10.1093/qje/qjz006>
- Azari Noughabi, M., & Ghasemi, A. (2025). Informal digital learning of English and EFL learners' willingness to communicate: Investigating the mediating role of L2 grit. *Journal of Multilingual and Multicultural Development*, 46(10), 3565–3580. <https://doi.org/10.1080/01434632.2024.2351087>
- Calo, M., Judd, B., & Peiris, C. (2024). Grit, resilience and growth-mindset interventions in health professional students: A systematic review and meta-analysis. *Medical Education*, 58(8), 902–919. <https://doi.org/10.1111/medu.15391>
- Chisholm-Burns, M. A., Berg-Poppe, P., Spivey, C. A., Karges-Brown, J., & Pithan, A. (2021). Systematic review of noncognitive factors influence on health professions students' academic performance. *Advances in Health Sciences Education*, 26(4), 1373–1445. <https://doi.org/10.1007/s10459-021-10042-1>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492–511. <https://doi.org/10.1037/pspp0000102>
- Dale, G., Sampers, D., Loo, S., & Green, C. S. (2018). Individual differences in exploration and persistence: Grit and beliefs about ability and reward. *PLoS One*, 13(9), e0203131. <https://doi.org/10.1371/journal.pone.0203131>
- Derakhshan, A., & Fathi, J. (2025). Longitudinal exploration of interconnectedness through a cross-lagged panel design: Enjoyment, anxiety, willingness to communicate, and L2 grit in English language learning. *Journal of Multilingual and Multicultural Development*, 46(8), 2192–2210. <https://doi.org/10.1080/01434632.2024.2393705>
- Dörnyei, Z. (2020). *Innovations and challenges in language learning motivation*. Routledge.
- Duckworth, A. L. (2016). *Grit: The power of passion and perseverance*. Simon & Schuster.

- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Duckworth, A. L., Quinn, P. D., & Tsukayama, E. (2021). Revisiting the factor structure of grit: A commentary on Duckworth and Quinn (2009). *Journal of Personality Assessment*, 103(5), 573–575. <https://doi.org/10.1080/00223891.2021.1942022>
- Eskreis-Winkler, L., Shulman, E. P., Young, V., Tsukayama, E., Brunwasser, S. M., & Duckworth, A. L. (2016). Using wise interventions to motivate deliberate practice. *Journal of Personality and Social Psychology*, 111(5), 728–744. <https://doi.org/10.1037/pspp0000074>
- Fathi, J., & Behzadpoor, S. F. (2025). Positive psychology in L2 speaking: The predictive roles of foreign language speaking enjoyment, the ideal L2 speaking self, and L2 speaking grit. *Studies in Second Language Learning and Teaching*, 15(3), 557–592. <https://doi.org/10.14746/ssllt.39160>
- Fathi, J., & Hejazi, S. Y. (2024). Ideal L2 self and foreign language achievement: The mediating roles of L2 grit and foreign language enjoyment. *Current Psychology*, 43(12), 10606–10620. <https://doi.org/10.1007/s12144-023-05187-8>
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage Publications.
- Hodge, B., Wright, B., & Bennett, P. (2018). The role of grit in determining engagement and academic outcomes for university students. *Research in Higher Education*, 59(2), 448–460. <https://doi.org/10.1007/s11162-017-9474-y>
- Hwang, M. H., & Nam, J. K. (2021). Enhancing grit: Possibility and intervention strategies. In L. E. van Zyl, C. Olckers, & L. van der Vaart (Eds.), *Multidisciplinary perspectives on grit: Contemporary theories, assessments, applications and critiques* (pp. 77–93). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-030-57389-8_5
- Li, G. (2025). Understanding the roles of grit and well-being in L2 achievement among Chinese university English learners. *BMC Psychology*, 13(1), Article 576. <https://doi.org/10.1186/s40359-025-02933-4>
- Malanchini, M., Allegrini, A. G., Nivard, M. G., Biroli, P., Rimfeld, K., Cheesman, R., von Stumm, S., Demange, P. A., van Bergen, E., Grotzinger, A. D., Raffington, L., De la Fuente, J., Pingault, J.-B., Tucker-Drob, E. M., Harden, K. P., & Plomin, R. (2024). Genetic associations between noncognitive skills and academic achievement over development. *Nature Human Behavior*, 8, 2034–2046. <https://doi.org/10.1038/s41562-024-01967-9>
- Mohammad Hosseini, H., Derakhshesh, A., Fathi, J., & Mehraein, S. (2024). Examining the relationships between mindfulness, grit, academic buoyancy, and boredom among EFL learners. *Social Psychology of Education*, 27(3), 1357–1386. <https://doi.org/10.1007/s11218-023-09860-5>
- Muenks, K., Wigfield, A., Yang, J. S., & O’Neal, C. R. (2017). How true is grit? Assessing its relations to high school and college students' personality characteristics, self-regulation, engagement, and achievement. *Journal of Educational Psychology*, 109(5), 599–620. <https://doi.org/10.1037/edu0000153>
- Rimfeld, K., Kovas, Y., Dale, P. S., & Plomin, R. (2016). True grit and genetics: Predicting academic achievement from personality. *Journal of Personality and Social Psychology*, 111(5), 780–789. <https://doi.org/10.1037/pspp0000089>
- Shirvan, M., Taherian, T., & Yazdanmehr, E. (2021). L2 grit: A longitudinal confirmatory factor analysis-curve of factors model. *Studies in Second Language Acquisition*, 44(5), 1449–1476. <https://doi.org/10.1017/S0272263121000590>
- Sigmundsson, H., & Hauge, H. (2023). I CAN intervention to increase grit and self-efficacy: A pilot study. *Brain Sciences*, 14(1), 33. <https://doi.org/10.3390/brainsci14010033>
- Sudina, E., & Plonsky, L. (2021). Language-specific grit, achievement, and anxiety among L2 and L3 learners in Russia. *International Journal of Applied Linguistics*, 172(2), 161–198. <https://doi.org/10.1075/itl.20001.sud>

- Teimouri, Y., Plonsky, L., & Tabandeh, F. (2022). L2 grit: Passion and perseverance for second-language learning. *Language Teaching Research*, 26(5), 893–918. <https://doi.org/10.1177/1362168820921895>
- Van Zyl, L. E., Olckers, C., & van der Vaart, L. (Eds.). (2021). *Multidisciplinary perspectives on grit: Contemporary theories, assessments, applications, and critiques*. Springer International Publishing.
- Wang, M., Wang, H., & Shi, Y. (2022). The role of English as a foreign language learners' grit and foreign language anxiety in their willingness to communicate: Theoretical perspectives. *Frontiers in Psychology*, 13, 1002562. <https://doi.org/10.3389/fpsyg.2022.1002562>
- Wei, R., Liu, H., & Wang, S. (2020). Exploring L2 grit in the Chinese EFL context. *System*, 93, 102295. <https://doi.org/10.1016/j.system.2020.102295>
- Zhao, X., & Wang, D. (2023). Grit in second language acquisition: A systematic review from 2017 to 2022. *Frontiers in Psychology*, 14, 1238788. <https://doi.org/10.3389/fpsyg.2023.1238788>
- Zheng, S., Heydarnejad, T., & Aberash, A. (2022). Modeling the interplay between emotion regulation, self-efficacy, and L2 grit in higher education. *Frontiers in Psychology*, 13, 1013370. <https://doi.org/10.3389/fpsyg.2022.1013370>
- Zou, M., Noughabi, M. A., & Peng, C. (2025). Modeling the associations between L2 grit, foreign language enjoyment, and student engagement among Chinese EFL English-major learners: A control-value theory perspective. *System*, 131, 103679. <https://doi.org/10.1016/j.system.2025.103679>