The Asia-Pacific Education Researcher
https://doi.org/10.1007/s40299-023-00786-2

REGULAR ARTICLE

Contributions of Ideal L2 Self, Grit, and Boredom to Engagement in an EFL Context: A Structural Equation Modeling Approach

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Accepted: 16 October 2023

Abstract The emergence of Positive Psychology in second language acquisition has placed greater emphasis on the vital role of engagement in learning English as a foreign language (EFL). Although previous research has established that EFL learners' engagement is affected by ideal L2 self, boredom, and grit respectively, sporadic studies have attempted to address the simultaneous link between these factors and engagement. To fill the gap, this study aims to examine the association between the ideal L2 self and engagement among EFL learners, with a special focus on the mediating role of grit and boredom in the relationship. A total of 466 EFL learners were enrolled in two public universities in Northern China. Structural equation modeling (SEM) results revealed that grit positively predicted engagement and mediated the relationship between the ideal L2 self and engagement. Moreover, boredom negatively predicted engagement and acted as a mediator between the ideal L2 self and engagement. However, ideal L2 self did not directly predict engagement. These findings contribute to the current knowledge by elucidating the complex relationships between the three factors and engagement, which can provide insights for pedagogical practices and directions for future research.

Keywords Ideal L2 self · Engagement · Boredom · Grit · SEM · EFL learners

Introduction

The recent research interest in Positive Psychology (PP) in second language acquisition (SLA) has highlighted the importance of learners' engagement in language learning (Carver et al., 2021; Derakhshan et al., 2022a, 2022b, 2022c; Hiver, Al-Hoorie & Mercer, 2021a; Hiver, Al-Hoorie, Vitta, et al., 2021b; Ji et al., 2022; Mercer, 2019; Mercer & Dörnyei, 2020). Recognized as "the holy grail of learning" (Sinatra et al., 2015, p. 1), engagement refers to the active participation and involvement of students in learning activities (Reeve, 2012). It is indispensable for attaining meaningful learning (Hiver, Al-Hoorie, Vitta, et al., 2021a) as engaged learners exhibit high interest, persistence, motivation, enjoyment, and active participation in learning activities (Derakhshan et al., 2022a, 2022b, 2022c). Given the pivotal role of students' engagement in achieving academic goals in a second language (L2) context, it is valuable to explore positive predictors promoting language learners' engagement in SLA (Khajavy, 2021).

Previous research in PP has empirically established the ideal L2 self as a positive motivational variable exerting a significant impact on engagement (e.g., Abdollahzadeh, 2022; Wen, 2022; Zhang et al., 2020). Defined as the L2-specific facet of one's ideal self, the ideal L2 self represents the desired image of oneself as a proficient and successful L2 user (Dörnyei, 2009). It inspires them to work diligently to narrow the gap between their envisioned proficient L2 identity and their current language proficiency level (Dörnyei, 2009). This key construct is worth exploring as it provides L2 learners with a clear direction to frame

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Published online: 17 November 2023

desired self-images, thus, creating dynamic future guides which direct motivated action and facilitate L2 learning (Dörnyei, 2005; MacIntyre & Gregersen, 2012).

However, the path toward achieving one's ideal L2 self is marked with challenges, underlining the need for the cultivation of grit (Derakhshan & Fathi, 2023). Grit refers to a learner's interest, perseverance, and effort in the pursuit of long-term objectives, regardless of failures or obstacles encountered during the learning process (Duckworth, 2016). In the domain of SLA, it has been documented that grittier learners aspire to invest more effort in L2 learning and are more eager to engage in class activities (Teimouri, 2022). Although a wealth of research has substantiated the importance of grit in engagement within the field of educational psychology (e.g., Datu et al., 2018; Muenks et al., 2017; Steinmayr et al., 2018; Tang et al., 2019), the link between the two constructs remains relatively underexplored in SLA (Liu, 2021). Predicated on grit's established connection to the ideal L2 self and engagement, it is selected as a mediator between the variables in this study. Empirical findings have determined that individuals with a strong ideal L2 self display a propensity to possess higher levels of grit (Teimouri, 2017), as they exhibit resilience and determination in their language learning endeavors (Feng & Papi, 2020; Lan et al., 2021), which in turn motivates learners to actively engage in language learning activities and persist in striving toward their goals (Derakhshan & Fathi, 2023; Khajavy, 2021; Tang et al., 2022).

Despite PP's strong emphasis on positive psychofactors, negative factors are not entirely ignored and are usually complemented with positive constructs like grit and engagement (Derakhshan, 2022). As a negative emotion, boredom is frequently experienced in language learning without obvious indication and may be hard to recognize (Derakhshan et al., 2021; Kruk, 2021). Characterized by a combination of impaired vitality, disappointment, and reduced motivation, boredom pertains to an unpleasant emotional state or psychological experience where students adopt an indifferent attitude toward their learning (Kruk & Zawodniak, 2018; Zawodniak et al., 2021). Consequently, students may disengage from learning activities in the language classroom, prompting the necessity for additional investigation of this negative emotion (Dewaele & Li, 2021; Derakhshan, Fathi, et al., 2022). Nevertheless, compared with enjoyment and anxiety, two frequently examined emotions in SLA, boredom receives relatively limited attention (Kruk et al., 2022; Li et al., 2021; Zawodniak et al., 2021), particularly in terms of its predictors and outcomes (Derakhshan, Fathi, et al., 2022). With this in mind, the present study aims to examine the mediating role of boredom between the ideal L2 self and engagement. As elucidated by previous research, a strong ideal L2 self is expected to be associated with reduced levels of boredom (Zhang, Saeedian, et al., 2022), as learners with a clear vision of their desired language proficiency may discover meaning and purpose in learning activities, which can aid in the avoidance of negative emotions and maintain learners' focus and engagement over time (Teimouri, 2017).

Within the L2 contexts, sufficient research has been devoted to separately examining the effects of the ideal L2 self, boredom, and grit on engagement; yet, to a certain extent, exploration of the simultaneous association between these constructs warrants greater attention. Grounded on the theoretical assumptions of PP and empirical findings, this study aims to investigate the predictive effects of the ideal L2 self, grit, and boredom on engagement, focusing on the mediating roles of grit and boredom. Insights provided by this study can inform language educators, curriculum designers, and policy makers about the psychological factors that shape learners' engagement in language learning, thus, facilitating the development of targeted interventions and strategies to enhance learners' engagement and foster their ideal L2 self.

Literature Review

Engagement

Engagement refers to the active participation of students in a learning activity which is assumed to be one of the major personality traits driving learning (Christenson et al., 2012). Engagement is regarded as a prerequisite for improving communicative language proficiency and calls for substantial involvement and effort (Mercer & Dörnyei, 2020). Students who exhibit high levels of engagement are often dedicated, diligent, and determined in their learning process (Zhang, 2021). Given that a single-dimension construct is insufficient to represent the full potential of learners' engagement (Zhao & Yang, 2022; Zhou et al., 2021), this study, thus, adopts Reeve's (2012) multidimensional model to examine EFL learners' engagement. According to Reeve (2012), engagement determines how actively engaged the learner is in the learning process through the measurement of cognitive, behavioral, emotional, and agentic engagement dimensions. These four dimensions echo learners' thinking, acting, feeling, and communicating during learning activities, respectively (Reeve, 2013).

Ideal L2 Self and Engagement

The ideal L2 self deals with the characteristics that an L2 learner aspires to acquire in the future. It is recognized as a crucial aspect of the L2 Motivational Self System framework (L2MSS, Dörnyei, 2009) as it concerns the

long-term aspirations, ambitions, and goals of L2 learners for their future L2 selves (Dörnyei, 2005, 2009). Learner's desires shape the ideal L2 self and serve as a strong and diverse motivator that drives them to engage deeply in L2 learning (Zhang et al., 2020). The relationship between the ideal L2 self and engagement, however, is underexplored despite some scholars recently touching it (e.g., Wen, 2022; Zarrinabadi et al., 2022). In general language learning, the mix-methods study by Wen (2022) partially examined the association between ideal L2 self and engagement as a part of his research among 120 college students. The results indicated a significant relationship between ideal L2 self and after-class activity engagement where learners devoted much effort and actual time. In addition, the seminal study by Zarrinabadi et al. (2022) reported that ideal L2 self indirectly predicted engagement through resilience as a mediator.

The link has also been examined in specific aspects of language learning. The research on L2 reading conducted by Abdollahzadeh et al. (2022), for example, investigated the link between ideal L2 self and engagement in academic reading as a part of their study among 419 undergraduate students in different majors, and the findings unveiled that ideal L2 self significantly predicted transformative engagement. This link has also been highlighted in Zhang et al.'s (2020) study on L2 speaking among 591 Chinese EFL learners, indicating that engagement was a strong mediator between ideal L2 self and academic performance. In the context of L2 writing, Tsao et al. (2021) found that the ideal self-image significantly impacted motivations and promoted learners' engagement with WCF. In brief, many scholars only partially examined the relationship between ideal L2 self and engagement while none of the available studies have explored the link as a focal point.

Grit as a Mediator

Grit is defined as "perseverance and passion for long-term goals" (Duckworth et al., 2007, p. 1087), especially when faced with obstacles or difficulties. It is a two-dimensional construct comprising consistency of interest (COI), which pertains to a person's long-term passion regardless of setbacks, failures, or obstacles, and perseverance of effort (POE), which refers to an individual's strong tendency to consistently work hard despite challenges (Duckworth et al., 2007).

As a personality trait, grit is determined to be a positive predictor of engagement (e.g., Datu et al., 2018; Steinmayr et al., 2018; Tang et al., 2019). The study performed by Tang et al. (2022) confirmed the positive effects of grit on engagement among EFL learners. This positive association has also been investigated by Hodge et al. (2018) among 395 Australian university students. The findings suggested that a person with higher grit was more engaged in academic activities. In addition, the seminal study by Khajavy (2021) unveiled that grit was a positive predictor of engagement, which had stronger predictive power compared to other examined predictors. In another Asian EFL context, Zhang et al., (2022a, 2022b) confirmed grit's positive and direct effect on engagement among Chinese EFL students. Despite a handful of research accentuating the essential role of grit in students' engagement among EFL learners, more studies are required to address the relations between the two constructs.

The desire to persist in learning and improve through one's passion for learning could result in individual grit, which in turn allowed learners to attain positive academic performance (Duckworth, 2016). The crucial role of grit was also highlighted by Keegan (2017), who asserted that grit was essential for supporting learners in making the ideal effort to further enhance their L2 proficiency despite confronted difficulties. Feng and Papi (2020) revealed that the ideal L2 self could exert an impact on L2 learners' long-term persistence in language learning. Lan et al. (2021) further claimed that grit was positively associated with a learner's ideal L2 self in which L2 learners could be self-envisioned as competent and proficient L2 users. In addition, Teimouri (2017) suggested that learners with a robust ideal L2 self dedicate significant energy and time to the language learning process and willingly and actively engage in learning tasks to enthusiastically pursue their desired image of a proficient language user. Based on these empirical findings, this study hypothesizes that grit mediates the relationship between ideal L2 self and engagement. As such, the present study enjoys more novelty since limited previous research has examined the mediating role of grit in the link between ideal L2 self and engagement among EFL learners.

Boredom as a Mediator

Regarded both as a permanent trait (a personality attribute) and a transitory state (arises from specific circumstances) in psychology, boredom is characterized by a shortage of physical and cognitive arousal, particular time perceptions, and a tendency to respond in a way that disconnects from the environment (Dewaele & Li, 2021; Li, 2021). It is an emotional experience that can severely impede the learning process, leading to disinterest in classroom activities (Daniels et al., 2015). This adverse emotion is a synthesis of several undesirable experiences, including disengagement, discontent, inattentiveness, a diminished sense of desire and vitality, and an inaccurate perception of time (Pawlak, Zawodniak, et al., 2020a).

Recently, boredom has been highlighted within the domain of SLA (e.g., Derakhshan et al., 2021; Pawlak et al., 2020a, 2020b, 2020c) as a demotivating emotion (Kruk,

2021) which affects L2 learning (Kruk et al., 2023; Li, 2021; Solhi et al., 2023). For instance, Liu et al. (2022) conducted a comprehensive investigation into the relationships between boredom and engagement among 1157 Chinese high school students. The findings revealed a significant negative association between boredom and the tri-structure of EFL learners' engagement. This conclusion was further confirmed by Wu and Kang (2023), which indicated that boredom was negatively associated with behavioral engagement. In addition, the link between the two constructs was partly but frequently investigated in EFL research where boredom was often recognized as a mediator. Derakhshan, Fathi, et al. (2022) studied the relationship between boredom and engagement among 287 Iranian EFL learners and the findings demonstrated that boredom significantly and negatively predicated EFL student engagement directly. Similarly, Dewaele and Li (2021) examined the link between the two constructs as a part of the study with a large sample of 2002 Chinese EFL university students, and the results indicated the negative role of boredom in EFL learners' engagement. In a recent study, Tsang and Dewaele (2023) conducted a study among 111 Chinese EFL primary school students, and the results revealed a negative link between boredom and engagement in L2 learning.

It is suggested that learners who possess a robust ideal L2 self tend to demonstrate a preoccupation with pursuing favorable outcomes and will encounter a sense of pleasure-associated emotions (Papi & Khajavy, 2021). Specifically, learners who possess a clear vision of themselves as proficient L2 users in the future perceive the process of learning as enjoyable (Peng, 2015) and less boring. In addition, learners with a strong ideal L2 self primarily prioritize advancement and exhibit an optimistic prediction of positive outcomes (Teimouri, 2017). Namely, learners' ideal L2 self aligns with the positive emotional state and reduced negative emotions. Hence, it is reasonable to assume that the ideal L2 self may negatively lead to boredom (Zhang, Saeedian, et al., 2022). In addition, the emotional outcomes stemming from the ideal L2 self may have the potential to impact learning behaviors that ultimately contribute to L2 performance (Papi & Khajavy, 2021). Therefore, it can also be hypothesized that boredom plays a mediating role in the association between the ideal L2 self and engagement.

The Present Study

Based on the theoretical underpinnings and related literature, a structural model was proposed for EFL learners, illustrating the relationships among ideal L2 self, grit, boredom, and engagement (see Fig. 1). The following hypotheses were formulated based on the model:

Hypothesis 1: Ideal L2 self has a positive influence on grit.
Hypothesis 2: Ideal L2 self has a negative influence on boredom.
Hypothesis 3: Boredom has a negative influence on engagement.
Hypothesis 4: Grit has a positive influence on engagement.
Hypothesis 5: Ideal L2 self has a positive influence on engagement.
Hypothesis 6: Boredom mediates the relationship between the ideal L2 self and engagement.
Hypothesis 7: Grit mediates the relationship between the ideal L2 self and engagement.

Methodology

Participants

The convenience sampling method was adopted for the study to assess 466 university students from multiple majors in two public universities across Northern China. The sample

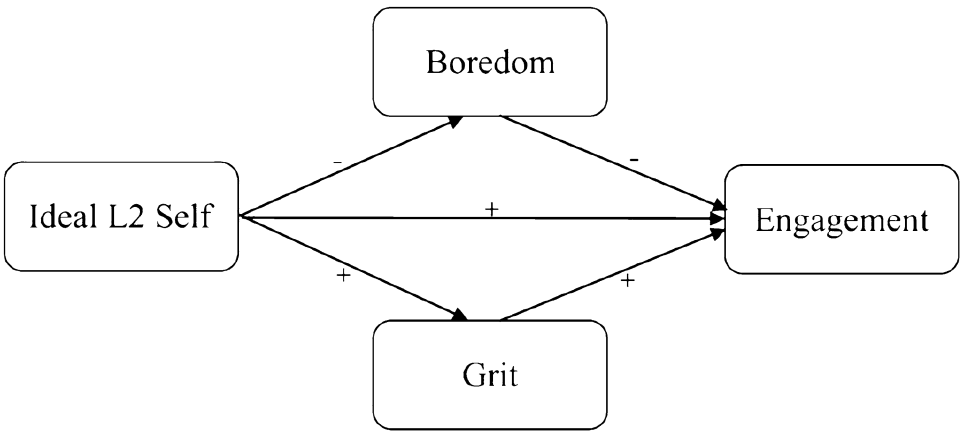

Fig. 1 Hypothetical model

comprised 314 (67.4%) female students and 152 (32.6%) male students, with ages ranging from 17 to 24 ($M = 19.53$, $SD = 1.563$), and distributed across 4 years of undergraduate study (36.5% freshman, 26.2% sophomore, 20.4% junior, 17.0% senior). As native Chinese native speakers, the participants learned English as a second language and had all passed the gaokao (National Higher Education Entrance Examination).

Instruments

Ideal L2 Self

The ideal L2 self of EFL learners was measured with the 8-item scale designed by Papi and Abdollahzadeh (2012). An example item of the construct is "I can imagine myself living abroad and using English effectively for communicating with the locals." The items were assessed using a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The reliability was excellent for the ideal L2 self-scale (Cronbach's $\alpha = 0.898$).

Grit

The EFL learner's grit was measured using the L2 Grit Scale validated by Teimouri et al. (2022), consisting of 9 items with two subscales: POE (5 items, e.g., "I put much time and effort into improving my English language weaknesses") and COI (4 items, e.g., "I was obsessed with learning English in the past but have lost interest recently"). The items were assessed using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). For this study, the reliability was satisfactory for the overall scale (Cronbach's $\alpha = 0.874$) and its subscales of POE (Cronbach's $\alpha = 0.848$) and COI (Cronbach's $\alpha = 0.808$).

Boredom

Learner's boredom in EFL learning was assessed using an 8-item scale validated by Wang and Liu (2022), a modified version of the Boredom Subscale in the Academic Emotion Questionnaire-Short Form designed by Bieleke et al. (2021). An example item of the construct is "The English material is so boring that I find myself daydreaming." A five-point Likert scale was applied to assess the items, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliability of the boredom scale in this study was excellent (Cronbach's $\alpha = 0.942$).

Engagement

The participants' engagement was measured utilizing a 17-item scale designed by Reeve (2013). It consists of four subscales: behavioral engagement (4 items, e.g., "I pay attention in English class"), agentic engagement (5 items, e.g., "I pay attention in English class"), cognitive engagement (4 items, e.g., "During English class, I express my preferences and opinions"), and emotional engagement (4 items, e.g., "When we work on something in English class, I feel interested"). The items were assessed using a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). For the present study, the reliability was excellent for the overall scale (Cronbach's $\alpha = 0.953$) and its subscales (Cronbach's $\alpha = 0.904$, 0.901, 0.898, and 0.870, respectively).

Data Collection

The questionnaire was translated into Chinese and then back-translated into English. Two experts in translation and applied linguistics were invited to review and examine the translated version of the original questionnaire to ensure its accuracy and quality. Before questionnaires were administered, participants were informed of the research objectives and assured that the data collected would remain confidential and used only for purposes specific to this research. According to the ethical guidelines, all respondents agreed to participate in the study voluntarily and were informed that their withdrawal was acceptable at any time. Questionnaires were distributed to respondents through an online crowdsourcing server used explicitly for survey studies, http://www.wjx.cn/, after consent from the respondents or respondents' guardians were secured. The questionnaires required approximately 10–15 min to complete. For the entire duration of the data collection process, the researchers strictly adhered to the ethical principles throughout the entire process.

Data Analysis

Prior to statistical analysis, the data were checked for outliers and missing values and processed in terms of normality tests. Next, confirmatory factor analysis (CFA) was employed to examine the reliability and validity of the questionnaires. Descriptive analysis and Pearson bivariate correlation analysis for the data were performed with SPSS 26.0. After that, structural equation modeling (SEM) was applied to test the hypothesized model. In these cases, CFA and SEM were conducted using AMOS 28.0. The estimation method used for SEM was maximum likelihood (ML) because, despite the presence of non-normally distributed variables in a large sample size, ML offers resistance to unbiased estimation (Hau & Marsh, 2004). The fit model satisfied the following criteria: Chi-square divided by degree of freedom (χ^2/df) < 3 (Tseng & Schmitt, 2008), Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) ≥ 0.90, and

Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square (SRMR) ≤ 0.08 (Kline, 2011). Finally, the mediation effects were examined with a bootstrap analysis of 5000 samples and bias-corrected 95% confidence intervals.

Results

No missing value was found among the 466 datasets after the data-screening process was completed with SPSS 26.0. Furthermore, no extreme outliers were discovered when boxplots were used, thus, confirming the final sample size for further analysis.

Confirmative Factor Analysis

The construct validity of the measurement models was examined by conducting CFA. Modifications were made to improve the model's fit, such as removing items with low factor loadings and creating correlational paths for error terms. As demonstrated in Tables 1 and 2, the final CFA model fit indices were confirmed to have reached an acceptable level.

Subsequently, the convergent and discriminant validity between the constructs were assessed (see Table 3), and the results confirmed that all criteria were satisfied. The descriptive statistics are shown in Table 4, which indicates that all skewness and kurtosis values are within acceptable normality ranges (Kline, 2011).

Table 1 CFA model fit results

Absolute fit measures	χ^2	*df*	χ^2/df	TLI	RMSEA	CFI	SRMR
Ideal L2 self	11.594	6	1.932	0.994	0.045	0.998	0.010
Grit	31.378	11	2.853	0.980	0.063	0.990	0.028
Boredom	49.440	17	2.908	0.983	0.064	0.989	0.019
Engagement	300.422	114	2.635	0.963	0.059	0.969	0.035
The overall model	1129.349	644	1.754	0.962	0.040	0.966	0.046

Table 2 Estimates for the measurement model

Scales	Sub-scales	Unstandardized factor loadings	SE	*t*	*p*	Standardized factor loadings	R^2
Grit	COI	1.000				0.876	0.767
	POE	0.958	0.078	12.356	***	0.808	0.653
Engagement	BE	1.000				0.870	0.757
	AE	0.834	0.055	15.087	***	0.826	0.682
	CE	0.879	0.053	16.459	***	0.911	0.830
	EE	0.938	0.056	16.880	***	0.917	0.841
Boredom	B1	1.000				0.785	0.616
	B2	1.071	0.037	28.778	***	0.834	0.695
	B3	1.135	0.055	20.495	***	0.842	0.708
	B4	1.136	0.056	20.470	***	0.845	0.714
	B5	1.138	0.054	21.078	***	0.868	0.754
	B6	1.148	0.055	21.059	***	0.868	0.754
	B7	1.076	0.062	17.375	***	0.746	0.556
	B8	1.059	0.055	19.216	***	0.755	0.570
Ideal L2 self	I2	1.003	0.044	22.631	***	0.858	0.736
	I3	1.127	0.048	23.565	***	0.912	0.833
	I4	0.970	0.044	21.857	***	0.794	0.631
	I6	1.014	0.046	22.186	***	0.863	0.744
	I7	1.058	0.045	23.416	***	0.894	0.800
	I8	1.000				0.809	0.655

BE, Behavioral Engagement; AE, Agentic Engagement; CE, Cognitive Engagement; EE, Emotional Engagement

***$p < 0.001$

Table 3 Validity of the constructs

Construct	Convergent validity		Discriminant validity			
	AVE	CR	Ideal L2 self	Grit	Boredom	Engagement
Ideal L2 self	0.733	0.943	**0.856**			
Grit	0.710	0.830	0.669***	**0.842**		
Boredom	0.671	0.942	−0.400***	−0.572***	**0.819**	
Engagement	0.778	0.933	0.486***	0.640***	−0.528***	**0.882**

AVE, average variance extracted; CR, composite reliability; numbers in bold fonts are square roots of the AVE; off diagonals are correlation statistics

***$p < 0.001$

Table 4 Descriptive statistics ($N = 466$)

Variable	Minimum	Maximum	Mean	SD	95% CI		Skewness	Kurtosis
Ideal L2 self	1.67	6.00	4.62	1.13	4.52	4.72	−0.507	−0.777
Grit	1.00	5.00	3.25	0.83	3.17	3.32	−0.165	−0.012
PE	1.00	5.00	3.17	0.89	3.09	3.25	−0.228	0.090
CI	1.00	5.00	3.35	0.97	3.26	3.44	−0.237	−0.367
Boredom	1.25	5.00	2.82	0.86	2.75	2.90	−0.565	−0.073
Engagement	1.29	6.29	4.26	0.99	4.17	4.35	−0.486	0.087
BE	1.00	7.00	4.51	1.19	4.40	4.62	−0.280	0.047
AE	1.00	6.80	3.98	1.11	3.88	4.08	−0.268	−0.128
CE	1.25	6.50	4.34	1.08	4.24	4.44	−0.524	−0.048
EE	1.00	6.25	4.29	1.11	4.19	4.39	−0.543	−0.086

BE, behavioral engagement; AE, agentic engagement; CE, cognitive engagement; EE, emotional engagement

In addition, the correlational analysis revealed significant correlations ($p < 0.001$) between the constructs. Ideal L2 self was found to be strongly associated with grit ($r = 0.669$), moderately linked to boredom ($r = -0.400$), and moderately related to engagement ($r = 0.486$). Boredom was identified to have a moderate connection with grit ($r = -0.572$) and engagement ($r = -0.528$). Grit was determined to be strongly linked with engagement ($r = 0.640$).

Structural Equation Modeling

The direct and indirect effects between the constructs of ideal L2 self, grit, boredom, and engagement were examined through SEM. As for the model fit, it is determined to be within acceptable levels ($\chi^2/df = 1.847$, TLI = 0.958, CFI = 0.961, SRMR = 0.073, RMSEA = 0.043). Table 5 presents the results of the path analysis, which indicated that ideal L2 self positively predicted grit ($\beta = 0.644$, $p < 0.001$) and negatively affected boredom ($\beta = -0.388$, $p < 0.001$). Meanwhile, engagement was positively predicted by girt ($\beta = 0.459$, $p < 0.001$) and negatively predicted by boredom ($\beta = -0.308$, $p < 0.001$). However, the path from ideal L2 self to engagement ($\beta = 0.070$, $p > 0.05$) was not significant. Thus, ideal L2 self did not predict engagement directly.

Table 5 Path coefficients of SEM

Path relationship	β	Weight	SE	CR	p
Ideal L2 self → grit	0.644	0.437	0.042	10.282	***
Ideal L2 self → boredom	−0.388	−0.275	0.035	−7.922	***
Ideal L2 self → engagement	0.070	0.066	0.057	1.156	0.248
Grit → engagement	0.459	0.637	0.110	5.790	***
Boredom → engagement	−0.308	−0.410	0.067	−6.143	***

***$p < 0.001$

Mediation Analysis

The mediation effect was examined with a bootstrap analysis of 5000 samples and bias-corrected 95% confidence intervals while controlling for age and gender. The results, as shown in Fig. 2 and Table 6, indicated that the total effects (0.485, $p < 0.001$, 95% CI 0.387–0.573) of ideal L2 self on engagement were significant, and the indirect effects of ideal L2 self on engagement mediated by grit (0.295, $p < 0.001$, 95% CI 0.194–0.424) and boredom (0.120, $p < 0.001$, 95% CI 0.076–0.176) were significant since no zero was included in the 95% confidence intervals. However, with zero included, the direct effects (0.070, $p > 0.05$, 95% CI

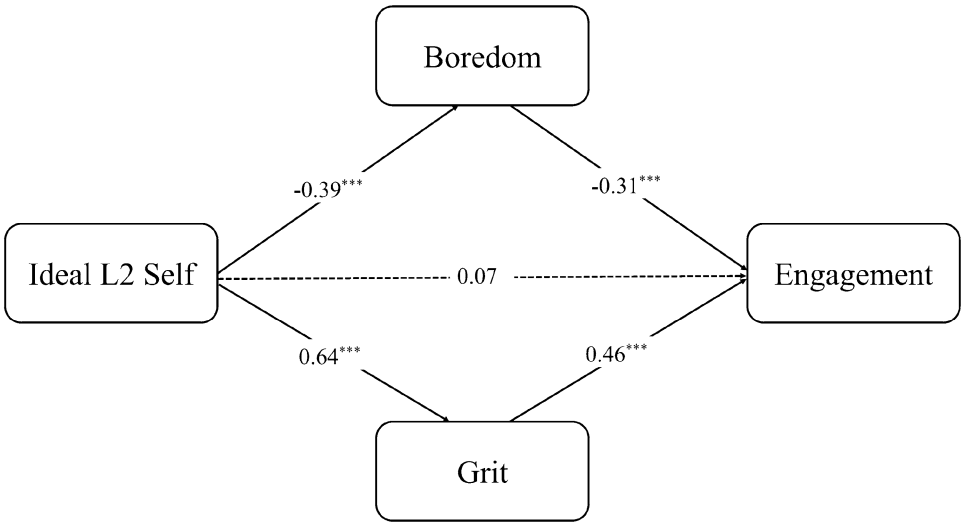

Fig. 2 The final mediation model

Table 6 Mediation effects (controlling for gender and age)

	Unstandardized estimate	Standardized estimate	Boot SE	Bias-corrected 95% CI	
				Lower	Upper
Total effects	0.455	0.485***	0.047	0.387	0.573
Direct effects	0.065	0.070	0.060	−0.048	0.187
Indirect effects	0.390	0.415***	0.057	0.316	0.538
Grit as the mediator	0.277	0.295***	0.057	0.194	0.424
Boredom as the mediator	0.112	0.120***	0.026	0.076	0.176

***$p < 0.001$

−0.048 to 0.187) from ideal L2 self to engagement failed to display significance. Overall, the results of the bootstrap analysis suggested that the relationship between ideal L2 self and engagement was fully mediated by girt and boredom.

Discussion

Based on the theoretical assumptions in PP and empirical findings, the present study intended to investigate the extent to which ideal L2 self predicted engagement among Chinese EFL learners and whether grit and boredom could act as mediators in this relationship. Regarding the proposed model and the formulated hypotheses for this study, several significant findings were generated. First, ideal L2 self was determined to positively and significantly predict grit, supporting Hypothesis 1, which aligned with the finding of Lan et al. (2021) who confirmed that ideal L2 self functioned as an "antecedent" of grit (p. 8). In other words, a well-defined ideal L2 self can help EFL learners stay motivated and committed to achieving their long-term language learning goals and realizing their desired identity as proficient L2 users (Lan et al., 2021). The obtained results further supported the evidence that indicated a positive relationship between ideal L2 self and grit, as established in previous research (Feng & Papi, 2020). The influence of ideal L2 self on grit can be interpreted within the framework of L2MSS (Dörnyei, 2009), which highlighted the function of "future self-guides" in EFL learners. As highlighted by Dörnyei (2005), the ideal L2 self focused on reducing the disparity between one's ideal self and capabilities, which necessitated having faith in the efficacy of diligence and perseverance. In this respect, students who are self-activated and envision their ideal image of themselves as successful L2 learners tend to set long-term goals for L2 learning, which gives rise to their consistent interest and persistence in language learning engagement.

Second, it was revealed that the ideal L2 self exerted a negative and significant effect on boredom, confirming Hypothesis 2. This finding was consistent with the prior research that reported the negative association between the ideal L2 self and boredom (Zhang, Saeedian, et al., 2022), who asserted that the ideal L2 self was negatively related to boredom in an EFL context. Specifically, EFL learners, with the guidance and direction of their ideal L2 self, could aid themselves in repressing and dealing with negative emotions like boredom. This result partly resonates with Csizér's

(2021) findings but with partial incongruence, in which both interrelated and uncorrelated links between the two constructs were found in its two sub-studies, respectively. Similarly, no association between the ideal L2 self and boredom was discovered in the research by Albert et al. (2022). One possible justification for the conflicted findings might be that the small number of observed variables measuring the two constructs contributed to the instability and conflicts of findings, given that this relationship was not examined as a focal point in their research.

Third, the data-driven path unveiled that boredom significantly predicted engagement, as not only was it a significant and negative predictor of engagement (supporting Hypothesis 3), but it acted as a mediator in the association between ideal L2 self and engagement (supporting Hypothesis 6). These findings are in line with previous studies (Derakhshan, Fathi, et al., 2022; Dewaele & Li, 2021; Liu et al., 2022; Nakamura et al., 2021; Tsang & Dewaele, 2023; Zhao & Yang, 2022) which reported that students' boredom led to their disengagement in learning activities. In other words, EFL learners with greater degrees of boredom may feel tired and distant from their envisioned future selves (Zhang, Saeedian, et al., 2022), which causes them to abandon seeking solutions to their problems. As a result, bored learners exert less effort in completing assigned activities, dedicate less time to studying, and are less devoted, resulting in restricted involvement in their learning process (Derakhshan, Fathi, et al., 2022). As reported by Macklem (2015), these students are more prone to refrain from participating in a given activity since they do not experience a sense of enjoyment or fulfillment, which contributes to disengagement behaviors. Inversely, students who are strongly motivated and directed by their imagined future selves as language learners in high L2 proficiency are inclined to experience more interest and less boredom in language learning, which can energize them to actively engage in L2 learning. The significant negative association between boredom and engagement can also be explained by disengagement as an element of boredom (Derakhshan, Fathi, et al., 2022; Pawlak, Zawodniak, et al., 2020b).

Fourth, based on the findings, grit not only positively predicted engagement directly (supporting Hypothesis 4), but mediated the ideal L2 self (supporting Hypothesis 7) to predict engagement significantly. The positive effect of grit on students' engagement confirmed in this research corroborates the findings of prior research (Datu et al., 2018; Hodge et al., 2018; Khajavy, 2021; Muenks et al., 2017; Steinmayr et al., 2018; Tang et al., 2019, 2022; Zhang et al., 2022a, 2022b). This finding implies that students who envision themselves as successful L2 learners are willing to persist in learning continuously with resilience and perseverance. They dare to overcome setbacks and challenges and seek solutions to problems by actively engaging in learning activities. As argued by Keegan (2017), grit played a critical role in supporting learners in making the best effort to further improve their L2 proficiency despite the confronted challenges. In addition, these students tend to maintain a consistent interest in L2 learning, which exerts an influence on their thoughts, performance, action, and emotion in the language classroom (Khajavy, 2021). In other words, grittier learners are more engaged, with both interest and effort contributing significantly to the link between the two constructs (Zhang et al., 2022a, 2022b).

Finally, the findings surprisingly indicated that EFL learners' ideal L2 self did not significantly and directly predict engagement, rejecting Hypothesis 5. The results failed to align with previous studies (Abdollahzadeh et al., 2022; Tsao et al., 2021; Wen, 2022; Zhang et al., 2020), which had shown a direct link between the ideal L2 self and engagement. These findings highlight the complex nature of the predictive mechanisms from the ideal L2 self to engagement, which may be mediated and moderated by various individual differences and contextual factors. In this study, it was observed that the factors of grit and boredom fully mediated the relationship between the ideal L2 self and engagement. This result implies that learners' motivation, represented by their ideal L2 self, undergoes a process of transformation into psychological factors, such as grit and boredom, which, in turn, play a crucial role in driving learners' engagement in their EFL learning endeavors.

Conclusions and Implications

Motivated by the PP framework, this study aimed to examine the extent to which ideal L2 self predicted engagement among Chinese EFL learners and whether grit and boredom could mediate this relationship. To the best of our knowledge, this is the first research to investigate the underlying mechanism among these four constructs in the context of SLA. The findings revealed that ideal L2 self predicted students' engagement indirectly through the collective mediation of grit and boredom. Nonetheless, ideal L2 self failed to directly affect engagement.

The present study provides several pedagogical implications. Considering the crucial influence of ideal L2 self on engagement as highlighted by this study, though indirect, EFL teachers should give careful consideration to how they may help their students create an ideal future self that uses L2 proficiently (Zhang, Saeedian, et al., 2022). It is recommended that teachers discuss the relevance of language skills with students in their desired fields or contexts, which may help learners understand how L2 learning connects to their personal interests, aspirations, and future goals. In terms of the mediating role of grit, as suggested by Keegan (2017), instructors can invite gritty

L2 learners as accomplished stimuli to share their inspiring experience in L2 learning, from whom students may attain conducive implications on dealing with setbacks and challenges encountered in language learning. Moreover, considering the significant role of boredom, as presented in this study, instructors should take into account learners' emotions while designing learning tasks. More specifically, suitable activities and materials should be introduced into the classrooms that are aligned with the students' present levels of language proficiency (Zhang, Saeedian, et al., 2022). Tasks that exceed the language proficiency threshold of students, in either difficulty or simplicity, will increase boredom. Also, appropriate and skillful use of humor is conducive for teachers to avoid learners' boredom and heighten their engagement (Dewaele et al., 2021). To promote students' engagement, varied and interactive instructional methods can be employed such as role plays, multimedia resources, group work, and discussions to cater to diverse learning preferences and make lessons engaging and interactive. In addition, instructors are advised to update the teaching strategies as time goes by and enrich pedagogical forms by designing interesting activities like game-based or AI-assisted teaching, through which students can acquire enjoyment and exhibit consistency in L2 learning, thereby authentically and fully engaging in the learning tasks.

This study is not without limitations. First, this study adopted a cross-sectional design, and a longitudinal research design could be applied to provide a more comprehensive understanding of the dynamics and mechanisms between variables. Second, the convenience sampling method was employed, and the sample was confined to two universities contexts which may potentially limit the generalizability of the findings. Therefore, future studies can apply varied sampling techniques to replicate this research across different regions and educational institutions to make the findings more generalizable to a broader population. In addition, the application of self-report instruments may increase the chance of social desirability and selection bias (Derakhshan, Fathi, et al., 2022), and thus, qualitative or mixed-methods design could be employed to conduct data triangulation in future research to offer a thorough understanding of the relationships among the variables. Finally, this research examined the relations among the four constructs in general without further exploring the links among the subconstructs. Future research could further investigate the four constructs more specifically by unfolding grit and engagement into POE, COI, behavioral engagement, emotional engagement, agentic engagement, and cognitive engagement.

In terms of suggestions for future research, it is valuable to obtain a greater understanding of how ideal L2 self, grit, and engagement can be fostered and what sustains them over time with the aid of teacher and student interviews. In addition, it is suggested that other personality traits and psychological factors (e.g., pride, hope, enjoyment, resilience, etc.) could also be taken into consideration to investigate their mediating effects between ideal L2 self and engagement from the perspective of positive psychology in SLA (Zhang & Yang, 2021). Moreover, it is still relatively unclear how these factors may contribute to specific aspects of L2 learning (e.g., L2 reading, L2 listening, L2 writing, etc.) which would be interesting topics worthy of investigation.

Data Availability The work was supported by Science Foundation of China University of Petroleum, Beijing (No.ZX20230108). The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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