Investigating the Relationship Among EFL Learners' Grit, Engagement and Academic Achievement in the Blended Learning Environment: A Structural Equation Model

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Abstract

The arrival of the post-pandemic era has facilitated the shift from online to blended learning, marking a "new normal" in educational field. Along with students' adversity in such blended learning settings, the role of personality traits, especially grit, in promoting language learning engagement and performance remains crucial yet under-explored. To address this issue, the current study aims to investigate the relationship among grit, engagement and academic achievement in a blended English learning context. 402 students from a Chinese university were enrolled in the study. They participated in a 16-week mandatory English curriculum delivered through a blended learning approach with online practice on learning management systems (LMSs) merged into face-to-face instruction. By conducting a structural equation model (SEM), the nexus among English as a foreign language (EFL) learners' grit, engagement and academic achievement was delved into. The research results indicated that: i) EFL learners' grit positively predicted their engagement; ii) EFL learners' engagement positively predicted their academic achievement; and iii) EFL learners' engagement partially mediated the link between grit and academic achievement. Based on the direct and indirect effects of grit on English learning performance, the current research provides pedagogical implications for college English teachers to utilize effective instructional methods, including setting sustainable learning goals for students, inspiring their learning interest and improving their awareness of persistence so as to increase learners' level of grit in blended EFL education.

Keywords: Grit, Engagement, Academic Achievement, EFL Learner, Blended Learning Environment

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Introduction

With the removal of physical restriction in the post-pandemic era, the reverse shuffle from online learning to blended delivery mode has become a new normal in higher education. However, such blended learning environment has posed a great threat to students, giving rise to their loss of belonging, decreased engagement and undesirable academic performance (Banegas, 2023). Since grit has been proved to be an important personality strength that contributes to EFL learners' classroom involvement and academic success in challenging situations (Zhao & Wang, 2023), it is worthwhile to investigate how students' grit impacts their engagement and academic achievement in a blended EFL learning context so as to help learners readapting to the post-pandemic educational landscape.

Academic grit, learning engagement and academic achievement comprise three essential and interrelated constructs in the current research. Grit is a non-cognitive personality trait defined by Duckworth et al. (2007) as perseverance and passion for long-term goals. Researchers conceptualized grit as a personality strength comprising both consistency of interests and perseverance of effort. While the former involves an individual's constancy of enthusiasm for ultimate purpose in difficult times, the latter refers to one's tendency to devote long-lasting energy despite failures and adversity (Wei et al., 2020). In the lens of educational psychology, engagement is defined as students' active investment of time, energy as well as effort in learning process (Zheng et al., 2023). The conceptual framework of learning engagement is multidimensional and flexible with different focus. From the traditional perspective, engagement is a three-faceted construct consisting of cognitive, behavioral and emotional dimensions (Fredricks et al., 2004). In recent years, scholars (e.g. Bergdahl et al., 2020) have developed a new four-component model of engagement, adding social involvement as a subtype. Considering that blended learning environment provides convenience for social interaction, this research employs the four-dimensional view of learning engagement. In addition, academic achievement represents students' cumulative performance and procedural endeavor in pursuit of learning goals in school settings (Mašková & Kučera; 2022).

The relationship among academic grit, engagement and academic achievement has long been investigated. For instance, Zhao & Wang (2023) have proved that grit is a facilitator of English learning performance among Chinese ethnic minority students. Sun & Shi (2023) have also confirmed that grittier learners dare to conquer difficulties and seek solutions for tough problems by actively engaging in language learning process. As stated by extant literature that grit is more closely linked to engagement than academic achievement (Tang et al., 2019), it is feasible to put forward the hypothesis that grit positively predicts academic achievement with engagement being the mediator. Although a great body of previous studies have explored the relationship among EFL learners' grit, engagement and academic achievement, their association within a blended learning context is under-investigated. To fill the gap, this research aims to confirm the hypothesized connection among the aforementioned three constructs in a blended English learning environment via structural equation modelling (SEM) approach.

1. Method

1.1. Participants

The present study was conducted in a telecommunication-featured university in mainland China. A random sample of 405 non-English major undergraduates (73.1% males), aging

from 19 to 22 years old, were involved. All participants were invited to a mandatory English curriculum lasting for an academic semester (16 weeks). Since the participants were considered as the first batch of students who reopened their school life after the pandemic lockdown, the course was delivered in classroom setting via a blended approach. Blended learning refers to a harmonious combination of face-to-face classroom components and appropriate use of technology in a synergistic manner (Al-Obaydi, 2013). Specifically, in the current research, it means that the learning tasks released on learning management systems (e.g. Moodle) were integrated into teachers' face-to-face instruction.

1.2. Instruments

Revised from Ebadi et al. (2018)'s and Luan (2020)'s well-developed surveys, two questionnaires were employed to measure students' academic grit and English learning engagement respectively. A five-point Likert Scale was adopted in both questionnaires from 1 'Strongly Disagreed' to 5 'Strongly Agreed'. The questionnaires were translated into Chinese, the native language of participants, for their better comprehension of scale items. Four-dimensional structure was used in the two questionnaires. While students' grit was gauged from aspects of trying hard to learn English (THLE), having interest in learning English (ILE), practicing a lot in order to learn English (PLE) and having goal for learning English (HGLE), their cognitive engagement (CE), emotional engagement (EE), behavioral engagement (BE) and social engagement (SE) were measured simultaneously in the English learning engagement questionnaire. In addition, participants' score of final-term examination in the aforementioned blended EFL curriculum served as the indicator of academic achievement.

1.3. Data Collection and Analysis

After removing the unqualified data, a total of 402 valid questionnaires were collected. The data analysis process involved three steps. First, we conducted a confirmatory factor analysis (CFA) to ensure the validity and reliability of both the questionnaires. Second, a structural equation model (SEM) was performed to confirm the hypothesized relationship among EFL learners' grit, learning engagement and academic achievement. Third, the bootstrap procedure was operated. With the help of SPSS 26.0 and AMOS 24.0 software, we attempted to explore whether grit positively predicted academic achievement with engagement playing a mediating role.

2. Findings and Discussion

2.1. Confirmatory Factor Analysis (CFA) of the Academic Grit Questionnaire and English Learning Engagement Questionnaire

Confirmatory factor analysis was operated to test the validity and reliability of the instruments. As for the academic grit questionnaire, the CFA results showed that the factor loading of items ranged from 0.74 to 0.84, all surpassing the required minimum of 0.5. Average variance extracted (AVE) value of each subscale exceeded 0.64, reaching the minimum requirement of 0.5. The composite reliability (CR) values fluctuated from 0.876 to 0.883, greater than the threshold of 0.70. Moreover, the Cronbach's alpha of each dimension (0.876-0.881) in the academic grit questionnaire met the critical value of 0.70. Therefore, the reliability of this questionnaire was confirmed. In addition, the fit indices of the survey were showed below: x^2/df =2.23, GFI = 0.93, IFI = 0.97, NFI = 0.95, RMSEA = 0.055. Based on

the Chi-square criterion and the fitting statistics, the academic grit questionnaire was proved to have good structural validity.

The English learning engagement questionnaire was tested in a similar approach. According to the CFA results, the factor loading of all items (0.66-0.84) surpassed the baseline of 0.5. While average variance extracted (AVE) values of four sub-dimensions ranged from 0.59 to 0.68, the composite reliability (CR) values were in an interval from 0.86 to 0.89, all meeting the minimum standard. Besides, the Cronbach's alpha of all dimensions (0.85-0.89) surpassed the threshold of 0.7. Considering the structural fit of this survey, the relevant statistics were as follow: x^2/df =2.09, GFI = 0.94, IFI = 0.97, NFI = 0.95, RMSEA = 0.052. Therefore, this questionnaire is of good reliability and validity, qualified to further measure EFL learners learning engagement.

2.2. Model Fit Analysis

The hypothesized structural equation model conducted in AMOS is demonstrated in Figure 1 below. This established model presented desirable structural fit with acceptable fitting statistics (x^2/df =1.95, IFI = 0.97, CFI = 0.94, NFI = 0.89, RMSEA = 0.049). Therefore, this model is eligible for the exploration of the complex relationship among grit, engagement and academic achievement.
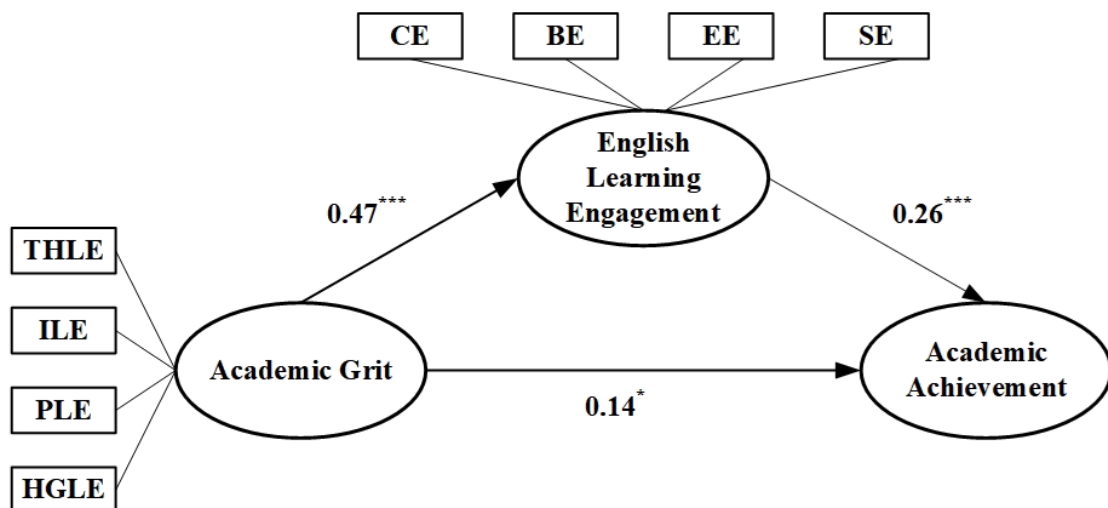
Note. *p < 0.05; ***p < 0.001
CE：cognitive engagement; BE: behavioral engagement; EE: emotional engagement; SE: social engagement; THLE: trying hard to learn English; ILE: having interest in learning English; PLE: practicing a lot in order to learn English; HGLE: having goal for learning English

Figure 1: The hypothesized model of the relationship among grit, engagement and academic achievement

2.3. Path Analysis and the Mediating Effect

As shown in Table 1, grit positively predicts academic achievement in both direct and indirect ways. On one hand, grit functions as the direct antecedent of academic achievement with a path coefficient of 0.142 ($p < 0.05$). On the other hand, 95% confidence interval excludes zero, indicating that grit also exerts positive effect on academic achievement through the mediating role of learning engagement. That is, grit positively predicts English learning engagement ($\beta = 0.467$, $p < 0.001$), which in turn, positively impacts academic

achievement (β = 0.257, p < 0.001). Hence, the indirect path of grit→engagement→academic achievement is confirmed (β = 0.120, p < 0.05), with engagement partially mediating the link between grit and academic achievement at a 46% level.

Model pathways	β	95% CI
Direct effect		
Academic grit→ English learning engagement	0.467***	(0.318, 0.602)
English learning engagement→Academic achievement	0.257***	(0.132, 0.372)
Academic grit→ Academic achievement	0.142*	(0.017,0.277)
Indirect effect		
Academic grit→(English learning engagement)→ Academic achievement	0.120*	(0.067,0.203)

Note. *p < 0.05; ***p < 0.001, β: standardized path coefficient

Table 1: The model pathways of direct and indirect effects
through 1000 times of bootstrapping

Therefore, by conducting a structural equation model, the current study has confirmed that academic grit serves as a facilitator for both engagement and academic achievement in a technology-enhanced learning environment, consistent with a myriad of previous studies (e.g. McClendon et al., 2017). According to Zhao et al (2023)'s findings, grittier students are self-regulated learners who are more proficient in deep learning and modifying cognitive strategies when encountering novel situations or meeting difficulties. To conquering obstacles, they devote considerable time, effort and passion engaging in the learning tasks and practicing their skills (Yoon & Kang, 2018). That might be a powerful explanation for grit's predicative role in engagement and academic achievement in the critical time of post COVID.

3. Conclusion

The current research probed into the association among EFL learners' grit, learning engagement and academic achievement in a blended English learning environment in the post-pandemic era. First, the internal framework of grit and learning engagement were conceptualized. Second, we conducted confirmatory factor analysis to ensure the reliability and validity of the revised questionnaires. Third, the hypothesized relationship among grit, engagement and academic achievement were established and explored by structural equation modelling. The results showed that grit positively predicted academic achievement with learning engagement playing the partially mediated role in the blended English learning context.

3.1. Pedagogical Implications

Pedagogical implications are also given in the present study. Grit is a malleable construct which can be developed through intelligent practice (Hellman & Gwinn, 2017). Therefore, English instructors in universities should place more emphasis on grit cultivation and employ

delicate teaching strategies, such as setting achievable goals, encouraging perseverance in long-term programs and designing interesting class activities (Guo et al., 2023) so as to help EFL learners' navigating through the disengagement and decreased learning performance aroused in the infinite post-pandemic era.

3.2. Limitations and Future Work

Despite implications, several limitations of this study need to be further clarified. First, the participants of this study were all enrolled from a Chinese telecommunication-focused university, which may limit the generalizability of the findings. Considering that individual culture may present weaker connection between grit and learning performance compared to collectivist culture (Zhao et al., 2023), the follow-up research will adopt a larger sample involving students from different cultural backgrounds. Second, the measurement of all constructs relies on self-reported survey. The further study is encouraged to utilize various methods, such as eye tracking, learning analytics data and semi-structural interviews (Kwon & Yu, 2023) to capture learners' engagement in a more accurate way.

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