



Examining the relationships among basic psychological needs, grit subcomponents, and academic self-efficacy in Vietnamese foreign language learners: A PLS-SEM

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ABSTRACT

This study examines the relationships among subcomponents of Basic Psychological Needs (BPN), grit, and academic self-efficacy in Vietnamese foreign language learners within a collectivist cultural context. Data were collected from 372 English major students at two universities in Vietnam and analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.1 software. The findings reveal that perseverance of effort significantly predicts academic self-efficacy ($\beta = 0.48, p < 0.001$) and is positively influenced by all three BPN components: autonomy ($\beta = 0.147, p = 0.047$), competence ($\beta = 0.287, p = 0.001$), and relatedness ($\beta = 0.352, p = 0.001$). Unexpectedly, consistency of interest shows a significant negative relationship with both relatedness ($\beta = -0.273, p = 0.032$) and academic self-efficacy ($\beta = -0.271, p = 0.005$), while being positively associated with competence ($\beta = 0.348, p = 0.002$). These counterintuitive findings are explained through the lens of Self-Determination Theory and Vietnamese collectivist culture, where social harmony and extrinsic motivation may outweigh consistency in personal interests. This research contributes to the literature by demonstrating that grit subcomponents function differently in collectivist settings and that BPN satisfaction plays a differentiated role in fostering perseverance versus consistency. Practically, the findings suggest that educators in Vietnam should prioritize building students' sense of competence and relatedness to enhance perseverance, while recognizing that interest flexibility may be culturally adaptive rather than detrimental to academic self-efficacy.

KEYWORDS

Basic psychological need, grit, academic self-efficacy, PLS-SEM, self-determination theory, perseverance of effort, consistency of interest, Vietnamese students, foreign language learners

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INTRODUCTION

In education, particularly foreign language learning, sustained effort, perseverance, motivation, and self-assurance remain critical for student success. This study examines how subcomponents of basic psychological needs (autonomy, competence, relatedness) from Self-Determination Theory influence grit subcomponents (perseverance of effort, consistency of interest), which in turn predict academic self-efficacy—testing indirect effects

only through grit mediation, with no direct BPN-self-efficacy paths. Specifically, the research addresses two questions:

- (1) What is the impact of BPN subcomponents on each grit subcomponent?
- (2) What is the impact of grit subcomponents on academic self-efficacy?

While prior Western studies link BPN satisfaction to enhanced grit and self-efficacy (Bandura, 1986; Deci & Ryan, 2000; Duckworth et al., 2007), recent Asian research reveals contextual nuances but overlooks subcomponent interactions. For instance, Chinese EFL students show grit predicting well-being alongside self-efficacy, yet without dissecting perseverance versus consistency. In Vietnam, studies explore grit determinants in English learning or EFL motivation via self-regulated systems, but none integrate BPN subcomponents with grit facets to explain self-efficacy in collectivist settings.

Vietnam's collectivist culture—prioritizing group harmony, relatedness, and extrinsic goals over individual consistency—amplifies this gap, as students may favor perseverance for social approval while de-emphasizing sustained personal interests. English majors here face grammar-focused curricula and job pressures, where relatedness (peer/teacher bonds) drives persistence more than autonomy. Data from 372 Vietnamese English students at two universities, analyzed via PLS-SEM, fill this void by revealing culturally nuanced paths.

Theoretically, findings extend SDT and grit theory to non-Western contexts; practically, they guide educators in fostering competence and relatedness for perseverance.

LITERATURE REVIEW

Self-Determination Theory

Autonomy, competence, and relatedness are three components of self-determination theory, formulated by psychologists Edward L. Deci and Richard M. Ryan in the 1970s and 1980s. They posited that every individual possesses three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). When these psychological needs are fulfilled, internal drive, discipline, and mental health will enhance.

The necessity for competence pertains to an individual's desire to attain proficiency and efficacy in their professional endeavors (Deci & Ryan, 1985). The aspiration for self-improvement and mastery of skills or problem-solving capabilities is seen as a fundamental human need. According to Deci and Ryan, this desire serves as a significant motivator for individuals to seek and surmount challenges that align with their competencies. Meeting this demand results in numerous beneficial consequences, including enhanced academic achievement (Niemi & Ryan, 2009), increased engagement (La Guardia, 2010), and elevated psychological well-being (Sheldon & Elliot, 1999).

The need for relatedness signifies the desire to connect, engage with people, and both provide and receive care (Deci & Ryan, 1985). This is the primary component that assists individuals in integrating and adapting to their environment by embracing societal norms

and practices. If this desire is unmet, it will result in numerous adverse psychological effects, including loneliness, anxiety, diminished motivation, and decreased attention capacity (Baumeister & Leary, 1995). Furrer and Skinner (2003) discovered that a sense of connection with peers and educators is a consistent predictor of children's conduct and emotions in an academic setting. Likewise, the findings of Patrick et al. (2007) indicate a strong link between relatedness and elevated academic desire and engagement.

Grit

Grit is a psychological construct characterized by sustained tenacity and persistence over an extended duration to attain a goal (Duckworth et al., 2007). This definition was proposed by Angela Duckworth in 2007 and has since garnered the interest of numerous experts globally. From observation, she discerned that certain persons have attained significant achievement, not alone due to their talents, but also via sustained effort and endurance over an extended duration. Grit comprises two components: perseverance of effort and consistency of interest. Perseverance refers to the commitment to pursue a long-term objective despite challenges, setbacks, or stagnation, whereas consistency of interest pertains to maintaining concentration on a goal over an extended duration without deviation.

Grit, as a subsequently evolved construct, is frequently juxtaposed with other psychological categories. Grit, while associated with conscientiousness—one of the Big Five personality traits that includes diligence and dependability—differs in that it emphasizes long-term perseverance rather than short-term effort (Duckworth & Quinn, 2009). Grit contrasts with self-control in that self-control pertains to resisting immediate temptations, whereas grit signifies a sustained effort and dedication over the long haul. The notion of grit is associated with the Positive Psychology paradigm, highlighting human strengths and attributes that facilitate personal development (Seligman & Csikszentmihalyi, 2000), as well as high achievement and well-being (Duckworth et al., 2007).

Grit has been demonstrated to predict academic success across multiple educational levels. Rimfeld et al. (2016) demonstrate that grit can independently forecast academic success, irrespective of IQ and other conventional attributes. Moreover, Eskreis-Winkler et al. (2014) discovered that grit can forecast the likelihood of high school pupils either dropping out or persisting in their education. Alan et al. (2019) conducted a randomized educational intervention in primary schools, revealing that grit is adjustable and may be fostered in the classroom, resulting in academic enhancement.

Moreover, numerous studies demonstrate the correlation between grit and various favorable outcomes, including enhanced work engagement (Suzuki et al., 2015), elevated job retention (Eskreis-Winkler et al., 2014), professional achievement (Ion et al., 2017), entrepreneurial success (Mueller et al., 2017), increased life satisfaction, and diminished levels of depression (Vainio & Daukantaitė, 2016).

Academic Self-efficacy

Academic self-efficacy originates from Bandura's Social Cognitive Theory. This paradigm underscores the interplay among individual variables, behavior, and environmental influences (Bandura, 1986). Self-efficacy influences an individual's emotions, cognition, motivation, and behavior. Bandura (1997) posits that self-efficacy influences activity selection, effort and perseverance, cognitive processes, and emotional responses. An individual will select tasks that he or she perceives as within their competence and capability. Individuals with elevated self-confidence exert greater effort and exhibit enhanced resilience. This confidence also influences stress levels and susceptibility to depression. He identified four primary determinants of self-efficacy: mastery experience, vicarious experiences, verbal persuasion, and physiological and affective states. Success or failure, the observation of others' achievements, encouragement, and both good and negative emotions all influence an individual's self-confidence.

A multitude of studies have demonstrated a correlation between academic self-efficacy and learning results. Pajares (1996) demonstrated that confidence can predict learning results in mathematics, even when accounting for prior accomplishment and cognitive capacity. Likewise, self-efficacy influences personal behavioral self-regulation methods (Pintrich, 2004; Wolters & Hussain, 2015; Zimmerman et al., 1992), including time management (Wolters & Hussain, 2015), thereby impacting academic performance (Pintrich, 2004). Factors influencing self-efficacy encompass personal elements (including prior experiences (Bandura, 1997), goal orientation (Yeager & Dweck, 2012), as well as social and contextual influences such as teacher support (Furrer & Skinner, 2003) and peer impact (Wentzel, 1998). All these elements influence the enhancement or diminishment of an individual's self-confidence.

Table 1: Summary of previous related research

Study (Year)	Context/Sample	Key Variables & Model	Main Findings	Limitations/Gaps Relevant to Your Study
Deci & Ryan (2000)	General/Western theory	BPN (autonomy, competence, relatedness) → Motivation/Engagement	BPN satisfaction boosts intrinsic motivation & persistence	No grit/self-efficacy links; lacks subcomponents in L2/Asian contexts
Duckworth et al. (2007)	US adults/students (n=1,218)	Grit (holistic: perseverance + consistency) → Achievement	Grit predicts success beyond IQ/talent (r=0.18-0.34)	Holistic grit measure; Western individualistic focus ignores cultural mediation

Marcelo-Torres et al. (2024)	Lima university students	BPN subcomponents → Grit subcomponents (PE/CI)	All BPN → PE (+); competence/relatedness → CI (-)	Non-Asian; no self-efficacy outcome; contradictory CI paths unexplained
Elahi Shirvan & Alamer (2024)	Iranian EFL learners	BPN → Grit subcomponents	All BPN → PE (+); only autonomy → CI (+)	Middle Eastern; no self-efficacy; calls for cultural replication
Ngo (2015)	Vietnamese EFL students	BPN → Motivation (esp. relatedness)	Relatedness strongest motivator in collectivist Vietnam	No grit/self-efficacy; ignores subcomponents
Li et al., (2024)	Chinese EFL undergraduates (n=1732)	BPN → Self-efficacy	BPN & self-efficacy predict outcomes (resilience)	Asian but no grit subcomponent
Datu et al., (2016)	Filipino students (n=826)	Grit subcomponents → Self-efficacy/well-being	PE → self-efficacy (+); CI insignificant/negative	Collectivist Asia; no BPN input; highlights cultural flexibility in CI
Alamer (2022)	L2 learners (general)	BPN → Effort/vocabulary	BPN drives L2 persistence	Scale development; no grit/self-efficacy mediation

Source: Authors' collection

HYPOTHESIZED DEVELOPMENT AND CONCEPTUAL MODEL

Basic psychological needs and grit

Despite being well-researched constructs, the direct interaction among the needs for competence, relatedness, and grit remains a relatively unexamined area, with only a few recent studies addressing the direct connections between basic psychological needs (BPNs). It means that we are probably lacking empirical evidence to identify the driver of the persistence and tenacity of a person. Theoretically, regarding the relationship between autonomy and consistency of interest, we might reference the Self-Determination Theory (SDT) by Deci and Ryan (2000), which asserts that persons who experience autonomy are more inclined to internalize their values and objectives. This internalization is anticipated to result in a heightened dedication and consistency in pursuing self-endorsed hobbies. Autonomy is theoretically favorably correlated with the constancy of interest.

Likewise, the need for competence entails the pursuit of mastery in a specific skill or body of information. When an individual perceives themselves as competent, they are inclined to exert greater effort and persistence in completing the activity (Ryan & Deci, 2017). The research conducted by Niemiec and Ryan (2009) indicates that students who

perceive themselves as competent are inclined to establish long-term objectives aimed at mastering and enhancing their abilities and knowledge, rather than focusing on short-term outcomes, and demonstrate increased engagement and perseverance (La Guardia, 2010). Consequently, it is plausible to anticipate that competence correlates favorably with consistency. Nevertheless, recent experimental investigations have yielded contrary outcomes. The research conducted by Marcelo-Torres et al. (2024) on university students in Lima revealed a substantial positive correlation between basic psychological needs (BPN) and grit; however, the link among the components of BPN and grit varies. For instance, competence satisfaction is inversely correlated with consistency, and relatedness satisfaction is similarly negatively associated with consistency. All three components of BPN exhibit a favorable correlation with perseverance. The study by Elahi Shirvan and Alamer (2024) yielded analogous results, indicating that all three BPN characteristics positively influenced PE, but only autonomy exhibited a positive correlation with CI.

Nonetheless, these studies are conducted at various universities, and it is plausible that the outcomes may change due to contextual factors and cultural disparities. We are still cautious when hypothesize the link between subcomponents of grit and subcomponents of BNP:

From the above analysis, the following hypothesis is proposed:

H1: The need for autonomy is positively correlated with the consistency of interest.

H2: The need for autonomy is positively correlated with perseverance of effort.

H3: The need for competence is positively correlated with perseverance of effort.

H4: The need for competence is positively correlated with consistency of interest.

Positive social relationships can enhance and assist individuals in sustaining interest in long-term goals through encouragement and sharing of shared values (Wentzel, 1998). Meeting the criterion of relatedness supplies individuals with the emotional resources to sustain interest over the long term and achieve goals (Ryan & Deci, 2000).

From the above analysis, the following hypothesis is proposed:

H5: The need for relatedness is positively correlated with consistency of interest.

H6: The need for relatedness is positively correlated with perseverance of effort.

Grit and academic self-efficacy

Despite several studies on grit and academic self-efficacy, the interplay between these two constructs is hardly acknowledged in the context of grit's influence on self-efficacy. Bandura's Social Cognitive Theory (1997) posits that mastery experiences are the most significant determinants of self-efficacy. Consequently, resilient individuals who endure

difficulties are more inclined to attain mastery experiences, thus enhancing their self-confidence. Moreover, tenacious individuals may possess a heightened level of self-efficacy. Therefore, we have the following hypotheses:

H7: Perseverance is positively associated with academic self-efficacy.

H8: Consistency of interest is positively associated with academic self-efficacy.

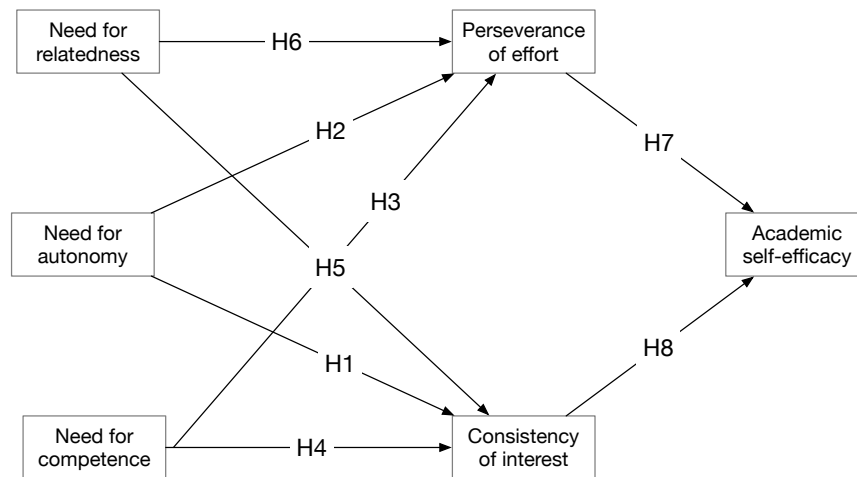


Figure 1: Hypothesis model

METHODOLOGY

1. Participants and procedures

A stratified convenience sampling strategy was used to achieve proportional representation while prioritizing accessibility in an educational setting. The population (4,300 English majors across two universities) was stratified by institution and major to reflect enrollment ratios: University A (Pedagogy: 40%, Linguistics: 20%); University B (Pedagogy: 25%, Linguistics: 15%). Convenience elements involved selecting intact classes from each stratum during scheduled sessions, as random sampling was infeasible due to gatekeeper approvals and class sizes (20-60 students). This hybrid approach balances stratification's subgroup accuracy (reducing bias) with convenience's practicality (high response, low cost), common in EFL surveys where full randomization disrupts classes.

From 400 distributed (93% response), 372 valid cases post-cleaning exceed PLS-SEM guidelines: 10-times rule (Hair et al., 2021); power analysis: >99% power for $\beta=0.20$ (the model's paths 0.15-0.48), $R^2=0.25+$, $\alpha=0.05$ (G*Power/PLS app); model complexity: 6 LVs/25 indicators suit $n=200-500$; 372 handles small effects/non-normality.; response adequacy: >10:1 indicator: functional form ratio; VIF<5 confirmed no multicollinearity issues.

Table 2: Demographic features of the participants

Demographic	Category	n	%
Gender	Female	260	69.9
	Male	112	30.1
Age (years)	18	45	12.1
	19	120	32.3
	20	130	34.9
	21	55	14.8
	22+	22	5.9
	<i>M (SD)</i>	<i>20.4 (1.2)</i>	
Year of Study	1st	85	22.8
	2nd	115	30.9
	3rd	105	28.2
	4th	67	18.0
Major	Pedagogy	200	53.8
	Linguistics	172	46.2

Source: Authors' collection

2. Instrumentation

2.1 Instruments

Three validated scales measured constructs, selected for L2/EFL specificity, prior reliability ($\alpha>0.80$), and subcomponent coverage aligning with hypotheses.

Grit Scale (Perseverance of Effort [PE]/Consistency of Interest [CI]): Combined Duckworth et al. (2007) Grit-S (8 items, $\alpha=0.82$) with Clark and Malecki (2019) Academic Grit Scale (10 items, school-specific, $\alpha=0.90+$). *This helps to capture dual facets in academic/L2 contexts; superior to holistic grit for mediation tests. 12 items total (6 PE, 6 CI; 5-pt Likert: 1=Not like me, 5=Very much like me). Examples: "Even when I can do something more fun, I give language learning tasks my best effort" (PE); "I become interested in new pursuits other than language learning" (CI-R).*

Academic Self-Efficacy Scale (ASE): Nielsen et al. (2018) 5 items, $\alpha=0.81-0.96$, which concerns university-level academic mastery beliefs; bandura-grounded, predictive of persistence. Example of a question "I know I can stick to my goals in my field of study."

Basic Psychological Needs of Second Language Scale (BPN-L2): Alamer (2022); 12 items: 4 autonomy/competence/relatedness, $\alpha > 0.85$). This approach is justified as L2-tailored SDT measure and it outperforms general BPN in EFL with 5-pt Likert. Examples: "I feel capable of learning English" (competence); "I feel connected to my peers/instructors" (relatedness).

Adaptation/Validation: Scales English-original; Vietnamese translated via committee back-translation (3 bilingual experts, discrepancies resolved). Pilot-tested (n=20 English majors): EFA confirmed factors (KMO=0.85, loadings>0.60). Main study CFA (SmartPLS): Retained all (loadings 0.58-0.87; CR=0.73-0.89; AVE=0.51-0.68>0.50).

2.2. Evaluate the reliability

Table 3. Reliability criteria

Construct	Indicator	Loading
Basic Psychological Needs		
Need for Autonomy	AU1	0.609
	AU2	0.661
	AU3	0.754
	AU4	0.818
Need for Relatedness	RE1	0.845
	RE2	0.845
	RE3	0.728
	RE4	0.851
Need for Competence	COM1	0.799
	COM2	0.776
	COM3	0.842
	COM4	0.670
Grit		
Consistency of Interest	CI1	0.654
	CI2	0.803
	CI3	0.727
	CI4	0.767
	CI5	0.827
	CI6	0.775
Perseverance of Effort	PE1	0.749
	PE2	0.740

Construct	Indicator	Loading
	PE3	0.805
	PE4	0.830
	PE5	0.834
	PE6	0.824
Academic Self-Efficacy	EF1	0.846
	EF2	0.824
	EF3	0.582*
	EF4	0.870
	EF5	0.843

Note: All loadings exceed the threshold of 0.60 recommended for exploratory research (Hair et al., 2021). Loadings >0.708 (bolded if desired) indicate constructs explain >50% of indicator variance. *Retained despite loading <0.70 due to satisfactory construct-level reliability (see Table 2).

Source: Processed by SmartPLS 4

Table 4: Correlation matrix

	1. Au	2. CI	3. Com	4. EF	5. Per	6. Re
1. Au	—					
2. CI	-0.162	—				
3. Com	0.498***	0.081	—			
4. EF	0.465***	-0.336***	0.450***	—		
5. Per	0.488***	-0.135	0.589***	0.516***	—	
6. Re	0.564***	-0.150	0.648***	0.494***	0.621***	—

Note: ***p < 0.01 (two-tailed). Au=Autonomy; CI=Consistency of Interest; Com=Competence; EF=Academic Self-Efficacy; Per=Perseverance; Re=Relatedness. Bivariate correlations computed via PLS bootstrapping (20,000 resamples).

The bivariate correlation matrix (Table 4) shows negative associations between relatedness and consistency of interest ($r=-0.150$), and between consistency of interest and self-efficacy ($r=-0.336$, $p<0.01$), ruling out suppressor effects or multicollinearity artifacts.

Source: Processed by SmartPLS 4

Table 5. Construct Reliability and Convergent Validity

Construct	No. of Items	Cronbach's Alpha (CA)	Composite Reliability (CR/rho_a)	Average Variance Extracted (AVE)
Basic Psychological Needs				
Need for Autonomy	4	0.685	0.727	0.511
Need for Relatedness	4	0.835	0.842	0.670
Need for Competence	4	0.775	0.781	0.600
Grit				
Consistency of Interest	6	0.855	0.871	0.579
Perseverance of Effort	6	0.885	0.887	0.637
Academic Self-Efficacy	5	0.855	0.880	0.640

Note: Cronbach's alpha: 0.60-0.70 = acceptable, 0.70-0.90 = good (Hair et al., 2021). CR/rho_a values >0.70 indicate satisfactory internal consistency. AVE values >0.50 confirm convergent validity (constructs explain >50% of indicator variance). All constructs meet recommended thresholds.

Source: Processed by SmartPLS 4.1

The table above presents the loadings of each indicator on the latent constructs within the model. A load factor exceeding 0.708 is deemed satisfactory, as it indicates that the construct accounts for over 50% of the variance in the indicators. The table indicates that the majority of latent variables have strong indications. The author retains indicators AU1, AU2, CI1, and EF3, with values ranging from 0.6 to 0.7, for further examination due to specific justifications. Researchers frequently see lower outer loadings (< 0.70) in social science research, particularly when employing recently established scales (Hulland, 1999). Secondly, as stated by Hair et al. (2021), for indications exhibiting a load factor below 0.7, the subsequent actions must be undertaken. Initially, evaluate the internal consistency reliability and convergent validity of the latent variable. If the measurement conditions of the latent variable satisfy the recommended thresholds, the reflective indicator is preserved. As we can see from the following analysis, values of CA, CR and AVE meet the requirement; as a result, all the reflective indicators are kept.

From this table, we also can see the indications for evaluating the reliability and convergence value of latent variables within the model. Indicators encompass Cronbach's alpha, composite reliability (rhoA), and average variance extracted (AVE). Hair et al. (2021) state that a Cronbach's alpha ranging from 0.60 to 0.70 is deemed acceptable, while a range of 0.70 to 0.90 is regarded as good. This statement indicates that the constructs exhibit strong Cronbach's alpha and rhoA indications.

The Average Variance Extracted (AVE) index quantifies the convergence of indicators to the latent variable, with an AVE value exceeding 0.5 signifying that the latent variable accounts for at least 50% of the variance of the indicators, hence satisfying the convergence criterion. According to the findings, all variables met the necessary threshold: AU (0.542),

COM (0.621), RE (0.680), PER (0.666), CI (0.560), and EF (0.584). The RE and PER variables exhibit the highest AVE, signifying strong convergence among their indicators. Simultaneously, AU and CI exhibit reduced AVE yet still conform to the requisite criterion. Overall, these results indicate that the scales fulfill the criteria for convergent validity. Following an evaluation of internal consistency reliability and convergence validity, the indicators AU1, AU2, CI1, and EF3 are preserved due to good AVE, Cronbach's alpha, and composite reliability metrics.

2.3 Evaluate the discriminant validity

Table 6. Collinearity statistics (VIF)

Construct/ Relationship	Outer VIF range	Inner VIF
Need of Autonomy	1.220 - 1.413	
Need of Relatedness	1.451 - 2.134	
Need of competence	1.320 - 1.871	
Consistency of interest	1.543 - 2.210	
Perseverance of effort	1.717 - 2.640	
Academic self-efficacy	1.301 - 2.247	
Au -> CI		1.534
Au -> Per		1.534
CI -> EF		1.019
Com -> CI		1.804
Com -> Per		1.804
Per -> EF		1.019
Re -> CI		1.99
Re -> Per		1.99

Source: Processed by SmartPLS 4

We utilize the VIF index (presented in Table 2) to evaluate potential multicollinearity issues among the constructs in the model, and we observed that all values are below 5. To confirm that the constructs in the study are conceptually distinct, it is essential to assess the discriminant validity. Employing Fornell-Larcker's differentiation assessment approach, the correlation coefficients among the variables are less than the square root of the average variance extracted (AVE), as indicated by the diagonal values in the table. Consequently, based on this criterion, all variables in the model guarantee differentiation value. Nevertheless, for constructs with significant variability in indicator loadings, the assessment outcomes using this criterion are neither effective nor reliable for evaluating discriminant validity (Henseler et al., 2015). Upon performing analysis with the HTMT technique (heterotrait-monotrait ratio) as recommended by Henseler et al. (2015), the outcomes are

presented in Table 3. As can be seen, all values are below the stringent threshold of 0.85, signifying that all constructs satisfy this criterion.

Table 7. Discriminant validity

Fornell-larcker criterion						
	Au	CI	Com	EF	Per	Re
Au	0.715					
CI	-0.162	0.761				
Com	0.498	0.081	0.774			
EF	0.465	-0.336	0.45	0.8		
Per	0.488	-0.135	0.589	0.516	0.798	
Re	0.564	-0.15	0.648	0.494	0.621	0.819
Heterotrait-monotrait ratio (HTMT) ratio						
	Au	CI	Com	EF	Per	Re
Au						
CI	0.22					
Com	0.685	0.131				
EF	0.585	0.369	0.557			
Per	0.601	0.164	0.702	0.585		
Re	0.706	0.176	0.806	0.584	0.716	

Source: Processed by SmartPLS 4

RESULTS

PLS-SEM was chosen for four reasons: (1) complex predictive model with 6 latent variables/25 indicators, (2) exploratory subcomponent relationships with limited prior theory in Vietnamese contexts, (3) non-normal distributions tolerated (Sarstedt & Mooi, 2014), (4) small-to-medium sample optimization (n=372). SmartPLS 4.1 employed path weighting scheme, 20,000 bootstrap resamples. Assumptions: VIF<5 confirmed no multicollinearity (Table 6). Common method bias assessed via Harman's single-factor test (<50%, acceptable) and HTMT<0.85 (Table 7).

Bootstrapping results showing path coefficients and p-value

Table 8. Path coefficient and p-values

	β - path coefficient	T statistics	P values	Remark
Au -> CI (H1)	-0.181	1.638	0.101	Unsupported
Au -> Per (H2)	0.147	1.985	0.047	Supported
Com -> Per (H3)	0.287	3.202	0.001	Supported
Com -> CI (H4)	0.348	3.117	0.002	Supported
Re -> CI (H5)	-0.273	2.151	0.032	Unsupported
Re -> Per (H6)	0.352	3.432	0.001	Supported
Per -> EF (H7)	0.48	4.538	0	Supported
CI -> EF (H8)	-0.271	2.79	0.005	Unsupported

Source: Processed by SmartPLS 4

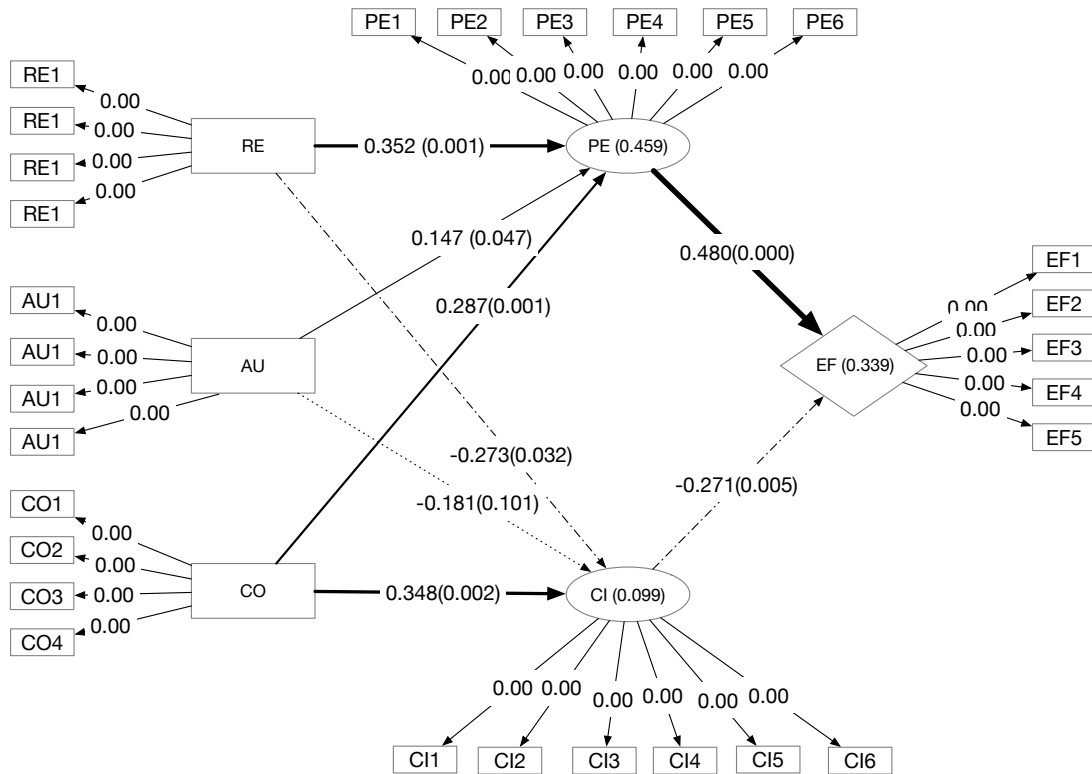


Figure 2 Bootstrapping results showing path coefficients, p-values and R-squared of constructs

Constructs (Boxes):

- Rectangular boxes: Exogenous (independent) variables
 - RE = Relatedness (Need for Relatedness)
 - AU = Autonomy (Need for Autonomy)
 - CO = Competence (Need for Competence)
- Elliptic boxes: Endogenous (dependent) variables (Grit) with R^2 values
 - PE (0.459) = Perseverance of Effort; $R^2 = 0.459$ (45.9% variance explained)
 - CI (0.099) = Consistency of Interest; $R^2 = 0.099$ (9.9% variance explained)
 - EF (0.339) = Academic Self-Efficacy; $R^2 = 0.339$ (33.9% variance explained)

Indicators (Small boxes):

- RE1-RE4: Four indicators measuring Relatedness
- AU1-AU4: Four indicators measuring Autonomy
- CO1-CO4: Four indicators measuring Competence
- PE1-PE6: Six indicators measuring Perseverance of Effort
- CI1-CI6: Six indicators measuring Consistency of Interest
- EF1-EF5: Five indicators measuring Academic Self-Efficacy

Arrows and Paths:

- Solid black arrows ($\rightarrow$): Statistically significant paths ($p < 0.05$)
- Dashed gray arrows ($\cdots\rightarrow$): Non-significant paths ($p > 0.05$)
- Numbers on structural paths: Path coefficients (β) with p-values in parentheses
 - Example: 0.352 (0.001) means $\beta = 0.352$, $p = 0.001$
 - Example: -0.181(0.101) means $\beta = -0.181$, $p = 0.101$ (non-significant)

Indicator Loadings:

- 0.00 values between indicators and constructs: Outer loadings (actual values not displayed in this output view; refer to Table 3 for specific loadings ranging from 0.582 to 0.870)

Statistical Significance Levels:

- $p < 0.001$: Highly significant (e.g., 0.480(0.000), 0.352(0.001))
- $p < 0.05$: Significant (e.g., 0.147(0.047), -0.273(0.032))
- $p > 0.05$: Non-significant (e.g., -0.181(0.101))

Source: SmartPLS 4.1 bootstrapping results (20,000 resamples)

Bootstrapping was conducted (a two-tailed test for the null hypothesis that the correlation between two constructs equals 1) at a significance level of 5%, utilizing $n_{boot} = 20,000$, as recommended by Aguirre-Urreta and Rönkkö (2018). The findings indicate that the confidence interval for the constructs excludes 1, and the T statistic exceeds 1.96. As can be seen from the table, among eight hypotheses, five are supported with p-values smaller than 0.05, indicating that the need for autonomy is positively correlated with perseverance (H2); the need for competence is positively related to both perseverance (H3) and consistency of interest (H4); the need for relatedness is positively linked to perseverance (H6) and

academic self-efficacy (H7). Contradictory to the initial hypothesis, the need for autonomy is negatively linked to consistency of interest, but with a p-value of 0.101, this relationship is not supported. Two other relationships, with p-values smaller than 0.05, and the magnitude of the coefficient is relatively high, are the linkage between consistency of interest and academic self-efficacy (H8) and the need for relatedness and consistency of interest (H5). These results are unexpected and contradict the previous conjectures.

DISCUSSION

The paper aims to investigate the relationship between subcomponents of grit, basic psychological needs, and academic self-efficacy. The purpose of this paper is to answer the question of how academic self-efficacy can be explained by subcomponents of grit and the interaction between subcomponents of grit with those of BPN. Surprisingly, the need for relatedness is inversely associated with consistency of interest with a medium path coefficient, and consistency of interest has an opposite correlation with academic self-efficacy. The rest of the relationships are confirmed by this study's findings, which resonate with two foundational studies by Deci and Ryan (2000) and Duckworth et al. (2007). Detailed analysis is presented as follows.

The relationship between autonomy and perseverance (signified by AU → PER) exhibits a positive direct effect ($\beta = 0.147$; $t = 1.985$), hence validating hypothesis H2. This demonstrates that when students are given more autonomy, their persistence to study tends to be enhanced. This result corresponds with previous work of Black and Deci (2000), in which they conducted a randomized experiment and found that in a class where students had a higher rate of perceived autonomy, they were less likely to drop out of the course; on the other hand, in the other class where students felt that their motivation was controlled, they tended to be dissatisfied and put in less effort in studying. Perhaps the reason for their staying in the course derived from their high level of positive experiences, such as enjoyment and less anxiety. The level of interest/enjoyment of the students in the former group was significantly enhanced further when they felt that their autonomous need was supported by workshop leaders.

Conversely, the positive relationship between autonomy and consistency of interest (H1) is unsupported in this study, but the negative association, as shown in the table, is not significant. This anomaly that contradicts the earlier prediction warrants further research. It is interesting to observe that although this relationship is statistically insignificant, out of the four relationships with CI in the structural model, three of them are negative, and also three of them are significant. This research's findings indicate that autonomous students tend to investigate several interests instead of concentrating on a certain area of their concentration. While there is no definitive explanation for this relationship, prior studies may offer some insights. Silvia's (2001) findings indicate that interests, defined by the author as "idiosyncratic intrinsic motives," enhance experience and encourage individuals to engage in new and complicated activities, thus fostering expertise. When individuals possess autonomy, they are entirely free to pursue diverse interests. Undergraduate study often involves engaging

with novel and intricate experiences; this negative association between AU and CI is somewhat justifiable.

In line with previous research, the need for competence promotes perseverance (H3) and consistency of effort (H4) with a moderate medium path coefficient β ranging from 0.2 to 0.3. Intuitively speaking, if an individual wants to be more competent, he or she must be persistent in their endeavor to achieve a higher level of mastery with an unwavering focus. At the same time, if he or she has a sense of competence (through feedback, rewards, and communication), they are likely to put more effort into performing the tasks due to a higher level of intrinsic motivation (Deci & Ryan, 2000). These positive relationships are important for educators because previous work of Deci (1975) shows that intrinsic motivation could be compromised due to negative performance feedback, while the positive one enhances it. Likewise, if educators do not cultivate a sense of competence in students, their tenacity and consistency may be diminished.

Regarding H5, need for relatedness (RE) is negatively associated with consistency of interest (CI) ($\beta = -0.273$, $p = 0.032$). The finding that satisfaction of the need for relatedness is negatively associated with consistency of interest (H5) contradicts the initial assumption that warm, supportive relationships would stabilize students' long-term interests in learning English. In Self-Determination Theory, relatedness is usually portrayed as a resource that nurtures intrinsic motivation and sustained engagement, and prior studies have linked classroom relatedness to higher academic desire and persistence. However, in the present study's Vietnamese collectivist context, strong relatedness appears to co-occur with more fluctuating interests in English learning. The bivariate correlation matrix already shows a small-to-moderate negative association between relatedness and consistency of interest ($r = -0.15$), and the structural path remains negative and statistically significant ($\beta = -0.273$, $p = 0.032$). This pattern suggests that the negative path is not a statistical artifact or suppressor effect but reflects a robust underlying relationship. One interpretation, consistent with SDT's notion of introjected regulation, is that for many English majors, belonging to the academic and peer community is tied to external expectations (e.g., "everyone studies English," "successful seniors all have IELTS 7.0"), rather than intrinsic enjoyment of the language itself. When belonging is conditional on meeting demanding group standards, students may persist in effortful study (explaining the positive relatedness $\rightarrow$ perseverance path) but frequently revise or shift their specific interests in English as they respond to changing social comparisons, trends, and peer norms.

Furthermore, research on Vietnamese EFL motivation shows that relatedness with teachers and peers is often the primary psychological need, even when interest in English is not inherently strong. In such settings, students may engage with English mainly as a means of maintaining valued relationships or future job security, rather than as a stable personal passion. As a result, high relatedness can coexist with instrumental or controlled forms of motivation, which are known in SDT to undermine the stability of intrinsic interests over time when expectations are not fully met. The negative H5 path therefore emphasizes that, in collectivist environments, strong relatedness may drive perseverance for social reasons but does not necessarily anchor a consistent, self-endorsed interest in the language.

With the path coefficient ($\beta = 0.352$ and p -value at 0.001), the correlation between relatedness and perseverance is strongest among all correlations between subcomponents of BNP and those of grit. The hypothesis H6 is supported, indicating that the better the need for relatedness is satisfied, the higher level of perseverance is attained. In Vietnam, the sense of being part of a community, being in a good relationship with, and being respected by teachers, parents, and peers could be a very strong driver that sustains students' efforts to learn English. A study by Ngo (2015) shows a significant correlation between relatedness and intrinsic/professional motivation among English major students. In our study, the participants, who are English major students, have to handle a lot of assignments that require group work and collaboration. This situation heightens the importance of relatedness and the role that it plays in galvanizing students to be persistent and put in more effort in doing the group work to be approved and appreciated by their in-group members.

The subcomponents of grit yield varying effects on academic self-efficacy. While perseverance is positively correlated with academic self-efficacy with the strongest path coefficient of the model ($\beta = 0.48$, p -value close to 0), consistency of interest exhibits a negative correlation with academic self-efficacy (H8). This indicates that students who believed that they had put a lot of effort into learning English tended to be more self-assured in their academic performance. Conversely, learners who have more diverse and inconsistent interests also feel a greater sense of self-efficacy. H8 predicted a positive effect of consistency of interest on academic self-efficacy, assuming that students who maintain stable interests in English over time would accumulate more mastery experiences and thus feel more efficacious. Instead, the results reveal a significant negative path ($\beta = -0.271$, $p = 0.005$), and the bivariate correlation between consistency of interest and academic self-efficacy is also negative ($r = -0.336$), again ruling out a suppressor explanation. This suggests that, for these Vietnamese English majors, greater rigidity of interest is associated with lower academic confidence, whereas students who report more varied or changing interests actually feel more efficacious.

Several recent studies resonate with this pattern. Wolters and Hussain (2015) examined 213 university students from a diverse background comprising African American, Asian/Pacific Islander, Hispanic, and White. They found that consistency did not influence students' self-efficacy, nor is there a direct correlation with self-reported grades (as evidenced by the negative insignificant correlation between them); nevertheless, perseverance does have an effect. They also observed that out of two indicators of grit, only perseverance was extensively used in previous studies to examine the effect of grit on potential outcomes. Jesus (Datu et al., 2016) conducted two studies on 220 college and 606 high school students in the Philippines and found a similar pattern. They discovered that perseverance of effort, rather than consistency, correlates with increased life satisfaction and positive affect. The authors assert that consistency appears to be an insignificant predictor of academic success and well-being. They suggested that collectivism may be the determining factor when students must adjust to alterations in living situations to meet external expectations. For them, the consistency of interests was not seen as the most important, as the primary consideration in a communal setting is the harmony of relationships. They considered the pitfalls of

consistency of interest (such as inflexibility and rigidity) antithetical to collectivism values. Following this line of argument, they maintained that individuals residing in an individualistic environment perceive themselves as distinct entities, whereas those in a collectivist setting view themselves as integral components of a cohesive social interaction. Consequently, the objectives they elect to pursue frequently must align with those of their peers. Heine (2001) stated that individuals in collectivist environments exhibit greater flexibility (indicative of a reduced desire for consistency) compared to those in individualistic settings. The findings of our study also resonate with what Hair and Alamer (2022) found when they observed that consistency is inversely correlated with academic achievement, albeit this relationship lacks statistical significance.

Jachimowicz et al. (2018) view consistency of interest as a less important component in the construct of grit. By highlighting the discrepancies and inconsistencies between these two subcomponents, which partially arise from the measurement method, he concludes that the grit scale is limited to assessing just perseverance. He points out a theoretical paradox in the way that Duckworth defined grit as “perseverance and passion for long-term goals” (Duckworth et al., 2007), suggesting that passion corresponds to constancy of interest. Nonetheless, the concept of “passion” was not mentioned in the subsequent scales and report.

To sum up the discussion, from empirical findings, we can see the dynamic in the relation between BPN, grit, and academic self-efficacy. The need for competence and the need for relatedness appear to be more prominent compared with the need for autonomy. Regarding two subcomponents of grit, consistency of interest tends to be less important than perseverance as a predictor of academic self-efficacy. The negative correlation between consistency of interest with the need for relatedness and academic self-efficacy can be explained by the concept of BPN itself or by the context of this study. Either way, this study warrants more investigation to elucidate the unexpected results.

Table 9. Comparison of Current Findings with Previous Research on BPN, Grit, and Academic Self-Efficacy

Relationship	Current Study (Vietnam, n=372)	Previous Research	Interpretation
BPN → Grit			
Subcomponents			
Autonomy → PE	$\beta=0.147^*$ (supported)	✓ Elahi Shirvan & Alamer (2024): positive (Iranian EFL) ✓ Marcelo-Torres et al. (2024): positive (Peru)	Converges: Autonomy consistently fosters perseverance across cultures

Relationship	Current Study (Vietnam, n=372)	Previous Research	Interpretation
Autonomy → CI	$\beta = -0.181$ (ns)	✓ Elahi Shirvan & Alamer (2024): positive* (Iranian EFL) X Marcelo-Torres et al. (2024): not tested separately	Diverges: Autonomy-CI link varies by culture; non-significant here suggests autonomy less critical for Vietnamese interest stability
Competence → PE	$\beta = 0.287^*$ (supported)	✓ Marcelo-Torres et al. (2024): positive** (Peru)	Converges: Competence universally drives perseverance
Competence → CI	$\beta = 0.348^*$ (supported)	X Marcelo-Torres et al. (2024): negative (Peru)	Diverges: Opposite signs suggest measurement/context differences; both collectivist but divergent CI dynamics
Relatedness → PE	$\beta = 0.352^*$ (supported, strongest BPN path)	✓ Marcelo-Torres et al. (2024): positive** (Peru) ✓ Ngo (2015): relatedness → motivation (Vietnam)	Converges & extends: Relatedness critical in collectivist Asia; Vietnamese emphasis confirmed
Relatedness → CI	$\beta = -0.273$ (rejected; significant negative)	X Marcelo-Torres et al. (2024): negative* (Peru) ✓ Elahi Shirvan & Alamer (2024): not significant (Iran)	Converges with Peru: Both collectivist; relatedness → CI negative suggests social pressures destabilize intrinsic interest
Grit → Academic Self-Efficacy			
PE → Self-Efficacy	$\beta = 0.480^*$ (strongest overall path)	✓ Wolters & Hussain (2015): positive** (US diverse sample) ✓ Datu et al. (2016): PE → life satisfaction (Philippines)	Converges universally: Perseverance robustly predicts efficacy/outcomes across cultures
CI → Self-Efficacy	$\beta = -0.271$ (rejected; significant negative)	X Wolters & Hussain (2015): ns (US) X Daep (Datu et al., 2016) (Philippines). X Hair & Alamer (2022): negative ns (L2)	Diverges in magnitude: First significant negative in collectivist EFL; prior studies show null/weak negative—Vietnamese context amplifies CI's maladaptive role

Notes:

- $**p < 0.01$; $*p < 0.05$; ns = not significant; PE = perseverance of effort; CI = consistency of interest.
- $\checkmark$ = directional match; $\times$ = opposite/null finding.
- Studies: Marcelo-Torres et al. (2024, Peru university students); Elahi Shirvan & Alamer (2024, Iranian EFL learners); Wolters & Hussain (2015, US college); Datu et al. (2016, Filipino students); Hair & Alamer (2022, L2 learners); Ngo (2015, Vietnamese EFL motivation)

THEORETICAL CONTRIBUTIONS AND PRACTICAL IMPLICATIONS

The research has contributed to the literature of the theory of self-determination, grit, and academic self-efficacy. To the best knowledge of the authors, this research is one of a few that establish the link between these psychological constructs. Another contribution in terms of theory that research has made is the examination of the behavior of grit as separate constructs in the context of Vietnam, a country that has a high level of collectivism. The connection between BPN and grit's components is perused from the perspective of self-determination theory, as well as the special context of cultural influences.

In terms of practical implications, researchers, educators, and learners of foreign languages can draw some useful insights into the motivation of learning English amongst students. For example, from the unexpected negative correlation between the need for relatedness and consistency of interests, it can be interpreted that learning a foreign language is not always interesting. Failing to fulfill the need for relatedness (insufficient feedback, weak relationship with students) can compromise their students' consistency of interests. At the same time, fulfillment of the need for competence and strengthening students' belief in their capacities can help to promote students' tenacity and persistence to learn. These suggestions seem to be more important for students at a lower level of English proficiency because many of them would need more encouragement and intervention than their more competent peers.

LIMITATIONS AND FURTHER RESEARCH

Despite contributing novel insights into BPN-grit-self-efficacy pathways in Vietnamese EFL contexts, this study has several methodological and conceptual limitations that warrant acknowledgment and suggest avenues for future research.

The use of stratified convenience sampling, while proportionally representing four enrollment strata across two universities, limits the statistical generalizability of findings. Selection of intact classes (rather than random individual sampling) introduced potential cluster effects and selection bias, as accessible classes may differ from non-participating cohorts in motivation or instructor quality. Although the sample size ($n=372$) exceeds PLS-SEM requirements and demographic distributions align with typical Vietnamese English majors, the absence of random sampling prevents probabilistic inference to the broader

population of 4,300+ English majors nationwide or across rural/urban divides. Future studies should employ multi-stage random sampling or census approaches where feasible to enhance external validity.

All constructs were assessed via self-report Likert scales, introducing common method bias and social desirability effects. Students may have overestimated their perseverance or competence to present favorably, or underreported inconsistency of interest due to perceived social norms valuing commitment. While Harman's single-factor test and HTMT ratios below 0.85 mitigate some concerns, shared-method variance may inflate correlations. Additionally, self-perceptions of BPN satisfaction and self-efficacy are subjective and may not correspond to objective performance (e.g., GPA, standardized test scores). Future research should triangulate with behavioral measures (attendance, task persistence), teacher ratings, or longitudinal academic achievement data to validate self-report patterns and reduce mono-method dependency.

Data were collected at a single time point (October 2024), precluding causal inferences despite structural model terminology. Although theory posits that BPN satisfaction fosters grit which then enhances self-efficacy, the reverse (efficacious students seek autonomy/competence experiences) or reciprocal dynamics (bidirectional feedback loops) cannot be ruled out. Cross-sectional designs also miss developmental trajectories—students' grit and BPN satisfaction likely fluctuate across semesters in response to exam cycles, teacher changes, or career clarity. Future studies should adopt longitudinal panel designs (3+ waves) or experimental interventions (e.g., autonomy-supportive teaching trials) to establish temporal precedence and test causality rigorously, as recommended for grit research.

Findings are contextualized to Vietnamese English majors in public universities with pedagogy/linguistics tracks, limiting transferability to: (1) other Vietnamese student populations (e.g., non-English majors, private institutions, vocational colleges); (2) other Asian collectivist EFL contexts (China, Japan, Korea) with distinct curricula/exam pressures; and (3) individualist Western settings where consistency of interest may be more adaptive. The negative CI paths (H5, H8) may be specific to high-stakes, exam-driven EFL environments where relatedness ties to external goals. Comparative multi-country studies using measurement invariance tests (MICOM in PLS-SEM) would clarify whether subcomponent effects are culturally universal or context-bound. Additionally, the study's exclusive focus on undergraduate students (ages 18-22) excludes younger (secondary) or older (graduate, adult learners) populations whose grit dynamics may differ.

While pilot-tested and validated, the consistency-of-interest subscale's conceptual ambiguity—potentially capturing inflexibility rather than passion—may explain unexpected negatives. Qualitative interviews exploring how Vietnamese students interpret "maintaining consistent interests" could refine scales. Furthermore, the study did not assess potential moderators (e.g., English proficiency level, intrinsic vs. extrinsic motivation orientation) or mediators (e.g., academic engagement, test anxiety) that might condition BPN-grit-self-efficacy pathways, suggesting multi-group PLS-SEM analyses in future work.

CONCLUSION

This study examined how basic psychological needs (autonomy, competence, relatedness) influence academic self-efficacy through the mediating subcomponents of grit (perseverance of effort, consistency of interest) among 372 Vietnamese English majors, using PLS-SEM to test eight hypothesized paths. The findings reveal a nuanced pattern in which perseverance emerges as the critical bridge between psychological need satisfaction and academic confidence, while consistency of interest exhibits culturally specific negative associations in this collectivist EFL context.

Hypothesis Outcomes

Of the eight hypotheses, five were supported and three were rejected:

Supported:

- H2: Autonomy → Perseverance ($\beta=0.147$, $p=0.047$) – confirming that autonomous learning environments enhance effort persistence
- H3: Competence → Perseverance ($\beta=0.287$, $p=0.001$) – demonstrating mastery beliefs drive sustained effort
- H4: Competence → Consistency of Interest ($\beta=0.348$, $p=0.002$) – showing competence fosters focused interests
- H6: Relatedness → Perseverance ($\beta=0.352$, $p=0.001$, strongest BPN path) – highlighting social connection as the primary driver of Vietnamese students' persistence
- H7: Perseverance → Academic Self-Efficacy ($\beta=0.480$, $p<0.001$, strongest overall path) – confirming effort persistence directly builds academic confidence

Rejected:

- H1: Autonomy → Consistency of Interest ($\beta=-0.181$, $p=0.101$, ns) – suggesting autonomy does not stabilize interests in this context
- H5: Relatedness → Consistency of Interest ($\beta=-0.273$, $p=0.032$) – unexpectedly, strong social bonds negatively predict interest consistency
- H8: Consistency of Interest → Academic Self-Efficacy ($\beta=-0.271$, $p=0.005$) – counterintuitively, rigid interest focus reduces confidence

Theoretical and Practical Significance

These findings make three key contributions. First, they demonstrate that grit subcomponents function differently and should not be aggregated in collectivist educational research—perseverance universally predicts positive outcomes, while consistency of interest shows context-dependent, sometimes maladaptive, effects. Second, the study extends Self-Determination Theory to Vietnamese EFL by showing that relatedness (not autonomy) is the dominant need, driving perseverance but paradoxically undermining interest stability when social pressures prioritize external goals over intrinsic passion. Third, the significant

negative CI→self-efficacy path—the first documented in Asian collectivist samples—challenges Western assumptions that unwavering focus always benefits learners, suggesting that adaptive flexibility in interests may be more functional in high-stakes, socially embedded learning environments.

Practically, Vietnamese educators and policymakers should prioritize interventions that build students' sense of competence (through mastery-oriented feedback) and foster supportive relatedness (peer collaboration, mentorship) to enhance perseverance, while avoiding rigid enforcement of singular, long-term interest commitments that may reduce students' efficacy and adaptability. Recognizing that perseverance—rather than consistency—is the educationally relevant facet of grit in Vietnam can reshape curriculum design, teacher training, and student support programs to align with cultural realities. In sum, this research underscores the critical importance of cultural context and construct disaggregation in educational psychology. By revealing how fundamental psychological needs operate through distinct grit mechanisms to shape self-efficacy in a collectivist EFL setting, the study provides both empirical evidence for theory refinement and actionable insights for improving foreign language education in Vietnam and similar Asian contexts.

DISCLOSURE STATEMENT

The authors declare that they have no conflict of interest.

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APPENDIX

Research instruments

All items use 5-point Likert scales: 1=Not at all like me/Strongly Disagree; 2=Not much like me/Disagree; 3=Somewhat like me/Neutral; 4=Mostly like me/Agree; 5=Very much like me/Strongly Agree

Questionnaires for students

Need for Autonomy		Source
1	I am able to freely decide my own pace of learning in English.	Alamer (2022)
2	I am able to freely choose the tasks to be done while learning English	
3	My English teachers allow my class to choose how we approach English learning.	
4	In general, my English teachers let me freely practise English in the classroom.	
Need for Competence		
1	I feel I am capable of learning English.	Alamer (2022)
2	I can be a successful language learner.	
3	I am competent enough to meet the challenges and tasks posed in English learning.	
4	I feel a sense of accomplishment in my English classes.	
Need for Relatedness		
1	In general, English teachers are friendly and cordial with me.	Alamer (2022)
2	In general, my English teachers are very understanding (puts themselves in other people's place) about students' problems.	
3	My classmates are willing to help and cooperate with me while learning the language.	
4	In general, my English teachers care about my progress.	

Perseverance of Effort (L2-Grit Scale items)	
1	I work hard towards my language learning goals irrespective of how long they take to achieve.
2	Even when I can do something more fun, I give language learning tasks my best effort.
3	I complete my language learning tasks irrespective of how difficult they are.
4	I am committed to the investment of my best effort in language learning tasks.
5	Even if I am struggling to learn the language, I keep trying my best.
6	Once I set a language learning goal, I try to overcome any challenge that arises.
Consistency of Interests (L2-Grit Scale items)	
1	I often set a language learning goal but later choose to pursue a different one.
2	New ideas and projects sometimes distract me from learning the language.
3	I become interested in new pursuits other than language learning every few months.
4	My interest in learning English changes every month
5	I was obsessed with learning the language for a short period of time but lost interest eventually.
6	I have difficulty in maintaining my focus on language tasks that take a long time to achieve.
Academic Self-efficacy	
1	I generally manage to solve difficult academic problems if I try hard enough.
2	I know I can stick to my aims and accomplish my goals in my field of study.
3	I won't be nervous in my exam because I know I will have the knowledge to solve the problems.
4	I know I can't fail the exam if I put in enough work during the semester.
5	The motto "If other people can, I can too" apply to me when it comes to my field of study.

Duckworth et al., (2007),
adapted by Alamer (2021)

Duckworth et al., (2007),
adapted by Alamer (2021)

Nielsen, et al (2018)

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