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The association between entrepreneurship education and entrepreneurial intention: A moderated mediation model

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Abstract: This study investigated the mediating role of goal orientation and the moderating role of business insights in the relationship between entrepreneurship education and entrepreneurial intention. Survey data were collected from 1097 Chinese undergraduates (68.5% female; $M_{age} = 20.13$, $SD = 1.14$) using psychometrically validated instruments. Conditional process analyses were performed via the SPSS PROCESS macro (Model 14; 5000 bootstrap iterations). Results revealed that entrepreneurship education enhanced entrepreneurial intention both directly and indirectly through goal orientation, supporting partial mediation. Notably, business insights moderated the goal orientation–entrepreneurial intention relationship to be weaker, such that the indirect effect was stronger among students with lower business insights. Theoretically, this study extends Social Cognitive Career Theory by elucidating a goal-regulatory mechanism and advocates for differentiated entrepreneurship curricula calibrated to students' business insight profiles. These findings suggest that substantial business insights may compensate for goal-driven motivational pathways, thereby attenuating goal orientation's mediating function.

Keywords: Entrepreneurial intention; entrepreneurship education; goal orientation; business insights; moderated mediation

Introduction

Entrepreneurial intention (EI) refers to an individual's conscious cognitive commitment to pursuing entrepreneurship as a future career path, reflecting a deliberate plan to establish one's own business at some point in the future (Liñán & Chen, 2009; Thompson, 2009). Entrepreneurial behavior is a by product of EI for promoting economic growth and societal resilience (Zhang & Wang, 2023).

The development of EI is a complex, dynamic process shaped by both external environmental inputs and individual characteristics. Entrepreneurship education (EE) functions as a critical bridge integrating these influences. Prior research has identified various environmental and individual factors that influence EI, including social networks, institutional support, and psychological traits such as self-efficacy and proactive personality (Piperopoulos & Dimov, 2015; Tang et al., 2024). Nevertheless, goal orientation (GO) and business insights (BI) would explain the EE and EI relationship, of which there is a gap in the evidence to be addressed by this study.

Entrepreneurship education and entrepreneurial intention

EE represents a prototypical form of such learning experiences in entrepreneurial contexts, as it systematically exposes students to entrepreneurial tasks, problem-solving situations, and career-related role models (Duong, 2021; Nabi et al., 2017). Through these structured experiences, students are encouraged to actively consider entrepreneurship as a viable career option rather than a distant or abstract possibility (Xu et al., 2023).

Accordingly, EE is expected to contribute directly to the formation of EI by increasing students' cognitive involvement in entrepreneurial exploration and career decision making. This theoretical expectation is consistent with prior empirical evidence showing that participation in EE programs is positively associated with EI across different educational settings (Li et al., 2021; Xu et al., 2023).

The mediating role of goal orientation

In entrepreneurial contexts characterized by uncertainty and delayed feedback, goal-directed regulation becomes particularly salient, as individuals must commit to entrepreneurship as a meaningful career goal before stable efficacy beliefs or outcome expectations are fully formed. From this perspective, GO represents a concrete manifestation of personal goals that governs how individuals engage with entrepreneurial learning experiences and regulate effort toward entrepreneurial careers (Tran & Von Korflesch, 2016; Wang & Huang, 2022).

Empirical research has demonstrated a significant relationship between EE and GO. Studies indicate that structured entrepreneurship programs enhance individuals' learning and performance GO by fostering skill development and achievement motivation (Frese et al., 2016; Piperopoulos & Dimov, 2015). Furthermore, GO has been identified as a critical predictor of EI, with individuals exhibiting strong learning GO showing greater persistence in entrepreneurial pursuits (Hmieleski & Baron, 2008; Zhao et al., 2005). A longitudinal study revealed that GO mediated the relationship between entrepreneurship

course participation and subsequent EI development (Nabi et al., 2017).

The moderating role of business insights

Studies have shown that individuals with strong GO tend to possess a more positive attitude toward opportunity recognition and demonstrate higher EI (Anwar et al., 2023; Botha & Bignotti, 2017). Moreover, research within the framework of the opportunity recognition model indicates that individuals with high levels of BI can more quickly identify hidden market gaps (Ardichvili et al., 2003) and also recognize a greater number of higher-quality opportunities (Shepherd & DeTienne, 2005). While these findings might suggest that BI would strengthen the GO-EI relationship, we argue that BI actually exerts a negative moderating effect. Individuals with high BI possess sophisticated mental frameworks for evaluating entrepreneurial opportunities, thereby reducing their reliance on goal-oriented motivational processes (Shane & Venkataraman, 2000). When business acumen is well-developed, decision-making becomes more calculative and analytical, potentially bypassing the motivational pathways typically activated by GO. Advanced BI enables individuals to recognize the complexity, risks, and resource requirements of entrepreneurial ventures more accurately (Ardichvili et al., 2003). This enhanced awareness may paradoxically dampen entrepreneurial enthusiasm by revealing challenges that less insightful individuals might overlook, thus weakening the positive impact of goal-directed motivation on intentions. Moreover, individuals with higher BI are better positioned to evaluate alternative career paths and their relative attractiveness, potentially diverting goal-oriented motivation toward non-entrepreneurial pursuits that appear more viable (Baron & Ensley, 2006).

Empirical evidence supporting this negative moderation is emerging. Liu (2024) found that the effect of learning GO on EI was attenuated among students with greater business exposure. Similarly, Shane and Venkataraman (2000) theorized that sophisticated BI might paradoxically weaken the positive correlation between performance orientation and EI by prompting critical opportunity evaluation.

Theoretical foundations

From a Social Cognitive Career Theory (SCCT) framework, EE aims to cultivate opportunity recognition, resource coordination, and risk navigation capabilities that are central to entrepreneurial activity (Nabi et al., 2017). However, SCCT suggests that the influence of learning experiences on career outcomes is not automatic. The effectiveness of EE in fostering EI depends on how learners cognitively process, internalize, and regulate these educational inputs rather than on exposure alone.

EI, as the focal outcome of this study, reflects an individual's cognitive commitment to pursuing entrepreneurship as a viable career option (Lent et al., 1994). Within SCCT, career intentions are commonly explained through outcome expectations, which refer to individuals' anticipated evaluations of the rewards, risks, and consequences associated with a particular career path (Lent & Brown, 2013). However, in early-stage entrepreneurial decision making, especially among university students, such outcome expectations are often weakly structured and highly uncertain (Krueger et al., 2000).

Nevertheless, in EE settings, students' entrepreneurial self-efficacy is often provisional and unstable, as it is formed in the absence of sustained performance experience and reliable feedback (Piperopoulos & Dimov, 2015). Without repeated opportunities to engage in real entrepreneurial practice, self-efficacy beliefs may fluctuate substantially and fail to capture how individuals actually engage with challenging entrepreneurial tasks (Hmieleski & Baron, 2008).

Within the SCCT framework, GO can be understood as an intention-proximal self-regulatory mechanism that operates upstream of EI formation (Lent & Brown, 2013). By focusing on GO, the present study emphasizes how EE shapes students' motivational engagement and goal-directed regulation, which in turn determines whether educational experiences are translated into EI (Nabi et al., 2017). This conceptualization does not deny the relevance of self-efficacy, but reflects a theoretical decision to foreground a regulatory mechanism that is particularly salient at the early, exploratory stage of entrepreneurial career development.

In the present study, BI is conceptualized as a contextually acquired cognitive resource reflecting individuals' understanding of market dynamics, opportunity structures, and entrepreneurial feasibility. As such, BI operates as a contextual condition rather than as a self-regulatory mechanism. Differences in BI influence how individuals interpret entrepreneurial goals and evaluate their feasibility, thereby shaping the extent to which goal-oriented motivation is converted into EI.

Taken together, by integrating EE as a learning experience, GO as an intention-proximal self-regulatory mechanism, and BI as a contextual condition, the present study advances a context-sensitive application of SCCT to EI formation. The proposed conceptual framework illustrates how EE influences EI through the mediating role of GO and the moderating role of BI, highlighting the joint contribution of motivational regulation and contextual cognition in shaping entrepreneurial career decisions.

The Chinese context

China's EE system has developed a unique hybrid model that combines central policy guidance with local practical innovation (Wu & Benson, 2016). Since the "Mass Entrepreneurship and Innovation" strategy in 2014, EE has become a national priority, with over 95% of universities establishing compulsory entrepreneurship courses by 2023 (Fei & Tee, 2024). However, this rapid expansion reveals significant contradictions: the conflict between Confucian exam-oriented educational traditions and experiential teaching models, and the persistent "knowledge-action gap" reflected in high student EI (68%) versus low actual startup rates (<5%) after graduation (Li et al., 2021; Lv et al., 2021).

Importantly, China's collectivist cultural values amplify peer network influences on EI, while guanxi-based

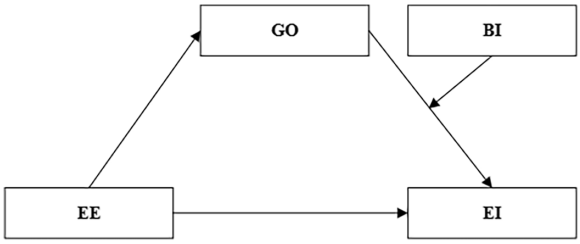

Figure 1. Conceptual framework. *Note.* GO = Goal orientation, EI = Entrepreneurial intention, EE = Entrepreneurship education, BI = Business insights.

resource allocation mechanisms position social capital as a critical success factor (Wu & Song, 2019; Xiong et al., 2023). These contextual features highlight the necessity of investigating how universal psychological mechanisms such as GO interact with China's unique institutional-cultural environment in shaping EI.

Goal of the study

This study tested a moderated mediation model in which EE positively influences EI both directly and indirectly through GO, with BI moderating the second stage of mediation. The conceptual model of the study is presented in Figure 1. Based on this framework, the following hypotheses are proposed:

H1. Entrepreneurship education is associated with higher entrepreneurial intention among Chinese undergraduate students.

H2. Goal orientation mediates the relationship between entrepreneurship education and entrepreneurial intention among Chinese undergraduate students, such that higher entrepreneurship education is associated with higher goal orientation, which in turn is associated with higher entrepreneurial intention.

H3. Business insights moderates the relationship between goal orientation and entrepreneurial intention, such that the effect of goal orientation on entrepreneurial intention is weaker when business insights is higher.

Method

Participants and setting

Participants were 1097 Chinese undergraduate students from a comprehensive university in Fujian Province, China (68.5% female; M_{age} = 20.13 years, SD = 1.14). In terms of grade level, 16.2% (n = 178) were first-year students, 44.4% (n = 487) were sophomores, 31.0% (n = 340) were juniors, and 8.4% (n = 92) were seniors, indicating a predominance of sophomores and juniors in the sample.

Measures

Entrepreneurship education. EE was measured using a three-item scale developed by Walter and Block (2016). A sample item stated, "My school education gave me skills and know-how that enable me to run a business." Participants rated each item on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Scores from the scale demonstrated good internal consistency (Cronbach's α = 0.93).

Entrepreneurial intention. EI was measured using a five-item scale assessing participants' inclination toward pursuing an entrepreneurial career (Liñán & Chen, 2009). A sample item is, "A career as an entrepreneur is attractive to me". Participants responded to each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores reflected stronger EI. In the present study, EI scores exhibited good internal consistency (Cronbach's α = 0.87).

Goal orientation. GO was measured using a five-item scale designed to assess individuals' approach to setting and striving for entrepreneurship-related goals (Okolie et al., 2021). Participants rated each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A sample item is "I set the right goals for my organization". Higher scores indicated a stronger goal-oriented mindset. In the present study, the scale demonstrated good internal consistency (Cronbach's α = 0.89).

Business insights. BI was assessed using a five-item scale originally developed by Ozgen and Baron (2007) and subsequently refined by Tang et al. (2012). A sample item is, "I can easily recognize business opportunities when they arise". Participants responded to each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicated a greater level of BI. In the present study, BI scores demonstrated good internal consistency (Cronbach's α = 0.90).

Covariates. To account for their potential influence on EI, we controlled for gender (0 = male, 1 = female), age, academic grade level, and prior entrepreneurial experience (0 = no, 1 = yes) in all analyses.

Procedure

Ethical approval for this study was obtained from the ethics committee of the SEGi University (Approval No. SEGiEC/SR/FOELPM/265/2024-2025), and the study was conducted in compliance with the Declaration of Helsinki. All participants provided informed consent, with the assurance that the data collected would be used solely for research purposes. Data were collected via online questionnaires hosted on Wenjuanxing (www.wjx.cn).

Data Analysis

All statistical analyses were conducted using SPSS 26.0, AMOS 26.0, and the PROCESS macro for SPSS. Prior to hypothesis testing, descriptive statistics were computed for all study variables.

To evaluate the measurement model, confirmatory factor analysis (CFA) was conducted in AMOS. Standardized factor loadings were examined to assess item reliability, with 0.50 used as the minimum acceptable threshold. Convergent validity was assessed using composite reliability (CR > 0.70) and average variance extracted (AVE > 0.50). Discriminant validity was evaluated by comparing the square root of AVE for each construct with its correlations with other constructs, following the Fornell-Larcker criterion.

Common method bias was assessed using Harman's single-factor test and supplementary single-factor CFA, with results indicating common method bias was not a serious concern.

Variance inflation factors (VIF) were examined for all regression-based analyses, with values below 10 indicating acceptable levels of multicollinearity. All continuous predictors were mean-centered prior to analysis.

To test the mediating effect of GO, Model 4 of the PROCESS macro was employed. Indirect effects were tested using a bias-corrected bootstrapping procedure with 5000 resamples. To test the moderated mediation hypothesis, Model 14 was used, with BI specified as a moderator of the GO-EI path. Conditional effects were probed via simple slope analyses at low (−1 SD) and high (+1 SD) levels of BI.

Prior to hypothesis testing, diagnostic analyses were conducted. CFA indicated that the measurement model met criteria for convergent and discriminant validity, with all standardized factor loadings exceeding 0.50. Harman's single-factor test revealed that the first unrotated factor accounted for less than 40% of total variance. All VIF values were below 5, indicating multicollinearity did not pose a substantial threat.

Results

Descriptive statistics

Means, standard deviations, and correlations are presented in Table 1. All study variables were significantly intercorrelated (rs ranging from 0.489 to 0.686, all $p < 0.01$).

Main effects of entrepreneurship education on entrepreneurial intention

The total effect analysis (Model 4, controlling for the covariates) indicated that EE was significantly associated with EI (B = 0.678, $p < 0.001$, 95% CI [0.636, 0.721]), explaining a substantial proportion of the variance in EI. This finding supports Hypothesis 1, demonstrating that higher levels of EE are associated with higher levels of EI among Chinese undergraduate students.

Mediating role of goal orientation

Mediation analysis (Table 2) indicated that EE was positively associated with GO ($B = 0.451$, $p < 0.001$), and GO was positively associated with EI ($B = 0.279$, $p < 0.001$). The total effect of EE on EI was significant ($B = 0.678$, $p < 0.001$) and remained significant after including GO ($B = 0.553$, $p < 0.001$). The indirect effect through GO was significant ($B = 0.126$, 95% CI [0.089, 0.169]), indicating partial mediation. Hypothesis 2 was supported.

Table 1. Descriptive statistics and correlational results of major variables

	M	*SD*	GO	EI	EE	BI
GO	2.658	0.691	–			
EI	2.747	0.793	0.535**	–		
EE	2.731	0.802	0.524**	0.686**	–	
BI	3.032	0.762	0.641**	0.515**	0.489**	–

Note. GO = Goal Orientation, EI = Entrepreneurial Intention, EE = Entrepreneurship Education, BI = Business Insights. **$p < 0.01$.

Moderating effects of business insights

Moderated mediation analysis revealed a significant GO × BI interaction ($B = -0.056$, $p = 0.003$, 95% CI [−0.093, −0.020]), supporting Hypothesis 3. Simple slope analyses (Figure 2) showed that the GO-EI association was stronger at low BI levels and weaker at high BI levels.

Conditional indirect effect analyses indicated that the indirect effect of EE on EI via GO varied across BI levels: at low BI (−1 SD), B = 0.111, 95% CI [0.071, 0.153]; at mean BI, $B = 0.091$, 95% CI [0.054, 0.131]; at high BI (+1 SD), $B = 0.072$, 95% CI [0.033, 0.113]. The index of moderated mediation was significant ($B = -0.026$, 95% CI [−0.046, −0.008]).

Discussion

This study found higher EE was associated with higher EI. This finding aligns with Xu et al. (2023)'s research indicating a linear relationship between EE intensity and EI. According to SCCT, EE systematically enhances students' entrepreneurial behavior propensity by shaping their self-efficacy and outcome expectations through a dual mechanism: structured curricula for opportunity recognition and risk assessment (Zhang, 2023) and network-based social capital building (Xiong et al., 2023).

Secondly, GO mediates the EE-EI relationship to be stronger, consistent with Li et al. (2022)'s "cognitive transformation mechanism". This may be explained by the fact that EE shapes GO through progressive stages: knowledge construction (opportunity recognition), skills enhancement (resource orchestration), and risk assessment (Fei & Tee, 2024; Zhang, 2023), transforming GO from a latent cognitive variable to a behavioral driver. This offers a pathway to resolve the "educational investment-behavioral transformation" efficiency paradox among undergraduate students (Sun et al., 2023).

Thirdly, BI significantly weakens the "EE → GO → EI" pathway, especially under high BI. While this contradicts studies suggesting BI positively fosters EI (e.g., Wardana et al. (2020)), the apparent contradiction can be reconciled by recognizing that previous studies examined direct BI-EI relationships, whereas our study focuses on BI's moderating role. The negative moderation reflects cognitive compensation, as individuals with high BI possess alternative cognitive resources that partially substitute for goal-oriented processes and rely more on analytical evaluation than goal-driven motivation (Baron, 2006).

From a cultural perspective, Chinese collectivism emphasizes career stability, requiring greater determination and longer decision-making for high-risk entrepreneurship (Eckhardt, 2002; Triandis & Gelfand, 2012). GO thus plays a particularly crucial role—students with high GO set clear objectives during EE, develop stronger entrepreneurial competencies, and expand social networks, reinforcing EI (Zhao et al., 2005). In contrast, Western individualistic cultures encourage self-expression through entrepreneurship, with supportive social networks providing broader resources, making GO's influence on EI comparatively less pronounced (Hoang & Antoncic, 2003; Markus & Kitayama, 1991).

Table 2. Moderated mediation effect analysis of the relationship between EE and EI

Variable	*B*	*SE*	*t*	IE	Boot *SE*	Boot CI
Dependent variable: EI						
EE	0.553	0.025	22.562***			[0.505, 0.601]
GO	0.279	0.028	9.792***			[0.223, 0.334]
Model fit	$R^2 = 0.513$; $F\ (2, 1094) = 576.607$, $p < 0.001$					
Dependent variable: EI						
EE	0.513	0.025	20.623***			[0.464, 0.562]
GO	0.202	0.033	6.088***			[0.137, 0.267]
BI	0.150	0.029	5.156***			[0.093, 0.208]
GO × BI	−0.056	0.019	−3.036**			[−0.093, −0.020]
Model fit	$R^2 = 0.530$; $F\ (4, 1092) = 308.375$, $p < 0.001$					
Conditional indirect effect						
BI						
−1 *SD* (−0.762)				0.111	0.020	[0.071, 0.150]
The mean level of BI				0.091	0.019	[0.054, 0.129]
+1 *SD* (+0.762)				0.072	0.021	[0.033, 0.113]
Index of moderated mediation	−0.026	0.010				[−0.046, −0.008]

Note. GO = Goal Orientation, EI = Entrepreneurial Intention, EE = Entrepreneurship Education, BI = Business Insights. ***$p < 0.001$, **$p < 0.01$.

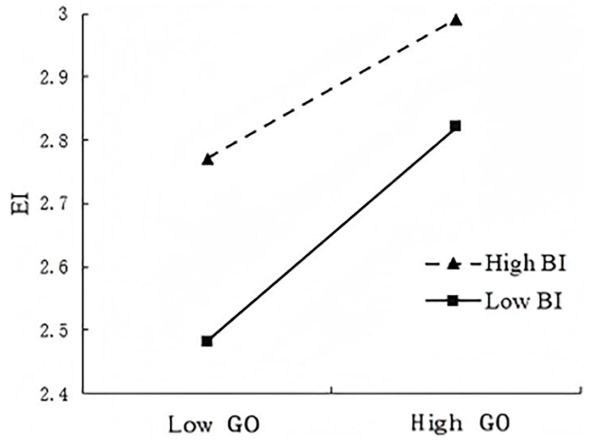

Figure 2. The Interaction between GO and BI on EI. *Note.* GO = Goal orientation, EI = Entrepreneurial intention, BI = Business insights.

Implications for Research and Practice

This study offers several contributions to SCCT. First, EE functions as an environmental empowerment factor that directly enhances EI and indirectly promotes it via GO, aligning with SCCT's environment-cognition-behavior proposition (Bandura, 1999; Lent et al., 1994; Lent et al., 2000). Second, BI attenuates GO's mediation of the EE-EI link: when BI is low, GO mediates more strongly; as BI increases, this pathway weakens, demonstrating nonlinear contextual effects on cognitive processing (Lent et al., 2016; Sheu et al., 2010). Third, integrating SCCT's tripartite framework of personal, behavioral, and environmental factors, our findings suggest that optimal EE should simultaneously cultivate goal-directed motivational processes while calibrating students' sensitivity to market complexity, thereby achieving synergy between cognitive regulation and contextual realities (Brown & Lent, 2019; Lent & Brown, 2013).

The findings suggest several strategic directions for enhancing EE effectiveness. Universities should adopt progressive, stage-based curriculum frameworks encompassing knowledge construction, skills enhancement, and risk assessment training. Given GO's significant mediating role, EE must transcend traditional theory-based instruction by integrating goal diagnostic tools and practical platforms that facilitate GO activation (Li et al., 2022; Liu, 2024). Simultaneously, recognizing BI's negative moderating effects, programs should develop differentiated strategies: for students with higher BI, instruction should emphasize higher-order thinking and appropriate calibration of success expectations; for those with lower BI, emphasis should remain on fundamental business knowledge while leveraging GO mechanisms (Lent & Brown, 2013; Wang & Huang, 2022).

Cultural adaptation is equally important. Localized EE models should consider Chinese collectivist values by emphasizing the social value and stability dimensions of entrepreneurship, selecting cases of entrepreneurs who have created social impact (Mukhtar et al., 2021; Peng & Qi, 2024). Given prolonged entrepreneurial decision-making cycles among Chinese students, universities should establish extended support mechanisms including career planning integration and post-graduation incubation resources (Tang et al., 2024; Wang & Huang, 2022). Finally, multidimensional evaluation frameworks should assess not only knowledge acquisition but also GO strength, BI levels, and EI changes, enabling dynamic tracking and personalized interventions (Nabi et al., 2017; Walter & Block, 2016).

Limitations and Future Directions

Several limitations should be acknowledged. First, the cross-sectional design limits causal inferences; future longitudinal or experimental studies could strengthen these findings and explore the dynamic nature of these relationships over time (Wang & Cheng, 2020). Second, the single-university, female-dominated sample may not reflect China's entrepreneurial gender distribution, warranting cross-context replication. Third, while this study demonstrated a significant moderated mediation effect, future research could incorporate qualitative methods to gain deeper insights into how students cognitively process entrepreneurial learning experiences. Finally, GO was operationalized as a unidimensional construct. Future research adopting multidimensional measures could clarify whether specific GO subtypes differentially mediate the EE–EI relationship and whether the moderating role of BI varies across these dimensions.

Conclusion

This study demonstrates that EE increases EI both directly and indirectly via GO. High-quality EE fosters commitment, while GO converts educational inputs into persistence and entrepreneurial readiness. BI conditionally shapes this process. When BI is low, students rely more on goal-driven motivation, strengthening GO's mediating effect. Conversely, high BI attenuates GO's mediating role as analytic evaluation substitutes for goal-driven processes. Practically, universities should implement differentiated interventions. For low-BI students, prioritize GO activation through goal-setting workshops and success-building assignments. For high-BI students, emphasize industry case work and resource-integration training. Establishing continuous support systems like mentorship and incubators will help translate educational exposure into sustained EI. Future research should employ longitudinal designs and broader samples to validate these findings across diverse cultural settings. These insights deepen understanding of how educational inputs and individual cognitions interact to influence entrepreneurial development within higher education contexts, offering valuable implications for curriculum design and policy formulation.

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Availability of Data and Materials: Data available on request from the corresponding author.

Ethics Approval: Ethical approval for this study was obtained from the ethics committee of the SEGi University (Approval No. SEGiEC/SR/FOELPM/265/2024-2025), and the study was conducted in compliance with the Declaration of Helsinki. All participants provided informed consent, with the assurance that the data collected would be used solely for research purposes.

Conflicts of Interest: The authors declare no conflicts of interest.

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