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Decoding the Mechanisms of Green Entrepreneurial Intention: An Integration of the Theory of Planned Behavior and Self-Efficacy

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Abstract

Green entrepreneurship connects venture creation with environmental problem solving; however, the institutional and psychological mechanisms shaping students' intentions remain complex. Grounded in the Theory of Planned Behavior (TPB) and Social Cognitive Theory, this study develops and tests an integrated model examining how perceived university entrepreneurial support relates to green entrepreneurial intentions (GEI) through personal attitudes toward green entrepreneurship, subjective norms, perceived behavioral control, and entrepreneurial self-efficacy, alongside the moderating role of family support. Utilizing a sample of 453 valid responses from university students in Ho Chi Minh City, the hypotheses were empirically tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) with 5,000 bootstrap resamples. The results demonstrate that university support is positively associated

with attitudes toward green entrepreneurship, subjective norms, perceived behavioral control, and entrepreneurial self-efficacy. Entrepreneurial self-efficacy exhibited the strongest association with GEI ($\beta = .401$), followed by subjective norms ($\beta = .358$), perceived behavioral control ($\beta = .203$), and attitudes ($\beta = .112$). Entrepreneurial self-efficacy ($\beta = .155$), subjective norms ($\beta = .109$), and perceived behavioral control ($\beta = .045$) showed significant indirect associations. Family support positively moderated the self-efficacy and GEI relationship ($\beta = .081$, $p = .031$). The model explained 55.5% of the variance in intention. These findings clarify how institutional support and family resources work together to foster students' green entrepreneurial intentions, with practical implications for universities to design programs that combine capability development with access to resources.

Keywords: Green Entrepreneurial Intention, University Entrepreneurial Support, Theory of Planned Behavior (TPB), Entrepreneurial Self-Efficacy, Family Support

1. Introduction

Climate change, resource depletion, and pollution have increased the need for businesses that reduce environmental harm. Green entrepreneurship turns these environmental challenges into opportunities for green and sustainable products, services, and production processes. This goes beyond established companies adopting green practices; it involves launching new startups dedicated to solving environmental problems. Research shows this activity blends business opportunities with the protection of natural and social ecosystems ^[1, 2]. Therefore, growing interest in green entrepreneurship responds to both urgent environmental needs and new opportunities for innovation.

This shift is particularly relevant in Vietnam, a country experiencing rapid economic growth but facing severe climate risks. The World Bank states that climate resilience and zero-carbon growth are vital for Vietnam's long-term development ^[3]. Green startups are emerging during this transition, but their scale and resources are still limited. Between 2015 and 2023, 49 climate-technology startups in Vietnam raised \$92.6 million, accounting for about 4% of the country's venture capital investments in 2023 ^[4]. Although these numbers only represent the climate-technology sector, they highlight a key issue: environmental challenges are creating business opportunities, yet founders still lack the knowledge, confidence, funding, and connections to seize them.

Universities are expected to equip students with these skills before they start their businesses. Vietnam's national entrepreneurship program requires schools to teach business skills and create environments where students can develop their startup ideas ^[5]. Besides, green-focused initiatives are also becoming more common. For example, the 2025 Green Economy and Future competition at the University of Economics Ho Chi Minh City encouraged students to create ideas for sustainable

agriculture, recycled and green materials [6]. These policies and competitions show that a support system for entrepreneurship is taking shape. However, it remains unclear how students perceive this support, how it affects their mindset, or whether it actually leads to a lasting intention to start a green business.

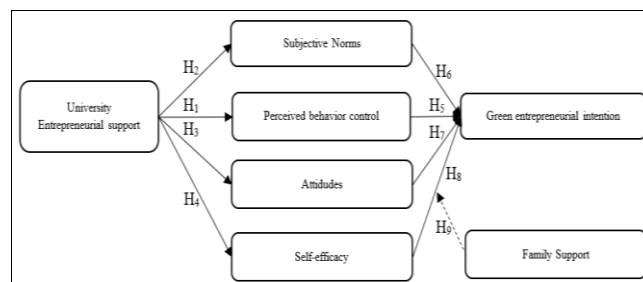
Previous studies offer important but fragmented answers. In Vietnam, research links educational support to general startup intentions using the theory of planned behavior and entrepreneurial self-efficacy [7]. For green startups, studies show that students' green entrepreneurial intentions are influenced by social pressure, personal traits, and university support [8, 9, 10]. International research also highlights that attitudes, self-efficacy, university support, and subjective norms can have varying effects depending on the educational context [11]. Overall, while both university support and psychological factors are important, researchers have not yet fully explained how they work together in Vietnam's green entrepreneurship context.

Therefore, the research gap is about understanding how this process works, not just proving that a relationship exists. Findings from general entrepreneurship cannot simply be applied to green entrepreneurship. This is because green startups require specific environmental goals, sustainability knowledge, and stricter technological and financial resources. Furthermore, previous green studies in Vietnam have only examined different scales. Some models focus on green awareness and self-efficacy, while others emphasize startup desire and environmental knowledge, or examine the factors affecting green entrepreneurship selection. Because these factors were tested in separate studies, it is unclear if attitudes, social pressure, behavioral control, and self-efficacy work simultaneously to link university support with green startup intentions. Furthermore, the family context adds another important layer to this research process. Unlike general social approval, family support provides specific advice, networking, emotional encouragement, and initial financial support. Previous research has viewed family support in various ways, such as a factor influencing the relationship between education and intention or as a moderator in the intention-behavior link [12, 13, 14]. While these studies highlight the relevance of family support, they leave a specific question unanswered: does family support help turn a student's entrepreneurial self-confidence into a concrete intention to start a green business? This question matters because self-confidence more easily becomes commitment when students know they can access practical resources and emotional support, especially for green startups that require longer experimentation and capital.

Given this background, the present study combines the theory of planned behavior with the stimulus-organism-response (S-O-R) framework. In this model, university support acts as an external stimulus; attitudes, social norms, behavioral control, and self-efficacy are internal psychological states; and green entrepreneurial intention is the key dependent variable of the model [15, 16]. The study aims to measure how university support influences these psychological factors, how these factors drive startup intentions directly and indirectly, and whether family support strengthens the link between self-efficacy and intention. Lastly, this research explains exactly how university and family environments shape green startup intentions among students in Ho Chi Minh City.

2. Theoretical framework and hypothesis development

Drawing on the Stimulus-Organism-Response (S-O-R) paradigm (16) and the Theory of Planned Behavior (TPB) [15], this study develops an integrated theoretical framework to explain green entrepreneurial intention. Within the overarching S-O-R framework, university entrepreneurial support is conceptualized as an external environmental stimulus (S). This institutional stimulus is posited to shape students' internal psychological states (O) - represented here by the core components of the TPB (attitudes, subjective norms, and perceived behavioral control) alongside entrepreneurial self-efficacy (ESE) - which subsequently drive the behavioral response (R), conceptualized as the intention to pursue green entrepreneurship.



Indirect hypotheses: H10 (via subjective norms), H11 (via self-efficacy), H12 (via perceived behavior control)

Fig 1: Proposed conceptual model

University entrepreneurial support

University entrepreneurial support refers to the comprehensive system of resources, structures, and educational initiatives that higher education institutions provide to foster students' entrepreneurial attitudes, intentions, and behaviors. Higher education institutions can stimulate students' intent to start businesses through initiatives such as seminars, theoretical lessons, practical sessions, and entrepreneurship activities [17]. Universities can further strengthen their support by building networks that connect students with external stakeholders such as businesses, investment funds, and practical opportunities. Through these linkages, students are afforded access to experiential learning and professional resources, which play a crucial role in fostering entrepreneurial mindsets and developing comprehensive entrepreneurial competencies [18].

Green entrepreneurial intention

Green entrepreneurial intention is considered the commitment to pursue business activities that prioritize sustainable development, focusing on environmental protection, social responsibility, and green economic growth [1, 19]. According to the Theory of Planned Behavior, intention is the strongest predictor of behavior [15]. In the context of green entrepreneurship, intention serves to transform environmental awareness into a motivational force for action, encouraging entrepreneurs to create both economic and social values [20].

University entrepreneurial support and subjective norms

Subjective norms represent the perceived social influence exerted by significant referents on individuals' entrepreneurial decisions [15], and this influence is particularly pronounced in Vietnamese culture [21]. Universities provide resources, knowledge, and motivation

for entrepreneurship through training, workshops, and mentorship, thereby strengthening social norms around [22]. According to Liu *et al.* (2022) [23], university support can promote a positive attitude and social norms among students by the benefits of entrepreneurship. When students perceive that their university encourages and recognizes them for starting green businesses, they are more likely to believe that such behavior is expected by society and organizations [24].

H1: University entrepreneurial support has a significant positive influence on subjective norms of students in Ho Chi Minh City.

University entrepreneurial support and perceived behavioral control (PBC)

Perceived behavioral control reflects the extent to which individuals believe they can overcome barriers, mobilize resources, and seize opportunities for green entrepreneurship [15], including green technology knowledge, the ability to mobilize green capital, and leverage support policies [25]. As perceptions of resources and opportunities increase, implementation intention strengthens [26]. University support through training, mentoring, incubation, and practical projects further enhances risk-coping capacity, dispels spurious experiences of infeasibility, and boosts confidence to translate innovative ideas into practical applications; thereby enhancing perceived behavioral control [27]. In the context of highly uncertain green entrepreneurship, such support not only provides knowledge and resources but also restructures students' perceptions of control when starting up their own business.

H2: University entrepreneurial support has a significant positive influence on perceived behavioral control of students in Ho Chi Minh City.

University entrepreneurial support and attitudes toward green entrepreneurship

Attitude reflects an individual's positive appraisal of green entrepreneurship when they believe that this activity is beneficial economically, socially, and environmentally [24]. University entrepreneurial support through coursework, business incubation, mentoring, and access to resources enhances students' awareness of the desirability and feasibility of such opportunities, thereby shifting their attitudes in a positive direction [23]. Entrepreneurship education also exposes students to sustainable business models, helping to downplay spurious beliefs about downside risks or perceived lack of profitability and allowing them to view green entrepreneurship as a viable career option [28]. Engaging in project work and interacting with successful entrepreneurs further strengthens their perceived feasibility of entrepreneurial ideas, contributing to positive attitudes—which strongly predict green entrepreneurial intentions [29].

H3: University entrepreneurial support has a significant positive influence on attitudes toward green entrepreneurship of students in Ho Chi Minh City.

University entrepreneurial support and entrepreneurial self-efficacy

University entrepreneurial support directly fosters students' entrepreneurial self-efficacy through mastery experiences, vicarious experiences, and social persuasion—three of the core sources of self-efficacy [30]. Numerous studies indicate

that campus-based programs and entrepreneurial ecosystems enable students to search for opportunities, plan, marshal resources, and translate ideas into action, thereby significantly enhancing their entrepreneurial self-efficacy [31, 32]. In the green entrepreneurship landscape, characterized by updated technologies, intricate processes, and substantial market barriers, self-efficacy serves as a pivotal mechanism through which university support converts green concepts into viable ventures [32, 33].

H4: University entrepreneurial support has a significant positive influence on entrepreneurial self-efficacy of students in Ho Chi Minh City.

Subjective norms and green entrepreneurial intention

When students receive encouragement and approval from family members or friends, their entrepreneurial intention tends to increase, particularly if such support originates from influential reference individuals [24]. In developing countries, subjective norms are a crucial leverage for sustainable entrepreneurial intentions, as social networks help mitigate perceived risks in the green entrepreneurship domain [34]. In collectivist cultural contexts, social pressure is significantly amplified and often dictates career choices. In Vietnam, family and community expectations strongly influence entrepreneurial decisions; thus, when society highly values green entrepreneurship, students' green entrepreneurial intentions are strongly reinforced. Even with positive personal attitudes and strong entrepreneurial self-efficacy, students still need social approval and family support to translate their intentions into action.

H5: Subjective norms have a significant positive influence on green entrepreneurial intention of students in Ho Chi Minh City.

Perceived behavioral control and Green entrepreneurial intention

In green entrepreneurship—where clean technology costs, environmental compliance requirements, and market uncertainties are notably high—this factor becomes even more pivotal [28]. Perceived behavioral control is strongly associated with entrepreneurial intentions, and further mediates the effects of education and experience on subsequent behavior [24]. Experiential and hands-on programs help bolster students' self-confidence and capacity for action, thereby driving green entrepreneurial decisions steadfastly and persistently [31].

H6: Perceived behavioral control has a significant positive influence on green entrepreneurial intention of students in Ho Chi Minh City.

Attitudes toward green entrepreneurship and Green entrepreneurial intention

In the context of green entrepreneurship, a positive attitude that integrates economic benefits with social and ethical values can better predict intention [24]. Empirical evidence indicates that such favorable attitudes drive students to persist in green venture creation because they align with personal values and support acceptance of short-term trade-offs [2]. Simultaneously, positive attitudes orient sustainable-innovation goals and foster the pursuit of creative solutions. It also amplifies the relative impacts of subjective norms and perceived behavioral control on intentions, whereas negative attitudes can undermine entrepreneurial intent even when social support or resources are available.

H7: Attitudes toward green entrepreneurship have a significant positive influence on the green entrepreneurial intention of students in Ho Chi Minh City.

Entrepreneurial self-efficacy and green entrepreneurial intention

Entrepreneurial self-efficacy serves as a critical cognitive mechanism that determines whether an attractive business opportunity is perceived as actionable. Students with high self-efficacy in opportunity recognition (searching), team leadership, resource mobilization, and persistence through obstacles are more likely to set ambitious entrepreneurial goals and maintain sustained commitment to their venture creation process. In general entrepreneurship literature, self-efficacy is well established as a key mediating mechanism through which prior learning and experience translate into entrepreneurial intentions [31, 35]. In green entrepreneurship, this cognitive belief becomes particularly vital, as students must navigate dual complexities by integrating commercial business operations with ecological problem-solving. Empirical evidence across diverse institutional settings consistently confirms a strong positive relationship between entrepreneurial self-efficacy and green entrepreneurial intentions [8, 32, 33]. Although self-efficacy alone does not guarantee venture launch, it substantially strengthens students' readiness to choose green entrepreneurship as a viable career path. Consequently, this study posits a positive association between confidence in entrepreneurial capability and green entrepreneurial intention.

H8: Entrepreneurial self-efficacy is positively associated with green entrepreneurial intention.

The moderating role of family support

Family support encompasses both tangible and intangible resources, which mitigate stress, enhance risk-coping capacity, and strengthen personal beliefs, attitudes, and self-efficacy toward entrepreneurship [36]. Guaranteed family capital alleviates concerns about funding shortages and early failure risks, allowing individuals to focus their cognitive resources on implementing ideas [37]. Encouragement and expectations act as a protective buffer against uncertainty, enabling entrepreneurial self-efficacy to translate more stably into actionable intentions [38]. This effect is particularly pronounced in green entrepreneurship, which demands long-term capital commitment and strict environmental compliance, and where family support serves as a vital catalyst for sustaining long-term venture commitment [2]. In Eastern cultural contexts like Vietnam, the family also plays a crucial role in legitimizing career choices and providing access to real-world social networks, thereby empowering supported individuals to translate their capability beliefs into stronger entrepreneurial intentions [39].

H9: Family support positively moderates the association between entrepreneurial self-efficacy and green entrepreneurial intention, such that the association is stronger when family support is higher.

The mediating role of subjective norms

The Stimulus–Organism–Response (S-O-R) framework posits that external environmental cues act as institutional stimuli (S) that shape individuals' internal cognitive and affective evaluations (O), which subsequently drive behavioral intentions or approach responses (R) [16]. In higher education, perceived university entrepreneurial

support serves as a salient environmental stimulus that signals social approval and legitimizes green entrepreneurship as a desirable career path [17, 27]. Specifically, entrepreneurship courses, business competitions, mentorship, and institutional recognition reinforce students' perceptions of reference group expectations, thereby strengthening their subjective norms [15, 24]. Rather than operating solely through a direct resource-provision effect, university support functions through an indirect cognitive mechanism: it first shifts students' perceived social expectations, which then drive their intention formation. Empirical evidence connecting university support to planned-behavior cognitions [17, 32] and findings confirming the link between subjective norms and green intentions [33] jointly validate this indirect pathway.

H10: Subjective norms mediate the positive association between university entrepreneurial support and green entrepreneurial intention.

The mediating role of entrepreneurial self-efficacy

University support that includes coursework, mentoring, and business incubation builds students' practical skills and confidence in their performance. Guided by Social Cognitive Theory [30], these experiential activities strengthen entrepreneurial self-efficacy, transforming green venture creation from a distant wish into an achievable career goal. Consistent with research identifying self-efficacy as a core mediator [31, 35], empirical evidence from Ecuador and Vietnam shows that university support indirectly fosters green entrepreneurial intentions by boosting students' confidence in their capabilities [33]. This pathway clarifies how institutional resources successfully translate into green intentions.

H11: Entrepreneurial self-efficacy mediates the positive association between university entrepreneurial support and green entrepreneurial intention.

The mediating role of perceived behavioral control

University support such as mentorship, business incubation, and funding guidance enhances students' perceived feasibility by removing operational uncertainties. Guided by the Theory of Planned Behavior [15, 40], these enabling resources strengthen students' perceived behavioral control (PBC), making green venture creation appear manageable by reducing perceived obstacles. In line with Vietnamese evidence confirming that PBC mediates the impact of educational support on intention [17], this indirect mechanism is especially crucial for green entrepreneurship given its distinct technological, financial, and regulatory constraints. Consequently, PBC functions as a key psychological mediator connecting university support to students' green entrepreneurial intentions.

H12: Perceived behavioral control mediates the positive association between university entrepreneurial support and green entrepreneurial intention.

3. Research Methodology

Research Design

This study adopted a two-phase research design comprising instrument development and a main quantitative survey. In the initial phase, a panel of eight academic and industry experts reviewed a preliminary questionnaire to establish content validity and adapt the measurement scales to the specific context of green entrepreneurship. All eight

respondents fully agreed with the proposed scales, requiring no modifications. This process confirmed the instrument's content validity and established a robust foundation for the subsequent quantitative analysis. Subsequently, a pilot study involving 50 university students was conducted to verify the reliability and internal consistency of the constructs. After successfully validating the instrument, the main quantitative phase empirically tested the theoretical model and hypothesized relationships.

Measurement scales

To ensure content validity, the proposed model's seven constructs were measured using items adapted from established literature. Specifically, university entrepreneurial support (four items) and green entrepreneurial intention (five items) were adapted from Yi (2021) [32] and Nguyen *et al.* (2022) [8]. The measurements for the core TPB components included: attitudes toward green entrepreneurship (four items) adapted from Nguyen *et al.* (2022) [8], subjective norms (four items) from Al-Mamary (2025) [11], and perceived behavioral control (four items) from Aliedan *et al.* (2022) [17]. Additionally, entrepreneurial self-efficacy (five items) was derived from Alvarez-Risco *et al.* (2021) [33] and Nguyen *et al.* (2022) [8], while family support (six items) was adopted from Mei *et al.* (2022) [13]. All 32 items were assessed using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Sample and data collection

Data were collected between September and November 2025. To ensure sample relevance, specific inclusion criteria were established: participants had to be officially enrolled students at universities in Ho Chi Minh City (such as Vietnam National University Ho Chi Minh City, Ho Chi Minh City University of Technology, Ho Chi Minh City University of Education, and Industrial University of Ho Chi Minh City) who possessed a basic awareness of or interest in green entrepreneurship. The study used a non-probability sampling approach, combining convenience and purposive techniques. The study used a non-probability sampling approach, combining convenience and purposive techniques. This method is well suited to exploratory research contexts where a comprehensive sampling frame is unavailable [41].

The study used a mixed-mode data collection strategy. Online questionnaires via Google Forms were distributed through Email, Zalo, and Facebook to maximize reach. To complement this and reach highly relevant participants, researchers conducted in-person data collection at entrepreneurial clubs across the mentioned universities. During these offline sessions, researchers administered the structured surveys face-to-face and explained the measurement scales to ensure participants fully understood the constructs. To comply with ethical standards and minimize social desirability bias, participation was strictly anonymous. Across these channels, we initially collected 510 responses. During the rigorous data screening process, strict exclusion criteria were applied: incomplete questionnaires and responses exhibiting unengaged

behaviors, such as straight-lining, were systematically removed to ensure data integrity. As a result, 453 valid observations remained in the final sample. For a measurement model with 32 observed variables, standard guidelines recommend a minimum sample of 160. Thus, the sample of 453 substantially exceeds this threshold, meeting the requirements for multi-group analysis.

Data analysis methods

Data analysis was conducted using SPSS 27.0 and SmartPLS 4, using PLS-SEM with bootstrapping to test the hypotheses and assess relationships in the model. Data analysis proceeded in sequential steps. First, descriptive statistics including frequencies, percentages, means, and standard deviations were calculated to summarize demographic characteristics and sample distributions. Second, scale internal consistency was assessed via Cronbach's alpha, adhering to the standard 0.70 threshold [42]. Third, indicator reliability was evaluated using outer loadings; values above 0.70 indicate strong contribution, and items between 0.40 and 0.70 were retained based on theoretical importance and construct validity [43]. Fourth, Composite Reliability (CR) was examined to account for varying indicator weights, with values falling between 0.70 and 0.95 confirming satisfactory construct reliability [43]. Fifth, convergent validity was confirmed using Average Variance Extracted (AVE $\geq$ 0.50), ensuring constructs explain over 50% of indicator variance [44]. Discriminant validity was established via the Heterotrait–Monotrait ratio (HTMT $<$ 0.85/0.90) [45]. Multicollinearity was ruled out as Variance Inflation Factors remained well below acceptable limits (VIF $<$ 3.3/5.0). Hypothesis testing and path significance were conducted using bootstrapping with 5,000 resamples at $p < .05$ [43]. Model explanatory power and relative predictor contributions were evaluated using R² benchmarks (0.25, 0.50, 0.75) and f² effect sizes (0.02, 0.15, 0.35 for small, medium, and large effects) [45].

4. Results

Sample characteristics

The official research sample comprised 453 observations, with the survey targets being students currently studying and working in Ho Chi Minh City. In the sample, males accounted for 214 respondents (47.2%), and females accounted for 239 respondents (52.8%). In terms of age groups, 436 respondents were aged 25–34 (96.2%), 13 were aged 35–44 (2.9%), and 4 were aged 45 and above (0.9%). Regarding educational attainment, undergraduate students accounted for 437 respondents (96.5%), college/diploma students represented 10 (2.2%), and postgraduate students accounted for 6 (1.3%). By field of study: Business majors accounted for 312 respondents (68.9%), Architecture & Construction comprised 54 (11.9%), Basic Sciences accounted for 56 (12.4%), Manufacturing & Processing represented 14 (3.1%), while other disciplines-including Information Technology, Law & Humanities, Arts & Aesthetics & Graphic Design, Journalism & Social Sciences, and Pedagogy-accounted for proportions of 0.7%, 1.1%, 0.9%, 0.4%, and 0.7%, respectively.

Measurement model assessment

Table 1: Reliability of Measurement Scales

Construct	Item	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)	Outer Loading	Mean
AT	AT1	0.812	0.876	0.639	0.791	3.75
	AT2				0.786	3.74
	AT3				0.813	3.72
	AT4				0.807	3.66
FS	FS1	0.818	0.867	0.521	0.741	3.41
	FS2				0.723	3.42
	FS3				0.700	3.44
	FS4				0.744	3.40
	FS5				0.704	3.42
	FS6				0.718	3.35
GEI	GEI1	0.893	0.922	0.704	0.809	3.77
	GEI2				0.845	3.82
	GEI3				0.913	3.98
	GEI4				0.745	3.97
	GEI5				0.874	4.72
PCB	PCB1	0.874	0.912	0.722	0.870	3.60
	PCB2				0.849	3.55
	PCB3				0.835	3.64
	PCB4				0.844	3.77
SE	SE1	0.889	0.918	0.693	0.866	3.36
	SE2				0.786	3.62
	SE3				0.805	3.36
	SE4				0.797	3.53
	SE5				0.901	4.38
SN	SN1	0.859	0.904	0.702	0.804	3.95
	SN2				0.832	3.89
	SN3				0.844	4.04
	SN4				0.870	4.03
UES	UES1	0.856	0.903	0.699	0.812	4.16
	UES2				0.862	4.35
	UES3				0.825	4.32
	UES4				0.844	4.32

Note. AT = attitudes; FS = family support; GEI = green entrepreneurial intention; PBC = perceived behavioral control; SE = entrepreneurial self-efficacy; SN = subjective norms; UES = university entrepreneurial support; CR = composite reliability; AVE = average variance extracted. Construct-level statistics follow the SmartPLS summary.

Table 1 presents the test results for Cronbach's alpha (α), Composite Reliability (CR), and Average Variance Extracted (AVE) of the measurement scales in the model. The results indicate that all scales exceeded the minimum threshold of 0.6 for both Cronbach's alpha (α) and Composite Reliability (CR). Specifically: $\alpha_{AT} = 0.812$; $\alpha_{FS} = 0.818$; $\alpha_{GEI} = 0.893$; $\alpha_{PCB} = 0.874$; $\alpha_{SE} = 0.889$; $\alpha_{SN} = 0.859$; $\alpha_{UES} = 0.856$. The CR values ranged from 0.867 to 0.922, well within the recommended range of [0.75–0.95] [41, 46], demonstrating good scale reliability and high internal consistency. The Average Variance Extracted (AVE) values of all scales were close to 0.5. Therefore, the measurement scales in the research model met the reliability standards of Hair *et al.* (2019) [43]. The results show that the factor loadings of all retained observed variables fell within the range of 0.4 – 0.7. These observed variables hold significant content value within the scales. Consequently, the observed variables used in the research model achieved convergent validity according to Hair *et al.* (2019) [43]. The mean values range between 3.35 and 4.72, indicating a consistently positive assessment from

fair to high for all surveyed items. In summary, according to the evaluation standards of Hair *et al.* (2019) [43] regarding Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE) of the model, and Mean values, the measurement scales fulfill the criteria for reliability and convergent validity, there by meeting the requirements to proceed with subsequent analytical steps.

Discriminant validity

Table 2: Fornell–Larcker matrix for the six reported constructs

	AT	GEI	PBC	SE	SN	UES
AT	.799					
GEI	.313	.839				
PBC	.179	.383	.850			
SE	.210	.539	.222	.832		
SN	.225	.501	.243	.178	.838	
UES	.286	.615	.223	.387	.304	.836

Note. Diagonal entries are the square roots of AVE; off-diagonal entries are construct correlations. This is a Fornell–Larcker matrix, not an HTMT matrix. The reported matrix does not include FS. The diagonal does not provide a seven-construct discriminant-validity test [44, 45].

As shown in Table 2, the square root of Average Variance Extracted (AVE) exceeded its correlations with the other displayed constructs. However, the matrix omits family support. The available matrix therefore supports a limited assessment and does not establish discriminant validity for all seven constructs. In particular, the potential overlap between family support and subjective norms requires further examination. A numerical heterotrait–monotrait matrix covering all constructs is needed before making a comprehensive discriminant-validity claim (45).

Structural Model

Table 3: Direct relationships and moderation

H	Path	β	t	95% CI	p	Decision
H1	UES→SN	.304	6.927	[.219, .389]	< .001	Supported
H2	UES→PBC	.223	5.221	[.142, .309]	< .001	Supported
H3	UES→AT	.286	6.268	[.197, .378]	< .001	Supported
H4	UES→SE	.387	10.518	[.314, .460]	< .001	Supported
H5	SN→GEI	.358	9.231	[.277, .430]	< .001	Supported
H6	PBC→GEI	.203	6.475	[.140, .264]	< .001	Supported
H7	AT→GEI	.112	3.060	[.040, .182]	.002	Supported
H8	SE→GEI	.401	12.592	[.338, .463]	< .001	Supported
H9	FS×SE→GEI	.081	2.159	[.011, .156]	.031	Supported

Note. All nine estimates support their proposed directions at $p < .05$. CI = confidence interval; β = standardized path estimate. H9 is the FS × SE interaction predicting GEI.

Family support positively moderated the self-efficacy–intention association ($\beta = .081$, 95% CI [.011, .156], $p = .031$), supporting H9 at the .05 significance level. The estimate is consistent with a stronger association at higher levels of family support. However, it does not establish the significance of the slope at specific levels of family support because conditional slope estimates were not reported. A full interaction-model assessment also requires reporting the main effect of family support and details of the interaction construct, which the reported coefficient table does not include.

The three reported indirect associations were positive: via subjective norms ($\beta = .109$), self-efficacy ($\beta = .155$), and

perceived behavioral control ($\beta = .045$), all with $p < .001$ (Table 4). The attitude indirect effect was not available for inference. Although multiplying the two-point estimates along the attitude path yields approximately .032, this arithmetic value lacks a bootstrap confidence interval and thus is not presented as a confirmed mediation result.

Table 4: Reported specific indirect effects

H	Indirect path	β	t	95% CI	p	Decision
H10	UES $\rightarrow$ SN $\rightarrow$ GEI	.109	4.540	[.065, .158]	< .001	Supported
H11	UES $\rightarrow$ SE $\rightarrow$ GEI	.155	6.803	[.113, .201]	< .001	Supported
H12	UES $\rightarrow$ PBC $\rightarrow$ GEI	.045	3.502	[.023, .074]	< .001	Supported

Note. The attitude indirect effect was not reported. Effects are identified by their constituent paths. Confidence intervals and significance tests follow the reported bootstrap results.

Green entrepreneurial intention had $R^2 = .555$ and adjusted $R^2 = .549$. The corresponding R^2 values for attitudes, subjective norms, perceived behavioral control, and self-efficacy were .082, .092, .050, and .150. Thus, university support alone explained only a small proportion of each psychological construct, while the predictors jointly accounted for a larger share of intention. Reported structural variance inflation factors ranged from 1.000 to 1.126, indicating no marked collinearity among the predictors represented in the available results; these values are not evidence that common-method bias is absent.

Table 5: Explained variance and predictive relevance

Endogenous construct	R^2	Adjusted R^2	Q^2
Attitudes	.082	-	.076
Subjective norms	.092	-	.087
Perceived behavioral control	.050	-	.045
Entrepreneurial self-efficacy	.150	-	.146
Green entrepreneurial intention	.555	.549	.345

Note. Adjusted R^2 was reported only for green entrepreneurial intention. Q^2 values are the reported Stone-Geisser predictive-relevance statistics.

For intention, the reported effect sizes were .026 for attitudes, .257 for subjective norms, .083 for perceived behavioral control, and .321 for self-efficacy. The effect sizes of university support on attitudes, subjective norms, perceived behavioral control, and self-efficacy were .089, .102, .053, and .176, respectively. Under conventional .02, .15, and .35 benchmarks, these are small or medium effects, rather than uniformly strong effects^[43]. The reported Q^2 for intention was .345; the remaining values were .076 for attitudes, .087 for subjective norms, .045 for perceived behavioral control, and .146 for self-efficacy. These positive values indicate predictive relevance within the reported procedure, while an out-of-sample prediction claim would require an appropriate holdout or prediction assessment.

Table 6. Reported effect sizes

Predictor	Endogenous construct	f^2	Magnitude
University entrepreneurial support	Attitudes	.089	Small
University entrepreneurial support	Subjective norms	.102	Small
University entrepreneurial support	Perceived behavioral control	.053	Small
University entrepreneurial support	Entrepreneurial self-efficacy	.176	Medium
Attitudes	Green entrepreneurial intention	.026	Small
Subjective norms	Green entrepreneurial intention	.257	Medium
Perceived behavioral control	Green entrepreneurial intention	.083	Small
Entrepreneurial self-efficacy	Green entrepreneurial intention	.321	Medium

Note. Magnitude follows the conventional .02, .15, and .35 benchmarks for small, medium, and large effects, respectively.

5. Discussion

The positive associations between perceived university support and the psychological antecedents are consistent with evidence linking educational support to the cognitive conditions of entrepreneurship^[17, 47]. The pattern also fits the proposed stimulus–organism–response interpretation: students who perceive a more supportive university environment report more favorable attitudes, stronger perceived approval, greater perceived feasibility, and higher confidence. The model does not identify which individual services drive these associations. Consequently, courses, mentoring, incubation, and financing connections should be viewed as plausible intervention areas rather than as separately proven causes.

The comparatively large self-efficacy estimates accord with green entrepreneurship research emphasizing confidence in entrepreneurial capability^[9, 33]. Subjective norms also appear relevant in this sample, suggesting that perceived social approval accompanies intention alongside individual confidence. However, this pattern should not be attributed to Vietnamese culture alone because the study includes no cross-cultural comparison. The contrasting nonsignificant norm and control relationships reported in Saudi Arabia^[11] further caution against treating the present coefficient ordering as universal. Differences in sampling, measurement, and institutional settings explain these differences and require direct comparative research.

The family-support interaction adds a boundary condition to the proposed model. Prior work identifies family support as relevant to students' progression through entrepreneurship^[13], whereas the present estimate specifically concerns the self-efficacy–intention association. This distinction matters because intention is not creation. Longitudinal

entrepreneurship research examines the intention–action relationship directly [26]; the present survey does not. Accordingly, the findings suggest how university and family contexts may accompany students' intentions, but they do not demonstrate the launch or environmental performance of green businesses.

6. Conclusion

This study examines perceived university entrepreneurial support and green entrepreneurial intention through psychological antecedents and family support in Ho Chi Minh City. Among 453 respondents, university support was positively associated with attitudes, subjective norms, perceived behavioral control, and self-efficacy. These constructs were positively associated with intention, with self-efficacy showing the largest estimated coefficient. Three reported indirect paths were significant, and family support positively moderated the self-efficacy–intention relationship. The model explained 55.5% of the variance in intention.

The findings contribute context-specific evidence on how institutional and family conditions relate to the psychological foundations of green entrepreneurial intention. Their practical relevance lies in treating capability development and social encouragement as complementary areas of university support. The results remain associative and do not establish subsequent venture formation. More complete measurement and interaction reporting, followed by longitudinal research, is necessary to assess the robustness and behavioral consequences of the proposed relationships.

7. Limitations and future research

Several limitations qualify the findings. First, cross-sectional self-reports create risk of common-method variance and reverse directionality: students with stronger prior entrepreneurial interest may perceive university support more favorably. Second, convenience and judgment sampling, the interest-screening question, and the dominance of business students restrict representativeness. The mix of reported education levels also means that the sample should not be described as exclusively undergraduate. Third, measurement content overlaps across perceived behavioral control and self-efficacy, while the family-support scale contains two similar financing items. Several capability items concern general entrepreneurship, and the fifth intention item also refers to managerial participation, potentially broadening the outcome beyond starting a venture.

Fourth, the incomplete seven-construct discriminant-validity evidence and the missing family-support main-effect and conditional-slope results limit interpretation of the moderation model. A fuller mediation assessment also requires the attitude indirect effect and a direct university support–intention estimate. Future research should report these outputs explicitly, compare theoretically plausible measurement structures, and document missing-data handling and model-estimation settings. Longitudinal designs and broader sampling could then examine whether changes in support precede changes in intention and actual green venture creation. Objective indicators of program use and venture environmental performance would help distinguish perceived support, entrepreneurial aspirations, and substantive sustainability outcomes.

For recommendations, universities should consider embedding green venture projects in entrepreneurship education so that students can practice opportunity evaluation, customer discovery, resource planning, and environmental problem assessment. Mentoring and structured feedback can be organized around these tasks to help students develop realistic confidence rather than relying only on promotional events. Partnerships with incubators and enterprises may provide opportunities to test ideas and understand financing requirements. These recommendations follow the pattern of associations and should themselves be evaluated through program research.

Universities may also involve families through voluntary information sessions explaining entrepreneurial career pathways, potential risks, and available institutional resources. Family engagement should support student choice and should not make access to entrepreneurship programs dependent on household wealth. Scholarships, shared facilities, and accessible mentoring can support students with limited family resources. Program evaluation should track participation, changes in perceived capability, and subsequent entrepreneurial activity separately, and assess environmental outcomes for developing ventures.

8. References

- Schaltegger S, Wagner M. Sustainable entrepreneurship and sustainability innovation: Categories and interactions. *Business Strategy and the Environment*. 2011; 20(4):222-237.
- Shepherd DA, Patzelt H. The new field of sustainable entrepreneurship: Studying entrepreneurial action linking “what is to be sustained” with “what is to be developed”. *Entrepreneurship Theory and Practice*. 2011; 35(1):137-163.
- World Bank Group. Vietnam country climate and development report: Reconciling economic success with climate risks-Overview. World Bank Group, 2022.
- New Energy Nexus Vietnam. Funding for Vietnam's climate tech startups growing 365% year-on-year, reveals new report 2024 [Updated September 30, 2024]. Available from: <https://www.newenergynexus.vn/news/dau-tu-cho-cac-startup-cong-nghe-khi-hau-tai-viet-nam-tang-365-so-voi-nam-truoc-theo-bao-cau-moi/>
- Prime Minister of Vietnam. Quyết định số 1665/QĐ-TTg về việc phê duyệt Đề án “Hỗ trợ học sinh, sinh viên khởi nghiệp đến năm 2025” [Decision No. 1665/QĐ-TTg approving the project “Supporting students' entrepreneurship through 2025”]. Government of Vietnam, 2017.
- UEH Youth. Cuộc thi khởi nghiệp xanh - Green Economy and Future - GEF 2025 [Green entrepreneurship competition - Green Economy and Future - GEF 2025], 2025 [Updated May 21, 2025]. Available from: <https://youth.ueh.edu.vn/tin-tuc/cuoc-thi-khoi-nghiep-xanh-green-economy-and-future-gef-2025-2/>
- Maheshwari G, Kha KL. Investigating the relationship between educational support and entrepreneurial intention in Vietnam: The mediating role of entrepreneurial self-efficacy in the theory of planned behavior. *The International Journal of Management Education*. 2022; 20(2):100553.
- Nguyen TL, Pham NAN, Nguyen TKN, Nguyen NKV,

- Ngo HT, Pham TTL. Factors affecting green entrepreneurship intentions during the COVID-19 pandemic: An empirical study in Vietnam. *The Journal of Asian Finance, Economics and Business*. 2022; 9(2):383-393.
9. Le TNP, Nguyen KH, Nguyen NTH. How environmental understanding affects the green entrepreneurial intention of Centennials in Vietnam. *Entrepreneurial Business and Economics Review*. 2023; 11(4):123-137.
 10. Ghi TN, Van NT. The green entrepreneurship intentions of Vietnamese students: An approach from the SOR model. *Journal of Organizational Behavior Research*. 2025; 10(1):58-70.
 11. Al-Mamary YH. Factors shaping green entrepreneurial intentions towards green innovation: An integrated model. *Future Business Journal*. 2025; 11:21.
 12. Chauhan S, Chauhan K, Singh S, Mahlawat S, Kumar V, Singh S. Analyzing family support mediating role between motivational factors and sustainable entrepreneurial intentions: A study on university students. *Sustainable Technology and Entrepreneurship*. 2024; 3(3):100076.
 13. Mei H, Ma Z, Zhan Z, Ning W, Zuo H, Wang J, *et al.* University students' successive development from entrepreneurial intention to behavior: The mediating role of commitment and moderating role of family support. *Frontiers in Psychology*. 2022; 13:859210.
 14. Pham HH, Le TL. Entrepreneurial education and entrepreneurial intention among higher education students in Vietnam: Do entrepreneurial self-efficacy and family support matter? *Higher Education, Skills and Work-Based Learning*. 2023; 13(2):403-422.
 15. Ajzen I. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*. 1991; 50(2):179-211.
 16. Mehrabian A, Russell JA. An approach to environmental psychology: MIT Press, 1974.
 17. Aliedan MM, Elshaer IA, Alyahya MA, Sobaih AEE. Influences of university education support on entrepreneurship orientation and entrepreneurship intention: Application of theory of planned behavior. *Sustainability*. 2022; 14(20):13097.
 18. Mian SA. University's involvement in technology business incubation: What theory and practice tell us? *International Journal of Entrepreneurship and Innovation Management*. 2011; 13(2):113-121.
 19. Duong D. Environmental corporate social responsibility initiatives and the attitude-intention-behavior gap in green consumption. *Social Responsibility Journal*. 2023; 20.
 20. Belz F-M, Binder J. Sustainable Entrepreneurship: A Convergent Process Model. *Business Strategy and the Environment*. 2015; 26.
 21. Vuong BN, Duy Phuong NN, Huan DD, Quan TN. A model of factors affecting entrepreneurial intention among information technology students in Vietnam. *Journal of Asian Finance, Economics and Business*. 2020; 7(8):461-472.
 22. Walter S, Block J. Outcomes of entrepreneurship education: An institutional perspective. *Journal of Business Venturing*. 2015; 31.
 23. Liu M, Gorgievski MJ, Qi J, Paas F. Perceived university support and entrepreneurial intentions: Do different students benefit differently? *Studies in Educational Evaluation*. 2022; 73:101150.
 24. Liñán F, Chen Y-W. Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*. 2009; 33(3):593-617.
 25. Tran AT, Von Korflesch H. A conceptual model of social entrepreneurial intention based on the social cognitive career theory. *Asia Pacific Journal of Innovation and Entrepreneurship*. 2016; 10(1):17-38.
 26. Kautonen T, Van Gelderen M, Fink M. Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*. 2015; 39(3):655-674.
 27. Entrialgo M, Iglesias V. The moderating role of entrepreneurship education on the antecedents of entrepreneurial intention. *International Entrepreneurship and Management Journal*. 2016; 12(4):1209-1232.
 28. Hockerts K. Determinants of social entrepreneurial intentions. *Entrepreneurship Theory and Practice*. 2017; 41(1):105-130.
 29. Mishra M, Sharma N, Kumar S, Shah M. Catalyzing green entrepreneurial behavior: The role of intentions and selective factors. *Cogent Business & Management*. 2024; 11.
 30. Bandura A. Self-efficacy: The exercise of control: W. H. Freeman, 1997.
 31. Nowiński W, Haddoud M, Lančarič D, Egerová D, Czegeledi C. The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*. 2017; 44:1-19.
 32. Yi G. From green entrepreneurial intentions to green entrepreneurial behaviors: The role of university entrepreneurial support and external institutional support. *International Entrepreneurship and Management Journal*. 2021; 17(2):963-979.
 33. Alvarez-Risco A, Mlodzianowska S, García-Ibarra V, Rosen MA, Del-Aguila-Arcentales S. Factors affecting green entrepreneurship intentions in business university students in COVID-19 pandemic times: Case of Ecuador. *Sustainability*. 2021; 13(11):6447.
 34. Al-Jubari I, Hassan A, Liñán F. Entrepreneurial intention among university students in Malaysia: Integrating self-determination theory and the theory of planned behavior. *International Entrepreneurship and Management Journal*. 2019; 15:1323-1342.
 35. Zhao H, Seibert SE, Hills GE. The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*. 2005; 90(6):1265-1272.
 36. Liñán F, Santos F. Does Social Capital Affect Entrepreneurial Intentions? *International Advances in Economic Research*. 2007; 13:443-453.
 37. Shirokova G, Osiyevskyy O, Bogatyreva K. Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*. 2016; 34(4):386-399.
 38. Hsu D, Wiklund J, Cotton R. Success, Failure, and Entrepreneurial Reentry: An Experimental Assessment of the Veracity of Self-Efficacy and Prospect Theory.

- Entrepreneurship Theory and Practice. 2017; 41:19-47.
39. Shinnar RS, Giacomini O, Janssen F. Entrepreneurial perceptions and intentions: The role of gender and culture. *Entrepreneurship Theory and Practice*. 2012; 36(3):465-493.
 40. Ajzen I. Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*. 2002; 32(4):665-683.
 41. Thọ ND. Phương pháp nghiên cứu khoa học trong kinh doanh: Thiết kế và thực hiện, 2012.
 42. Nunnally JC, Bernstein IH. *Psychometric Theory*. New York: McGraw-Hill, 1994 3rd ed.
 43. Hair JF, Risher JJ, Sarstedt M, Ringle CM. When to use and how to report the results of PLS-SEM. *European Business Review*. 2019; 31(1):2-24.
 44. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*. 1981; 18(1):39-50.
 45. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*. 2015; 43(1):115-135.
 46. Hair JF, Black WC, Babin BJ, Anderson RE. *Multivariate Data Analysis*, 2019.
 47. Saeed S, Yousafzai SY, Yani-De-Soriano M, Muffatto M. The role of perceived university support in the formation of students' entrepreneurial intention. *Journal of Small Business Management*. 2015; 53(4):1127-1145.