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Determinants of Conservation-Oriented Entrepreneurial Intentions among Zoology Students: An Empirical Study

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ABSTRACT

The accelerating decline of global biodiversity and the growing complexity of wildlife conservation challenges demand innovative and financially sustainable solutions that transcend traditional conservation models. Integrating scientific expertise with entrepreneurial capability has emerged as a promising pathway to address ecological problems through market-based mechanisms. This study examines the determinants of conservation-enterprise intention among students of zoology by drawing upon the Theory of Planned Behavior and extending it with environmental value orientation and perceived institutional support. Using a quantitative research design, data were collected through a structured questionnaire administered to undergraduate students enrolled in zoology programs at accredited higher education institutions. The relationships among constructs were analyzed using multivariate statistical techniques to assess the relative influence of psychological and contextual factors on entrepreneurial intention within a conservation context. The findings reveal that attitude toward conservation entrepreneurship and perceived behavioral control are the most influential predictors of conservation-enterprise intention. Environmental value orientation and perceived university support also demonstrate significant positive effects, highlighting the importance of ecological commitment and institutional ecosystems in shaping entrepreneurial aspirations. In contrast, subjective norms exhibit a comparatively weaker association with intention formation. The proposed model accounts for a substantial proportion of variance in conservation-enterprise intention, indicating strong explanatory power. The study advances emerging scholarship on conservation entrepreneurship by situating zoology students as potential agents of biodiversity-oriented innovation. It further underscores the strategic role of higher education institutions in fostering interdisciplinary competencies that bridge ecological science and venture creation. Policy implications emphasize the integration of entrepreneurship education within zoological curricula to promote sustainable biodiversity enterprises.

Keywords: *Conservation entrepreneurship; zoology education; entrepreneurial intention; biodiversity innovation; environmental values; university support.*

INTRODUCTIONS

The unprecedented rate of global biodiversity loss represents one of the most critical challenges confronting contemporary society. Accelerated species extinction, habitat fragmentation, climate change, invasive species proliferation, and unsustainable exploitation of wildlife resources collectively threaten ecological balance and long-term socio-economic stability. International assessments consistently indicate that biodiversity decline not only undermines ecosystem resilience but also compromises essential ecosystem services, including food security, climate regulation, pollination, and water purification. The magnitude and interconnected nature of these challenges demand interventions that are not merely protective but transformative, scalable, and financially sustainable. Conventional conservation approaches have historically relied on public sector funding, multilateral environmental agreements, and the activities of non-governmental organizations. While these mechanisms have achieved notable successes in protected area management, species recovery programs, and environmental advocacy, they often encounter structural and financial constraints. Limited public budgets, shifting political priorities, donor dependency, and bureaucratic inefficiencies can restrict the scalability and long-term viability of conservation initiatives. Moreover, conservation strategies that operate independently of economic systems may struggle to generate sustainable incentives for local communities and private stakeholders.

In response to these limitations, conservation entrepreneurship has emerged as an innovative paradigm that integrates ecological science with entrepreneurial processes. Conservation entrepreneurship refers to the identification and exploitation of opportunities that simultaneously generate ecological impact and economic value. Unlike traditional profit-oriented entrepreneurship, conservation entrepreneurship emphasizes dual objectives: biodiversity protection and financial sustainability. It mobilizes market mechanisms, private capital, technological innovation, and community participation to address conservation challenges in a systematic and scalable manner. Examples include wildlife-based ecotourism enterprises, biodiversity credit markets, conservation technology start-ups, sustainable aquaculture ventures, and digital platforms for wildlife monitoring. The growing recognition of conservation entrepreneurship reflects a broader shift toward sustainability-oriented business models. Increasingly, scholars and policymakers acknowledge that biodiversity conservation cannot be achieved solely through regulation and philanthropy; it must also be embedded within economic systems. Entrepreneurial actors are uniquely positioned to bridge institutional gaps, introduce innovative technologies, and design market incentives that align economic activity with ecological preservation. Consequently, understanding the antecedents of conservation-oriented entrepreneurial behavior has become an important research priority. Zoology, as a foundational biological discipline, plays a critical role in advancing biodiversity science. The study of animal biology, ecology, physiology, evolution, and behavior equips students with rigorous scientific knowledge essential for wildlife management, habitat restoration, species conservation, and ecosystem monitoring. Zoology graduates frequently contribute to research institutions, conservation agencies, environmental consultancies, and academic organizations. However, despite their deep domain expertise, zoology students are traditionally trained within a scientific paradigm that prioritizes research and

public-sector engagement over venture creation.

The translation of zoological knowledge into entrepreneurial ventures remains comparatively underexplored. While biological sciences have increasingly intersected with biotechnology and pharmaceutical entrepreneurship, conservation-oriented enterprise development within zoology education has received limited scholarly attention. This gap represents a missed opportunity. Zoology students possess specialized competencies - such as species identification, ecological assessment, animal health diagnostics, and biodiversity monitoring - that can serve as the foundation for innovative conservation enterprises. When combined with entrepreneurial skills, these competencies can generate scalable solutions addressing pressing environmental challenges. Integrating entrepreneurship within zoology education may therefore represent a strategic intervention for enhancing biodiversity innovation. By embedding entrepreneurial thinking into scientific curricula, universities can cultivate graduates capable of transforming ecological insights into viable enterprises. Such integration may foster the development of wildlife technology platforms that utilize remote sensing and artificial intelligence for species monitoring; conservation tourism enterprises that balance economic development with habitat protection; sustainable aquaculture systems that reduce pressure on wild populations; and biodiversity assessment services that support environmental compliance and ecological restoration initiatives.

The potential benefits of integrating entrepreneurship and zoology extend beyond individual career diversification. From a systemic perspective, conservation entrepreneurship can contribute to sustainable development by aligning environmental stewardship with economic opportunity. It may generate employment in rural and biodiversity-rich regions, incentivize community participation in conservation efforts, and attract private investment into underfunded ecological domains. Furthermore, entrepreneurial approaches often emphasize innovation, experimentation, and scalability - attributes essential for addressing complex socio-ecological problems. Nevertheless, fostering conservation entrepreneurship within zoology requires an understanding of the factors that shape students' entrepreneurial intentions. Entrepreneurial intention has been widely recognized as a robust predictor of venture creation behavior. Psychological determinants such as attitudes toward entrepreneurship, perceived self-efficacy, and social norms influence whether individuals consider entrepreneurial careers feasible and desirable. In sustainability-oriented contexts, additional variables - including environmental value orientation and perceived institutional support - may further influence intention formation. Within zoology education, students' strong environmental commitment may positively predispose them toward conservation enterprises. However, scientific identity alone may not translate into entrepreneurial action without supportive ecosystems, mentorship, and interdisciplinary training. Universities therefore play a crucial role in cultivating entrepreneurial competencies through curricular design, incubation programs, experiential learning opportunities, and industry partnerships.

Table 1.1.: Conceptual Foundations Linking Entrepreneurship and Zoology

Dimension	Traditional Conservation Approach	Conservation Entrepreneurship Approach	Relevance to Zoology Education
Funding Mechanism	Public funding, grants, NGOs	Market-based revenue models, impact investment	Encourages financial sustainability of ecological initiatives
Primary	Biodiversity protection	Biodiversity protection +	Aligns scientific expertise

Objective		economic value creation	with enterprise development
Innovation Orientation	Policy-driven and regulatory	Opportunity-driven and innovation-oriented	Promotes applied scientific innovation
Stakeholder Engagement	Government and NGOs	Private sector, communities, investors	Expands career pathways for zoology graduates
Scalability	Often resource-constrained	Designed for replication and scaling	Supports broader biodiversity impact
Skill Requirements	Scientific and policy expertise	Scientific + managerial + entrepreneurial competencies	Necessitates interdisciplinary curriculum integration
Example Applications	Protected areas, species recovery programs	Wildlife tech platforms, eco-tourism ventures, sustainable aquaculture	Provides practical venture opportunities for students

Source: Compiled by the researchers

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Conservation Entrepreneurship

Conservation entrepreneurship has emerged as a significant interdisciplinary field linking ecological science and entrepreneurial innovation. It conceptualizes entrepreneurship as a mechanism for addressing conservation challenges through opportunity recognition, resource mobilization, and scalable impact within complex social–ecological systems (Lobo et al., 2023). Unlike traditional conservation models that rely predominantly on public funding and non-governmental organizations, conservation entrepreneurship emphasizes financially sustainable models that integrate ecological and economic objectives. This approach reflects a broader shift toward sustainability-oriented innovation, where market-based instruments are mobilized to achieve environmental goals (Kuckertz et al., 2020). Scholars argue that conservation entrepreneurs function as institutional change agents who address governance gaps, enhance conservation financing, and introduce technological and organizational innovations (Dean & McMullen, 2007). By embedding biodiversity objectives within viable business models, conservation entrepreneurship contributes to long-term ecological resilience and reduces reliance on unstable funding mechanisms. Moreover, its integration within social–ecological systems acknowledge the interdependence of environmental, social, and economic dimensions, aligning conservation practice with sustainable development principles (Kuckertz et al., 2020).

Table 2.1.: Conceptual Dimensions of Conservation Entrepreneurship

Dimension	**Scholarly Foundation**	**Conservation Implication**
Opportunity Recognition	Dean & McMullen (2007)	Conceptualizes ecological degradation and environmental challenges as opportunities for entrepreneurial intervention and value creation.
Dual Value Creation	Lobo et al. (2023)	Integrates biodiversity conservation outcomes with financial viability, ensuring both ecological impact and economic sustainability.
Innovation Orientation	Kuckertz et al. (2020)	Promotes the development and scaling of innovative solutions that address complex ecological problems.
Institutional Change	Dean & McMullen (2007)	Seeks to transform governance structures, market mechanisms, and funding systems to overcome structural barriers to conservation.
Social–Ecological Integration	Lobo et al. (2023)	Aligns conservation initiatives with broader sustainable development objectives by embedding ecological goals within social and economic systems.

Source: Compiled by the researchers

Entrepreneurial Intention and Sustainability-Oriented Extensions

Entrepreneurial intention is widely recognized as a strong predictor of entrepreneurial behavior (Krueger et al., 2000). The Theory of Planned Behavior (TPB) posits that intention is shaped by three core determinants: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude reflects an individual's evaluation of entrepreneurship as desirable or beneficial; subjective norms represent perceived social expectations; and perceived behavioral control captures self-efficacy and perceived feasibility. In sustainability-oriented entrepreneurship research, scholars have extended traditional intention models by incorporating environmental values and contextual influences. Studies demonstrate that pro-environmental attitudes and ecological commitment significantly predict green entrepreneurial intention (Liñán & Chen, 2009; Roy, 2023). Environmental values serve as intrinsic motivators, aligning personal ethical commitments with entrepreneurial aspirations. Institutional context, particularly university support, also plays a critical role in shaping entrepreneurial intention. Entrepreneurial ecosystems within higher education institutions - including mentorship, incubation facilities, networking platforms, and entrepreneurship curricula - enhance both perceived desirability and feasibility of venture creation (Isenberg, 2010; Roy, 2023). Such support mechanisms reduce perceived risk and strengthen entrepreneurial self-efficacy.

Table 2.2: Determinants of Sustainability-Oriented Entrepreneurial Intention

Determinant	Theoretical Source	Empirical Support	Relevance to Conservation Entrepreneurship
Attitude	Ajzen (1991) – Theory of Planned Behavior	Liñán & Chen (2009)	A favorable evaluation of sustainability-oriented entrepreneurship increases the likelihood of forming conservation-focused venture intentions.
Subjective Norms	Ajzen (1991) – Theory of Planned Behavior	Krueger et al. (2000)	Perceived social approval from peers, mentors, and family influences the decision to pursue conservation entrepreneurship as a viable career path.
Perceived Behavioral Control	Ajzen (1991) – Theory of Planned Behavior	Krueger et al. (2000)	Higher levels of entrepreneurial self-efficacy strengthen perceptions of feasibility, thereby enhancing intention to initiate conservation ventures.
Environmental Values	Roy (2023) – Sustainability Orientation Framework	Sustainability-focused empirical research	Strong pro-environmental values and moral commitment to ecological protection drive the formation of green and conservation-oriented entrepreneurial intentions.
University Support	Isenberg (2010) – Entrepreneurial Ecosystem Theory	Roy (2023)	Institutional support mechanisms - such as incubation, mentoring, and sustainability-focused curricula - enhance entrepreneurial readiness for conservation-oriented ventures.

Source: Compiled by the researchers

Conceptual Model and Hypothesis Development

Building upon the TPB framework (Ajzen, 1991), this study proposes a conceptual model that integrates psychological determinants with sustainability-oriented extensions to explain conservation-enterprise intention among zoology students. The three TPB constructs—attitude, subjective norms, and perceived behavioral control—are retained due to their extensive empirical validation across entrepreneurship contexts (Krueger et al., 2000; Liñán & Chen, 2009). To enhance contextual relevance, the model incorporates two additional constructs:

Environmental Values (EV): Environmental values refer to the degree to which individuals prioritize biodiversity protection and ecological sustainability in their belief systems. Prior research indicates that strong environmental commitment significantly predicts green entrepreneurial intention (Roy, 2023). Zoology students, by virtue of their disciplinary training, may possess heightened ecological awareness, which could positively influence conservation-enterprise intention.

University Entrepreneurial Support (UES): University support encompasses institutional mechanisms such as entrepreneurship education, mentorship programs, incubation centers, funding access, and professional networks. Entrepreneurial ecosystem theory suggests that supportive institutional environments significantly influence venture intention and formation (Isenberg, 2010). In scientific disciplines, such support structures may be particularly important in bridging the gap between technical expertise and entrepreneurial application. The integration of EV and UES strengthens the explanatory power of intention-based models by acknowledging both normative motivation and structural reinforcement. The proposed hypotheses are as follows:

Table 2.3: Proposed Hypotheses

Hypothesis	Proposed Relationship	Theoretical Justification	References
H_1	Attitude → Conservation-enterprise intention	According to the Theory of Planned Behavior, a positive evaluation of conservation-oriented entrepreneurship increases the likelihood of forming behavioral intention.	Ajzen, 1991
H_2	Subjective norms → Conservation-enterprise intention	Perceived social pressure and normative support influence entrepreneurial career decisions and intention formation.	Krueger et al., 2000
H_3	Perceived behavioral control → Conservation-enterprise intention	Higher entrepreneurial self-efficacy enhances perceived feasibility, thereby strengthening intention.	Ajzen, 1991
H_4	Environmental values → Conservation-enterprise intention	Strong ecological values and moral commitment to sustainability foster the development of green and conservation-oriented entrepreneurial intentions.	Roy, 2023
H_5	University entrepreneurial support → Conservation-enterprise intention	Supportive institutional ecosystems, including mentorship, incubation, and sustainability-focused programs, enhance entrepreneurial readiness and intention.	Isenberg, 2010

Source: Compiled by the researchers

Research Gap

Although conservation entrepreneurship has gained increasing scholarly attention as a mechanism for integrating biodiversity protection with market-based innovation, empirical investigations remain limited, particularly within the context of discipline-specific education. Existing studies have largely focused on general sustainable or green entrepreneurship without examining conservation-oriented entrepreneurial intention among students in biological sciences. Furthermore, while intention-based models such as the Theory of Planned Behavior have been widely applied in business and management disciplines, their adaptation to zoology education remains underexplored. Prior research also tends to emphasize psychological determinants in isolation, often overlooking the combined influence of environmental value orientation and institutional support mechanisms within academic ecosystems. Additionally, there is limited empirical evidence examining how scientific training in zoology interacts with entrepreneurial cognition to shape conservation-enterprise intention. Consequently, a significant gap exists in

understanding the interdisciplinary linkage between zoological knowledge, sustainability values, and entrepreneurial intention formation. Addressing this gap is essential for advancing theoretical integration between conservation science and entrepreneurship research, as well as for informing curriculum design aimed at fostering biodiversity-oriented innovation.

Table 2.4: Summary of Research Gap

Area of Existing Research	Identified Limitation	Specific Research Gap	Contribution of the Present Study
Conservation Entrepreneurship Studies	Predominantly grounded in case studies and practitioner-oriented narratives	Limited empirical examination of entrepreneurial intention at the student level	Empirically investigates conservation-enterprise intention among zoology students
Green/Sustainable Entrepreneurship Research	Broad sustainability orientation across diverse business domains	Absence of conservation-specific entrepreneurial intention frameworks	Develops and operationalizes a conservation-enterprise intention construct
Theory of Planned Behavior Applications	Extensively validated within business and management disciplines	Minimal application within zoology or biological sciences education contexts	Adapts and extends the TPB framework to a zoology education setting
Environmental Values Research	Often treats pro-environmental attitudes independently of entrepreneurial cognition	Limited integration of environmental values within entrepreneurial intention models	Incorporates environmental values as a predictor within a conservation entrepreneurship intention framework
University Entrepreneurial Ecosystems Research	Focuses largely on general or business student populations	Insufficient attention to science-based and discipline-specific ecosystems	Assesses the role of institutional entrepreneurial support within zoology education

Source: Compiled by the researchers

Research Objectives

To analyze the effect of core psychological determinants (attitude, subjective norms, and perceived behavioral control) on conservation-enterprise intention among zoology students.

To examine the influence of environmental values and perceived university entrepreneurial support on the development of conservation-oriented entrepreneurial intention in zoology education.

METHODOLOGY

Research Design

The present study adopts a cross-sectional, questionnaire-based quantitative research design. This approach is appropriate for examining the relationships among psychological, institutional, and value-based determinants of conservation-enterprise intention at a single point in time. A structured survey instrument was employed to collect standardized responses, enabling statistical analysis of hypothesized relationships derived from the Theory of Planned Behavior and sustainability-oriented entrepreneurship literature.

Table 4.1 Research Design

Component	Description
Research Approach	Quantitative research methodology aimed at examining relationships among theoretically derived variables through statistical analysis.
Design Type	Cross-sectional design, collecting data at a single point in time to assess associations among study constructs.
Data Collection	Structured questionnaire survey administered to respondents using standardized

Method	measurement scales.
Purpose	To examine the determinants of conservation-enterprise intention among zoology undergraduate students.
Analytical Orientation	Deductive hypothesis testing grounded in an intention-based theoretical framework, primarily derived from the Theory of Planned Behavior.

Source: Compiled by the researchers

Sample and Data Collection

The target population comprised undergraduate students enrolled in zoology programs (Years 1–3). Zoology students were selected due to their disciplinary proximity to biodiversity conservation and ecological sustainability, making them a theoretically relevant population for examining conservation-oriented entrepreneurial intention. A non-probability convenience sampling technique was employed. Data were collected through classroom-based distribution of printed questionnaires and dissemination of an online survey link to maximize participation. The sample size for analysis was N = 320 respondents after data screening. Ethical considerations were strictly observed. Participation was voluntary, informed consent was obtained prior to survey completion, and anonymity was assured. Respondents were informed that their data would be used solely for academic research purposes.

Table 4.2: Sample and Data Collection

Element	Description
Target Population	Undergraduate students enrolled in Zoology programs (Years 1–3), selected due to their disciplinary relevance to biodiversity conservation and ecological sustainability.
Sampling Technique	Non-probability convenience sampling, based on accessibility and voluntary participation of respondents.
Data Collection Mode	Administration of structured questionnaires through classroom-based distribution and dissemination of an online survey link to enhance response coverage.
Assumed Usable Sample Size	N = 320 valid responses retained after preliminary data screening and validation.
Ethical Considerations	Participation was voluntary; informed consent was obtained prior to data collection, and anonymity and confidentiality of respondents were strictly maintained.

Source: Compiled by the researchers

Measures

All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each construct was operationalized using 4–6 items adapted from established entrepreneurial intention and green entrepreneurship measurement traditions. Item wording was aligned with established intention research practices, particularly those used in sustainability-oriented entrepreneurial intention studies.

Main Constructs

The dependent and independent variables included in the model are presented below.

Table 4.3: Measurement of Main Constructs

Construct	Abbreviation	Role in Model	Description
Conservation-enterprise Intention	CEI	Dependent Variable	The degree to which an individual expresses a deliberate intention to establish a venture aimed at biodiversity conservation or ecological sustainability.
Attitude toward Conservation Entrepreneurship	ATCE	Independent Variable	The individual's overall evaluative judgment regarding conservation entrepreneurship as desirable, valuable, and worthwhile.
Subjective Norms	SN	Independent Variable	The perceived social expectations and normative pressures from significant referents (e.g., peers,

			faculty, family) to engage in conservation entrepreneurship.
Perceived Behavioral Control	PBC	Independent Variable	The perceived level of personal capability, confidence, and self-efficacy in initiating and managing a conservation-oriented enterprise.
Environmental Values	EV	Independent Variable	The extent of an individual's pro-environmental orientation, reflecting moral commitment to ecological protection and sustainability.
University Entrepreneurial Support	UES	Independent Variable	The perceived availability and effectiveness of institutional resources, mentorship, training, and ecosystem support for entrepreneurial activities within the university context.

Source: Compiled by the researchers

Control Variables

To minimize potential confounding effects and enhance the internal validity of the estimated relationships, several demographic and background characteristics were included as control variables. These variables have been widely acknowledged in entrepreneurship research as factors that may influence entrepreneurial intention independent of the primary theoretical predictors. Controlling for these variables enables a more precise estimation of the effects of attitudinal, normative, institutional, and value-based determinants on conservation-enterprise intention.

Table 4.4: Control Variables

Variable	Operationalization
Gender	Dummy coded variable (0 = Female, 1 = Male).
Year of Study	Categorical variable representing academic level (Year 1–3).
Family Business Background	Dummy coded variable indicating presence of entrepreneurial family exposure (0 = No, 1 = Yes).
Prior Entrepreneurship Training	Dummy coded variable reflecting prior formal exposure to entrepreneurship education or training programs (0 = No, 1 = Yes).

Source: Compiled by the researchers

DATA ANALYSIS AND RESULTS

Descriptive Statistics

Descriptive statistics were computed to summarize the demographic profile of respondents and the central tendency of the primary study variable, namely conservation-enterprise intention (CEI).

Table 5.1: Descriptive Statistics of Key Variables

Variable	Category / Measure	Value
Conservation-Enterprise Intention (CEI)	Mean	3.62
	Standard Deviation	0.74
Gender	Female	52%
	Male	48%
Family Business Exposure	Yes	29%
	No	71%

Source: Field survey

The mean CEI score of 3.62 suggests that zoology students demonstrate a generally positive inclination toward establishing conservation-oriented enterprises. Given that the measurement scale ranges from low to high agreement, this value indicates moderate to strong entrepreneurial interest rather than neutrality or reluctance. The standard deviation of 0.74 reflects moderate variability, implying that while many students' express favorable intentions, some variability exists in the strength of these intentions. The balanced gender distribution supports the representativeness of the

findings across male and female respondents. The presence of family business exposure among nearly one-third of participants may serve as an enabling background factor, potentially influencing entrepreneurial self-efficacy and opportunity recognition.

Reliability Analysis

Internal consistency reliability of the measurement scales was assessed using Cronbach's alpha coefficient. The results indicate satisfactory reliability across all constructs included in the study.

Table 5.2: Reliability Statistics of Study Constructs

Construct	Number of Items	Cronbach's α
Conservation-Enterprise Intention (CEI)	5	0.88
Attitude Toward Conservation Entrepreneurship (ATCE)	5	0.86
Subjective Norms (SN)	4	0.79
Perceived Behavioral Control (PBC)	5	0.84
Environmental Values (EV)	4	0.81
University Entrepreneurial Support (UES)	5	0.87

Source: Field survey

The reliability coefficients for all constructs exceed the commonly accepted threshold of 0.70, indicating satisfactory internal consistency. The Conservation-Enterprise Intention (α = 0.88) and University Entrepreneurial Support (α = 0.87) scales demonstrate particularly strong reliability, suggesting that the items within these constructs consistently measure the underlying latent variables. Similarly, Attitude Toward Conservation Entrepreneurship (α = 0.86) and Perceived Behavioral Control (α = 0.84) exhibit high reliability, reflecting coherent item structure and conceptual clarity. Although the Subjective Norms scale reports a comparatively lower alpha (α = 0.79), it remains well within the acceptable range for social science research, indicating adequate internal consistency. Environmental Values (α = 0.81) also demonstrates solid reliability.

Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) was conducted to examine the underlying factor structure of the measurement items and to assess construct validity. Prior to extraction, sampling adequacy and data suitability were evaluated.

Table 5.3: Summary of Exploratory Factor Analysis Results

Indicator	Value	Interpretation
Kaiser–Meyer–Olkin (KMO) Measure	0.89	Indicates excellent sampling adequacy and suitability for factor analysis
Bartlett's Test of Sphericity	$p < .001$	Confirms that correlations among items are sufficient for factor extraction
Number of Factors Extracted	6	Supports the proposed six-construct theoretical framework
Primary Factor Loadings	> 0.60	Demonstrates strong convergent validity
Cross-Loadings	< 0.30	Indicates clear factor separation and discriminant validity

Source: Compiled by the researchers

The results of the exploratory factor analysis confirm the robustness of the measurement structure. The KMO value of 0.89 reflects a high degree of shared variance among items, indicating that the dataset is highly appropriate for factor analysis. The statistically significant Bartlett's Test of Sphericity ($p < .001$) further verifies that the correlation matrix is not an identity matrix, thereby supporting the factorability of the data. The extraction of six factors aligns precisely with the hypothesized theoretical model, reinforcing the conceptual distinctiveness of Conservation-Enterprise Intention, Attitude Toward Conservation Entrepreneurship, Subjective Norms,

Perceived Behavioral Control, Environmental Values, and University Entrepreneurial Support. Primary loadings exceeding 0.60 demonstrate strong item convergence on their respective constructs, while cross-loadings below 0.30 confirm adequate discriminant validity.

Correlation Analysis

Pearson correlation analysis was conducted to examine the strength and direction of associations among the study variables.

Table 5.4: Correlation Matrix (Key Relationships with CEI)

Variable	Correlation with CEI (r)	Strength of Association
Attitude Toward Conservation Entrepreneurship (ATCE)	0.64	Strong positive
Perceived Behavioral Control (PBC)	0.59	Strong positive
University Entrepreneurial Support (UES)	0.52	Moderate positive
Environmental Values (EV)	0.46	Moderate positive
Subjective Norms (SN)	0.31	Weak-to-moderate positive

Source: Field survey

The correlation results suggest that students who hold favorable attitudes toward conservation entrepreneurship and who perceive themselves as capable of initiating ventures are more likely to express strong conservation-enterprise intentions. The relatively high correlation coefficients for ATCE and PBC underscore the importance of cognitive evaluation and entrepreneurial self-efficacy in shaping intention formation. The moderate positive associations of CEI with University Entrepreneurial Support and Environmental Values indicate that institutional encouragement and ecological commitment also contribute meaningfully to entrepreneurial aspirations. The comparatively weaker correlation with Subjective Norms suggests that social influence plays a less central role relative to individual attitudes and perceived capability. Importantly, none of the correlation coefficients exceed commonly accepted thresholds for multicollinearity concerns, indicating that the variables retain sufficient conceptual distinctiveness for subsequent regression analysis. The study provides preliminary support for the proposed hypotheses and justify further multivariate examination of the structural relationships among constructs.

Hierarchical Regression Analysis

A hierarchical multiple regression analysis was conducted to examine the predictive effects of the proposed determinants on Conservation-Enterprise Intention (CEI). The variables were entered in three successive models to assess their incremental explanatory power. In Model 1, control variables (gender, academic year, family business exposure, and prior entrepreneurship training) were entered. Model 2 introduced the core psychological determinants derived from the Theory of Planned Behavior (Attitude Toward Conservation Entrepreneurship [ATCE], Subjective Norms [SN], and Perceived Behavioral Control [PBC]). Model 3 further incorporated Environmental Values (EV) and University Entrepreneurial Support (UES).

Table 5.5: Hierarchical Regression Results (Dependent Variable: CEI)

Predictor	Model 1 (β)	Model 2 (β)	Model 3 (β)
Controls (gender, year, family business, training)	Small	Small	Small
Attitude Toward Conservation Entrepreneurship (ATCE)	—	0.38***	0.31***
Subjective Norms (SN)	—	0.08*	0.05 (ns)
Perceived Behavioral Control (PBC)	—	0.29***	0.24***
Environmental Values (EV)	—	—	0.12**

University Entrepreneurial Support (UES)	—	—	0.19***
Model Fit Statistics Model 1: $R^2 = .06$ Model 2: $\Delta R^2 = .42 \rightarrow$ Total $R^2 = .48$ Model 3: $\Delta R^2 = .10 \rightarrow$ Total $R^2 = .58$ Overall model significance: F-statistic $p < .001$ Significance levels: *p < .05; **p < .01; ***p < .001			

Source: Field survey

Model 1 indicates that demographic and background variables explain a modest proportion of variance in conservation-enterprise intention ($R^2 = .06$), suggesting limited predictive power of control factors alone. The introduction of the core psychological determinants in Model 2 substantially increases explanatory power ($\Delta R^2 = .42$), with the total variance explained rising to 48%. Attitude Toward Conservation Entrepreneurship ($\beta = 0.38$, $p < .001$) emerges as the strongest predictor, followed by Perceived Behavioral Control ($\beta = 0.29$, $p < .001$). Subjective Norms show a comparatively weaker but statistically significant effect ($\beta = 0.08$, $p < .05$). These findings reinforce the relevance of cognitive evaluation and entrepreneurial self-efficacy in shaping conservation-oriented entrepreneurial intention.

In Model 3, the inclusion of Environmental Values and University Entrepreneurial Support further improves model fit ($\Delta R^2 = .10$), increasing total explained variance to 58%. Attitude ($\beta = 0.31$, $p < .001$) and Perceived Behavioral Control ($\beta = 0.24$, $p < .001$) remain significant predictors, although with slightly reduced coefficients. Environmental Values ($\beta = 0.12$, $p < .01$) and University Entrepreneurial Support ($\beta = 0.19$, $p < .001$) demonstrate significant positive effects, indicating that both intrinsic ecological commitment and institutional ecosystem support meaningfully contribute to conservation-enterprise intention. Subjective Norms lose statistical significance in the final model, suggesting that social influence becomes less influential once personal attitudes, perceived capability, and contextual support are accounted for. The overall model is statistically significant ($p < .001$), confirming strong explanatory capacity.

Table 5.6: Summary of Hypothesis Testing

Hypothesis	Statement	Decision
H_1	ATCE positively influences CEI	Supported
H_2	SN positively influences CEI	Partially supported (loses significance in final model)
H_3	PBC positively influences CEI	Supported
H_4	EV positively influences CEI	Supported
H_5	UES positively influences CEI	Supported

Source: Compiled by the researchers

The hierarchical regression results indicate that conservation-enterprise intention among zoology students is primarily driven by favorable attitudes and perceived entrepreneurial capability, while environmental values and institutional support provide additional explanatory strength.

DISCUSSION

The findings of the present study provide substantive empirical support for the proposition that conservation-oriented entrepreneurial intention among zoology students is shaped by both individual-level cognitive determinants and ecosystem-level institutional support mechanisms. The hierarchical regression results demonstrate that attitude toward conservation entrepreneurship and perceived behavioral control emerge as the strongest predictors of conservation-enterprise intention (CEI). These results are consistent with intention-based entrepreneurship theory, particularly

the Theory of Planned Behavior (TPB), which posits that behavioral intention is primarily influenced by evaluative judgments and perceived capability. The strong effect of attitude suggests that zoology students who perceive conservation entrepreneurship as desirable, meaningful, and beneficial are more likely to express entrepreneurial aspirations. This aligns with the conceptualization of entrepreneurship as a value-driven career pathway, particularly within mission-oriented domains such as biodiversity conservation. Similarly, the significant influence of perceived behavioral control indicates that self-efficacy and confidence in entrepreneurial competence are central to intention formation. Zoology students who believe they possess—or can acquire - the skills necessary to initiate conservation ventures demonstrate stronger entrepreneurial inclination. The addition of environmental values (EV) and university entrepreneurial support (UES) in the final regression model significantly increased explanatory power, highlighting the importance of contextual and normative reinforcement. Environmental values function as intrinsic motivators, reinforcing alignment between ecological identity and entrepreneurial action. University support, including mentorship, training, and incubation opportunities, provides structural legitimacy and reduces perceived barriers to venture creation. Interestingly, subjective norms displayed a comparatively weaker influence and lost significance in the final model. This suggests that conservation-enterprise intention in zoology may be more internally driven (attitude and self-efficacy) than socially imposed. In other words, students' entrepreneurial decisions appear to be guided more by personal conviction and institutional opportunity than by external social pressure.

Table 6.1: Summary of Key Discussion Insights

Analytical Finding	Interpretation	Theoretical Alignment
Attitude strongest predictor ($\beta = 0.31$)	Positive evaluation of conservation entrepreneurship enhances intention	Consistent with TPB (Ajzen, 1991)
PBC significant ($\beta = 0.24$)	Entrepreneurial self-efficacy increases perceived feasibility	Self-efficacy theory
Environmental Values significant ($\beta = 0.12$)	Ecological commitment strengthens mission-driven intention	Green entrepreneurship research
University Support significant ($\beta = 0.19$)	Institutional ecosystem reduces structural barriers	Entrepreneurial ecosystem theory
Subjective Norms weak/non-significant	Social pressure less influential than internal motivation	Autonomy-driven career choice

Source: Compiled by the researchers

Theoretical Implications

The study contributes to entrepreneurship and conservation scholarship in several ways. First, it extends the Theory of Planned Behavior into the disciplinary context of zoology by conceptualizing conservation-enterprise intention as a distinct, mission-linked entrepreneurial intention. While TPB has been widely validated in business and management domains, its application within biological sciences remains limited. By empirically validating TPB constructs within zoology education, this study broadens the theory's contextual applicability. Second, the integration of environmental values into the intention model highlights the importance of moral and ecological identity in shaping mission-driven entrepreneurship. Traditional entrepreneurial intention models focus predominantly on economic motivations; however, conservation entrepreneurship is intrinsically purpose-driven. Incorporating environmental values strengthens theoretical integration between sustainability research and entrepreneurship theory. Third, the significant effect of university entrepreneurial support underscores the role of institutional ecosystems in transforming scientific

identity into venture intention. This finding aligns with bio - economy and entrepreneurial ecosystem scholarship, which emphasizes that innovation flourishes in environments characterized by mentorship, policy support, funding access, and knowledge exchange networks. In this regard, the study advances theoretical understanding of how disciplinary training interacts with ecosystem factors to shape entrepreneurial cognition.

Table 6.2: Theoretical Contributions

Contribution Area	Advancement Offered by Study
Extension of TPB	Applies TPB within zoology education context
Conceptual Innovation	Introduces conservation-enterprise intention construct
Sustainability Integration	Incorporates environmental values into intention framework
Ecosystem Perspective	Empirically validates university support as structural determinant
Interdisciplinary Linkage	Bridges conservation science and entrepreneurship theory

Source: Compiled by the researchers

Practical Implications for Zoology Departments

The findings offer several actionable implications for higher education institutions, particularly zoology departments seeking to promote biodiversity innovation. Curricula should embed entrepreneurship modules within zoology programs. Such modules may include business model development, impact measurement frameworks, sustainable financing mechanisms, intellectual property management, and regulatory compliance pathways for wildlife-related enterprises. Integrating these components can enhance perceived behavioral control and strengthen entrepreneurial confidence. Institutions should establish biodiversity-focused incubator pathways. Dedicated conservation innovation labs, seed funding schemes, mentorship networks, and partnerships with conservation NGOs or protected area authorities can provide experiential learning environments. These ecosystems operationalise university entrepreneurial support and facilitate real-world venture development. Capstone and project-based learning models can be redesigned to emphasize venture prototyping. Students may develop solutions in areas such as conservation financing platforms, wildlife monitoring technologies using artificial intelligence, sustainable ecotourism models, human - wildlife conflict mitigation systems, or biodiversity data analytics services. Such experiential approaches translate theoretical knowledge into applied entrepreneurial competencies.

Table 6.3: Practical Recommendations for Zoology Departments

Intervention Area	Specific Action	Expected Outcome
Curriculum Reform	Introduce entrepreneurship and venture development modules	Enhances entrepreneurial competence and self-efficacy
Incubation Support	Establish conservation-focused incubators and seed grants	Reduces structural barriers to venture creation
Industry Partnerships	Collaborate with NGOs, protected areas, and impact investors	Expands ecosystem legitimacy and funding access
Capstone Innovation Projects	Prototype biodiversity ventures in final-year projects	Converts scientific knowledge into market-ready solutions
Mentorship Programs	Provide interdisciplinary mentors (ecology + business)	Strengthens feasibility perception and guidance

Source: Compiled by the researchers

CONCLUSION

The intersection of entrepreneurship and zoology represents an important and evolving frontier in sustainability-oriented innovation. As biodiversity loss intensifies and conventional conservation mechanisms

face structural and financial constraints, conservation entrepreneurship offers a complementary pathway that integrates ecological science with market-based solutions. By embedding biodiversity objectives within viable business models, conservation-oriented ventures contribute not only to environmental protection but also to economic resilience and social development. In this context, zoology education emerges as a strategic domain capable of nurturing scientifically grounded entrepreneurs equipped to address complex ecological challenges. The empirical findings of this study demonstrate that conservation-enterprise intention among zoology students is predominantly shaped by attitude toward conservation entrepreneurship and perceived behavioral control. These results reaffirm the central propositions of intention-based entrepreneurship theory, highlighting that positive evaluation of entrepreneurial activity and confidence in one's entrepreneurial capability are critical precursors to venture aspiration. Students who perceive conservation entrepreneurship as meaningful, desirable, and feasible are significantly more inclined to consider establishing biodiversity-oriented enterprises. Beyond psychological determinants, the study underscores the importance of contextual reinforcement. Environmental values exert a significant positive influence on conservation-enterprise intention, indicating that ecological commitment strengthens mission-driven entrepreneurial aspirations. This finding reinforces the notion that sustainability-oriented entrepreneurship is not purely economically motivated but is deeply rooted in ethical and environmental consciousness. Furthermore, perceived university entrepreneurial support contributes meaningfully to intention formation. Institutional ecosystems that provide mentorship, incubation platforms, training opportunities, and professional networks reduce perceived barriers and enhance entrepreneurial confidence.

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