



Entrepreneurial Ecosystem and Skills: Inputs to a Business Incubation Plan

Juvy V. Delmonte¹, Dr. Evangeline O. Mendoza¹

¹Lyceum of the Philippines University – Batangas

Corresponding Author: juvydelmonte@lpubatangas.edu.ph

Abstract

This study assessed the entrepreneurial ecosystem and entrepreneurial skills of Bachelor of Science in Entrepreneurship students at a state university in Manila, Philippines, as inputs to a business incubation plan. Using a descriptive-survey design, data were collected from 217 of 270 enrolled students (80.37%) through a validated questionnaire measuring ecosystem dimensions (mentorship, training programs, access to resources, networking opportunities, and funding support) and skills domains (financial management, marketing, and management). Descriptive statistics, independent-samples t-tests, and correlation analysis were applied. Results indicated moderate proficiency in entrepreneurial skills (overall mean = 2.81), with management skills highest (2.97) and financial management skills lowest (2.65). The entrepreneurial ecosystem was rated moderately available (overall mean = 2.63), with training programs highest (2.72) and funding support lowest (2.49). Positive and statistically significant associations were observed between all ecosystem components and entrepreneurial skills, with comparatively stronger relationships noted for mentorship and funding support. Overall, the findings suggest that while students demonstrate foundational competencies, gaps in ecosystem support—particularly in funding—may constrain entrepreneurial readiness. The proposed incubation plan aligns interventions in mentorship, targeted training, resource access, networking, and financial support with the observed areas of weakness and strength.

Keywords: *Entrepreneurial ecosystem; entrepreneurial skills; business incubation; mentorship; funding support; entrepreneurship students; descriptive-survey; Philippines*

1. Introduction

Entrepreneurship education is increasingly expected to produce graduates who can move beyond ideation and translate opportunities into viable, sustainable ventures. In practice, however, entrepreneurial outcomes are shaped not only by individual capability—such as the ability to manage finances, market offerings, and lead operations—but also by the surrounding support environment that enables experimentation, learning, and early-stage growth. Within higher education institutions, this environment is often framed as an entrepreneurial ecosystem composed of structured learning opportunities, mentorship, access to resources, networking pathways, and financial support mechanisms. When these elements are present and functional, students may be better positioned to test business models, access guidance, and mobilize the resources needed to progress from entrepreneurial intent to execution. When these supports are uneven or insufficient, entrepreneurial skills may remain underutilized and entrepreneurial readiness may be constrained.

The institutional context of this study reflects a common tension in entrepreneurship programs. Students are formally trained in business-related competencies and are expected to develop entrepreneurial mindsets and practical skills, yet their capacity to operationalize these competencies depends on whether the university ecosystem provides enabling conditions for venture development. Mentorship and training programs may be visible and moderately accessible in many universities, but resource constraints often become evident in more capital-intensive requirements of entrepreneurship, including product development, market entry, and early-stage scaling. In particular, funding-related barriers—such as limited access to seed capital, weak linkages to investors, and inadequate financial facilitation structures—can weaken the pathway from classroom learning to real venture performance. Where funding support is limited, students may rely on personal resources or informal financing, which may restrict experimentation, reduce the pace of iteration, and discourage sustained entrepreneurial engagement.

In addition, student entrepreneurial competencies are not uniform. Entrepreneurship students typically develop varying levels of skill



across domains. Management skills may be strengthened through leadership roles and group-based coursework, while marketing skills may develop through market research and promotional tasks. Financial management skills, however, may remain a common challenge, particularly when students have limited exposure to real cash-flow constraints, pricing decisions under uncertainty, or basic financial controls required for micro-ventures. These uneven skill patterns have practical consequences for incubation design: universities may offer broad training programs, yet students may require more targeted capability-building that addresses domain-specific weaknesses. A credible incubation plan therefore needs to be anchored on evidence regarding (a) which ecosystem supports are meaningfully available to students, (b) which entrepreneurial skills are most and least developed, and (c) whether ecosystem supports are statistically associated with students' skill development.

From an institutional standpoint, the need for evidence-based incubation is intensified by the university's dual role as educator and enabler. Business incubation within a university is not merely a physical space or an administrative unit; it is a coordinated system that connects training, mentorship, resources, networking, and funding facilitation into an integrated pathway. Without a clear understanding of students' current skill profiles and their perceptions of ecosystem availability, incubation initiatives risk misalignment—emphasizing services that are already moderately available while neglecting the weakest support areas that may serve as bottlenecks. Conversely, when incubation elements are aligned to empirically identified gaps, the plan becomes more defensible as a strategic intervention, with clearer priorities for programming, partnerships, and performance indicators.

This study contributes to entrepreneurship education practice by providing a diagnostic view of the entrepreneurial ecosystem and entrepreneurial skills of entrepreneurship students at a state university in Manila, Philippines, and by translating these findings into actionable inputs for a business incubation plan. Specifically, the study (1) assessed the perceived availability of the entrepreneurial ecosystem in terms of mentorship, training programs, access to resources, networking opportunities, and funding support; (2) determined students' self-assessed entrepreneurial skills in terms of financial management, marketing, and management; (3) examined whether ecosystem

components are significantly associated with entrepreneurial skills; (4) tested whether perceived ecosystem availability and entrepreneurial skills significantly differ when students are grouped by year level and sex; and (5) proposed an evidence-aligned business incubation plan, presented as an objective-action matrix, that operationalizes the measured ecosystem dimensions into coordinated interventions and monitoring mechanisms.

2. Review of Related Literature

2.1 Entrepreneurship Education and Entrepreneurial Readiness

Entrepreneurship education is commonly positioned as a developmental pathway through which students acquire the competencies, mindsets, and applied skills necessary to recognize opportunities and pursue venture creation. In this framing, entrepreneurial readiness does not arise solely from exposure to entrepreneurial concepts; rather, it depends on whether learning experiences translate into operational abilities such as planning, decision-making, market testing, resource mobilization, and adaptive execution. Empirical syntheses indicate that entrepreneurship education and training are generally associated with stronger entrepreneurial intention and improved readiness-related outcomes, although the strength of these relationships varies by learning design, institutional context, and the extent of practice-based exposure (Galvão et al., 2020; Wardana et al., 2023). Beyond intention, research also emphasizes the role of entrepreneurial skills and ecosystem support as drivers that may reinforce readiness, indicating that education effects are likely mediated by capability development and shaped by enabling conditions (Wardana et al., 2023).

In higher education settings, entrepreneurship programs typically aim to develop practical business skills alongside entrepreneurial thinking. However, students' skill acquisition is uneven across domains, and some competencies—particularly those requiring repeated real-world application—may remain less developed when learning is primarily classroom-based. Empirical work on skills formation highlights that entrepreneurial skills are increasingly treated as a set of learnable capabilities that can be strengthened through intentional curriculum design, experiential activities, and institutional supports, particularly in contexts characterized by uncertainty and rapid market change (Salun et al., 2021; Jardim, 2021). This implies that entrepreneurship education outcomes



are not only a function of what is taught but also of whether the learning environment enables students to practice, iterate, and access guidance and resources that approximate venture realities.

2.2 University-Based Entrepreneurial Ecosystems

The concept of an entrepreneurial ecosystem has expanded from regional and industry contexts into higher education, where universities are expected to function as entrepreneurship enablers rather than mere training providers. In this context, an entrepreneurial ecosystem may be understood as a coordinated set of institutional supports, learning structures, and relational mechanisms that facilitate entrepreneurial learning and venture development. Higher education frames universities as platforms for entrepreneurship and innovation—combining curricula, mentorship, venture support, external linkages, and digital infrastructure like e-learning in management education—to operationalize resource access and innovative training (Kayyali, 2023; Atento, 2025). From a behavioral standpoint, ecosystem conditions are also considered relevant predictors of entrepreneurial outcomes: environmental factors and university support programs are often modeled as influences on entrepreneurial behavior alongside individual skills, suggesting that ecosystems can shape both motivation and execution capacity (Akter & Iqbal, 2022).

A central implication of the ecosystem framing is that entrepreneurship students' performance and readiness should not be evaluated solely in terms of individual competence. Even when students possess emerging entrepreneurial skills, venture development may be constrained if ecosystem supports are limited, inaccessible, or poorly integrated. The ecosystem lens therefore encourages program designers to treat institutional supports as measurable inputs—elements that can be assessed, improved, and aligned with skill development. This orientation is consistent with evidence that ecosystem supports and mentorship structures can be framed as adaptive systems that develop entrepreneurial capability through feedback, guidance, and resource orchestration (Russell et al., 2022).

A university-based ecosystem is most relevant when its components are operational, assessable, and aligned with students' development needs, yet systemic reviews show resource constraints and

limited faculty capacity can create interconnected bottlenecks that undermine support structures, requiring holistic diagnostics rather than isolated interventions (Bermido et al., 2025).

2.3 Ecosystem Dimensions as Measured Supports

To make the ecosystem construct actionable for entrepreneurship program design and incubation planning, ecosystem components are commonly operationalized into functional supports that students can perceive and utilize. The present study focuses on five ecosystem dimensions—mentorship, training programs, access to resources, networking opportunities, and funding support—each of which can be treated as a distinct support channel with potential influence on entrepreneurial capability.

Mentorship. Mentorship is frequently conceptualized as a relational support that provides guidance, feedback, accountability, and psychological reinforcement during entrepreneurial learning and early venture activities. Empirical evidence suggests that mentorship may contribute to entrepreneurial competence by clarifying goals, improving decision quality, and strengthening confidence and persistence under uncertainty (Hu et al., 2021). Mentorship has also been linked to the development of positive psychological attributes associated with entrepreneurial action, including self-efficacy and proactive coping—qualities that may indirectly support entrepreneurial skill application (Baluku et al., 2020). In entrepreneurship support systems, mentorship may also be viewed as a structured component of ecosystem design, particularly when it is embedded into programs rather than left to informal arrangements (Russell et al., 2022). Consequently, mentorship availability and quality can be treated as a measurable ecosystem input relevant to skills formation and venture readiness. Emerging work also explores AI-enabled and data-driven mentorship architectures, indicating that mentorship can be augmented through smart entrepreneurial support systems that improve matching, feedback cycles, and responsiveness (Abhari et al., 2021).

Training Programs. Training programs represent structured capability-building interventions such as workshops, bootcamps, pitch training, and applied modules. Such programs are often used to bridge the gap between conceptual entrepreneurship education and practice-based competence, especially when they emphasize real venture tasks (e.g., customer discovery, prototyping,



validation). Research indicates that entrepreneurship education and training programs can advance entrepreneurial skills and new venture outcomes when the learning design supports practical application and iteration (Galvão et al., 2020). Digital platforms and structured learning environments accelerate capability acquisition by expanding access to entrepreneurship content and practice, positioning training programs as ecosystem supports that target skill gaps and reinforce applied learning; their effectiveness, however, hinges on adopting advanced, adaptive systems rather than generic tools to develop deeper applied competencies (Begum et al., 2023; Rao et al., 2025).

Access to Resources. Resource access covers the availability of tangible and intangible assets needed for entrepreneurial activity, such as facilities, tools, market information, advisory services, and institutional support mechanisms. The literature suggests that entrepreneurial supports—when accessible—are associated with performance-related outcomes and may shape whether entrepreneurial intentions translate into sustained engagement (Zin & Ibrahim, 2020). University-based resource access is also relevant as a practical constraint: even well-designed training may not translate into venture progress if students lack access to basic development resources, market testing channels, or institutional facilitation. This is consistent with work emphasizing that university entrepreneurship education influences entrepreneurial intention partly through entrepreneurial competence, implying that competence development and opportunity for application must coexist (Lv et al., 2021). Thus, resource access can be conceptualized as an enabling input that supports competency application.

Networking Opportunities. Networking is often described as a relational mechanism through which students access information, support, partnerships, mentors, and market linkages. Entrepreneurial ecosystems frequently depend on network structures because venture development requires external interaction—customers, suppliers, peers, and potential investors—beyond classroom learning. Evidence shows entrepreneurship education functions as an innovation hub that fosters relationship building and community engagement, including social entrepreneurship networks (Kim et al., 2020; Roslan et al., 2020). At the venture level, entrepreneurial networks correlate with strategic orientation and SME performance, so networking

shapes outcomes through relational access and resource exchange (Fatoki & Oni, 2021). For student entrepreneurs, these networks are measurable ecosystem supports that enable learning, exposure, practical collaboration, and strategic market intelligence via digital interactions that inform customer understanding and value-proposition design (Espelita & Atento, 2025). In student venture creation, network development is also a transitional mechanism through which learners acquire ties, legitimacy, and opportunity access as they move from university contexts to venture initiation (Longva, 2020).

Funding Support. Funding support refers to the availability of mechanisms that help students access financial resources—direct seed funding, facilitation for grants, exposure to investors, linkages to programs, or institutional financial support structures. In many entrepreneurship education contexts, funding is a recognized bottleneck because it affects prototyping, market entry, and early-stage scaling decisions. Evidence suggests that financial support programs can influence entrepreneurial propensity and venture engagement, particularly when combined with psychological and behavioral factors such as risk-taking propensity and self-confidence (Yusoff et al., 2021). Recent work also reports that mentorship and funding support may jointly influence entrepreneurial activity, implying that financial facilitation is most effective when paired with guidance and structured development (Marsal et al., 2024). For higher education institutions, funding support is therefore a critical ecosystem dimension because it determines whether student ventures can transition from conceptual plans to implemented market tests.

Collectively, these dimensions provide a measurable ecosystem framework that aligns with university entrepreneurship objectives: mentorship and training support learning and capability formation; resource access enables application; networking provides relational pathways; and funding support addresses one of the most material constraints to venture progress. Their measurement is also strategically important for designing an incubation plan that prioritizes interventions based on observed gaps.

2.4 Entrepreneurial Skills and Business Incubation as the Bridging Mechanism

Entrepreneurial skills are often defined as practical competencies that enable individuals to initiate, manage, and sustain entrepreneurial



activities under uncertainty. Contemporary higher education literature frames these skills as developmental and learnable, particularly when programs incorporate applied learning and exposure to real venture tasks (Jardim, 2021; Salun et al., 2021). Within entrepreneurship programs, three skill domains are commonly emphasized for venture viability: financial management skills, marketing skills, and management skills.

Financial management skills involve budgeting, cash flow awareness, pricing decisions, financial control, and the ability to interpret and use financial information for decisions. Systematic reviews further highlight that financial literacy and inclusion are interlinked constraints for micro and small enterprises, reinforcing the relevance of financial competence for venture sustainability (Setyawati et al., 2023). Financial literacy research indicates that financial knowledge is associated with entrepreneurial decision quality and risk management, which is particularly salient for students preparing to start micro and small ventures (Nguyen & Nguyen, 2023). Evidence also suggests that financial literacy plays a mediating role in money management skills, reinforcing the view that financial competence is a foundational entrepreneurial capability rather than a secondary administrative task (Abro et al., 2024). In student venture contexts, financial skill gaps may constrain readiness because early-stage ventures often fail due to basic cash management errors rather than product inferiority.

Marketing skills include market research, customer understanding, positioning, promotion, and the capability to design and communicate value propositions effectively. Entrepreneurial marketing scholarship links marketing competence to brand equity formation and strategic positioning, suggesting that marketing capability is crucial for competitiveness and growth (Gliga & Evers, 2023). Empirical evidence also indicates that marketing skills can influence entrepreneurial outcomes and performance indicators, particularly when integrated with entrepreneurship education and enabling conditions (Suratno et al., 2024). In practical terms, marketing competence supports customer discovery and product-market fit activities that are central to incubation and venture validation.

Management skills refer to operational planning, organizing, leadership, coordination, and decision-making capabilities required to execute business activities. Employability research

underscores that business-related management skills remain valued and are considered essential for performance in work and enterprise settings (Briones et al., 2021). For entrepreneurship students, management skills are necessary to coordinate resources, delegate tasks, monitor progress, and adapt to changing conditions—capabilities that convert entrepreneurial intent into operational outcomes.

Business incubation can be conceptualized as the bridging mechanism that connects ecosystem supports with skill development and venture execution. Incubators are typically designed to provide structured services—mentorship, training, shared resources, network access, and facilitation for funding—thus operationalizing the ecosystem dimensions in an integrated manner. Empirical work suggests that business incubators contribute to entrepreneurship development and venture outcomes, with effects shaped by institutional design and regulatory environments (Li et al., 2020). Framework-oriented research further argues that incubation processes benefit from clear process models and structured service pathways, reinforcing the need for coherent incubation design rather than ad hoc programming (Sohail et al., 2023; Shahid, 2021). Reviews on incubators also highlight the need to align incubator services with startup needs and success indicators, suggesting that incubation effectiveness is contingent on fit between services and developmental constraints (Awonuga et al., 2024). For entrepreneurship students, incubation becomes particularly relevant when it addresses both capability gaps (skills) and enabling constraints (ecosystem supports), thereby strengthening the transition from learning to venture implementation.

2.5 Synthesis of Literature and Research Gap

The reviewed literature indicates two converging propositions relevant to entrepreneurship students in higher education: first, entrepreneurship education is generally associated with readiness outcomes, particularly when it develops practical entrepreneurial skills; second, ecosystem supports within the university context may shape the extent to which these skills can be developed and applied. The ecosystem construct becomes most actionable when specified into measurable supports—mentorship, training programs, access to resources, networking opportunities, and funding support—that can be strengthened through institutional design. At the same time, entrepreneurial skills—particularly



financial management, marketing, and management—remain central for venture viability and appear to develop unevenly depending on the availability and quality of enabling supports.

Despite the conceptual alignment between ecosystem supports and entrepreneurial skill development, there remains a practical need for evidence that maps (a) which ecosystem supports are sufficiently available to students, (b) which entrepreneurial skills are relatively strong or weak, and (c) whether ecosystem supports are statistically associated with students' skill profiles in a given institutional context. This gap is operational rather than purely theoretical: without a diagnostic assessment of ecosystem availability and entrepreneurial skills, university incubation initiatives risk misalignment—over-investing in services already perceived as adequate while neglecting constraints such as funding facilitation and resource access that may limit venture progress. Addressing this gap supports the development of a context-responsive business incubation plan anchored on observed support weaknesses and skill needs among entrepreneurship students.

3. Methods

3.1 Research Design

The study employed a descriptive-survey research design to assess (a) the perceived availability of the entrepreneurial ecosystem and (b) the self-assessed entrepreneurial skills of Bachelor of Science in Entrepreneurship students. The design is appropriate for describing prevailing conditions and examining statistical associations among measured constructs without manipulating variables.

3.2 Study Setting and Participants

The study involved students enrolled in the Bachelor of Science in Entrepreneurship program at a state university in Manila, Philippines. The target population consisted of 270 eligible third- and fourth-year students. All eligible students were invited to participate in the survey, and 217 students completed the questionnaire, representing an 80.37% response rate.

3.3 Research Instrument and Operational Measures

Data were collected using a validated structured questionnaire developed from related

literature and adapted to the local context. The instrument contained three parts:

Respondent profile: demographic variables (including year level and sex; additional profile fields were included in the instrument but only year level and sex were used in the inferential comparisons reported in the results).

1. Entrepreneurial skills (15 indicators):
 - a. Financial management skills (5 items)
 - b. Marketing skills (5 items)
 - c. Management skills (5 items)
2. Entrepreneurial ecosystem (25 indicators):
 - a. Mentorship (5 items)
 - b. Training programs (5 items)
 - c. Access to resources (5 items)
 - d. Networking opportunities (5 items)
 - e. Funding support (5 items)

Response scaling. The instrument used four-point anchored rating scales, with construct-specific anchors to maintain interpretive clarity:

- a. Entrepreneurial ecosystem availability: 1 = Not Available, 2 = Slightly Available, 3 = Moderately Available, 4 = Highly Available
- b. Entrepreneurial skills proficiency: 1 = Not Proficient, 2 = Slightly Proficient, 3 = Moderately Proficient, 4 = Highly Proficient

Scoring. For each respondent, item responses were summarized into dimension-level mean scores for the five ecosystem dimensions and the three skill domains. Overall scores for entrepreneurial ecosystem and entrepreneurial skills were computed by aggregating their respective dimension scores, consistent with the results presentation.

Reliability. Internal consistency was assessed using Cronbach's alpha. Reported reliability indices across subscales ranged from 0.904 to 0.965, indicating excellent internal consistency for the ecosystem and skills measures.



3.4 Data Gathering Procedure

Institutional permission was secured prior to data collection. The survey was administered over a two-week period. Participation was voluntary; informed consent procedures were observed; and confidentiality safeguards were implemented. Completed questionnaires were retrieved, responses were encoded, and the dataset was cleaned and organized prior to analysis.

3.5 Data Analysis

Analyses were performed to address the descriptive and inferential components of the study:

1. Descriptive analysis. Means/weighted means were computed to describe:
 - perceived availability of the entrepreneurial ecosystem (mentorship, training programs, access to resources, networking opportunities, funding support, and overall ecosystem); and
 - self-assessed entrepreneurial skills (financial management, marketing, management, and overall skills).
 - Verbal interpretations were based on the instrument's anchored scale categories.
2. Group difference tests. Independent-samples *t*-tests were used to test for statistically significant differences in entrepreneurial ecosystem dimensions and entrepreneurial skills domains when respondents were grouped by year level and by sex, as reported in the results tables. Statistical significance was evaluated using *p*-values; results were interpreted as statistically significant when $p < .05$.
3. Association analysis. Pearson's product-moment correlation was used to determine the relationship between entrepreneurial ecosystem dimensions and entrepreneurial skills domains. Correlation coefficients (*r*) were interpreted in terms of direction and magnitude, with statistical significance evaluated using the reported *p*-values.

3.6 Ethical Considerations

Ethical safeguards were applied to protect participants and maintain research integrity. The study observed voluntary participation, obtained institutional consent to conduct the survey, maintained confidentiality and anonymity (no names collected), and ensured that information gathered was used solely for research purposes.

4. Results and Discussion

4.1 Entrepreneurial Ecosystem Availability

Table 1 presents respondents' assessment of the entrepreneurial ecosystem across five support dimensions. Overall, the entrepreneurial ecosystem was rated moderately available (overall mean = 2.63). Among the ecosystem dimensions, Training Programs obtained the highest mean (2.72), indicating comparatively stronger perceived availability of structured entrepreneurship-related learning activities. Mentorship registered a mean of 2.68. Access to Resources registered a mean of 2.62 and Networking Opportunities a mean of 2.65, both interpreted as moderately available.

By contrast, Funding Support yielded the lowest mean (2.49) and was interpreted as slightly available, indicating that respondents perceived financial facilitation mechanisms (e.g., seed funding access, linkages to potential funders, or institutional financial support structures) as comparatively limited.

4.2 Entrepreneurial Skills Proficiency

Table 2 summarizes students' self-assessed entrepreneurial skills across three domains. Overall entrepreneurial skills were rated moderately proficient (overall mean = 2.81). Management Skills recorded the highest mean (2.97), suggesting stronger perceived competence in operational coordination, planning, and leadership-related tasks. Marketing Skills also registered at a moderately proficient level (mean = 2.80).

Financial Management Skills posted the lowest mean (2.65), though still within the moderately proficient range, indicating that financial competence is a relative development area compared with the other skill domains.

4.3 Differences by Year Level and Sex

Table 3 summarizes the independent-samples *t*-test results for year level and sex comparisons (df



= 215; $N = 217$). For ecosystem supports, Funding Support differed significantly by year level, with third-year students ($M = 2.65$, $SD = 0.63$) rating funding support higher than fourth-year students ($M = 2.40$, $SD = 0.71$), $t(215) = 2.463$, $p = .015$. Funding Support also differed significantly by sex, with male students ($M = 2.68$, $SD = 0.74$) reporting higher scores than female students ($M = 2.40$, $SD = 0.66$), $t(215) = 2.769$, $p = .006$.

For entrepreneurial skills, year-level comparisons showed significant differences in Financial Management Skills, Marketing Skills, and Overall Skills ($p < .05$), with third-year students reporting higher means; Management Skills did not differ significantly by year level ($t(215) = 0.915$, $p = .361$). Sex comparisons showed significant differences in Management Skills and Overall Skills ($p < .05$), with male students reporting higher means, while Financial Management Skills and Marketing Skills did not reach statistical significance ($p > .05$).

4.4 Relationship Between Entrepreneurial Ecosystem and Entrepreneurial Skills

Table 4 presents Pearson correlation results between entrepreneurial ecosystem supports and entrepreneurial skill domains. All correlations were positive and statistically significant ($p < .001$), indicating consistent associations between perceived ecosystem availability and entrepreneurial skill proficiency. Comparatively stronger associations included Funding Support with Financial Management Skills ($r = .471$) and Overall Ecosystem with Overall Entrepreneurial Skills ($r = .463$). Mentorship also demonstrated a consistent moderate relationship with skills outcomes (e.g., Mentorship with Overall Skills $r = .445$). Across dimensions, training programs, access to resources, and networking opportunities similarly showed positive relationships with the skill domains, supporting the proposition that ecosystem supports and entrepreneurial capability develop as linked conditions within the study context.

4.5 Discussion of Findings

Entrepreneurial Ecosystem Availability and the Funding Support Bottleneck

The results indicate that the university's entrepreneurial ecosystem is perceived as moderately available overall ($M = 2.63$). This suggests the presence of recognizable institutional supports for entrepreneurship students, particularly in the areas of training programs ($M = 2.72$) and

mentorship ($M = 2.68$). In practical terms, this pattern is consistent with a university setting where entrepreneurship development is partly supported through structured learning activities, workshops, and guidance mechanisms. The moderate ratings for access to resources ($M = 2.62$) and networking opportunities ($M = 2.65$) further imply that students encounter some enabling mechanisms for venture-related exposure and support, but these supports are not perceived as strongly established at a high level.

However, the most consequential result in the ecosystem profile is the relatively low evaluation of funding support ($M = 2.49$), interpreted as only slightly available. In an entrepreneurship education context, this finding is analytically important because funding functions differently from other ecosystem supports. Mentorship and training can strengthen skills and confidence, but financial facilitation influences whether entrepreneurial learning can be operationalized through prototyping, market testing, and early-stage execution. Literature on university-based ecosystems and student entrepreneurship has repeatedly characterized funding as a constraint that can inhibit the transition from intent and capability to venture action, particularly when seed funding pathways or funding linkages are weak (Marsal et al., 2024; Yusoff et al., 2021). The present findings therefore suggest a plausible structural gap: the ecosystem is present in developmental supports (training, mentoring), but less developed in the resource mechanism that enables implementation at scale.

An important interpretive caution is that the study measures perceived availability, not the objective existence of funding mechanisms. Nevertheless, perception is practically relevant because utilization of supports depends on whether students can identify, access, and experience these mechanisms as functional. Even where funding-related programs exist, limited communication, unclear eligibility, or procedural barriers may translate into low perceived availability. This implication supports a recommendation focus on not only increasing funding channels but also strengthening visibility and access processes within the incubation plan.

Entrepreneurial Skills Profile and the Relative Weakness in Financial Management (Table 2)

Entrepreneurial skills were assessed as moderately proficient overall ($M = 2.81$), with management skills emerging as the strongest domain ($M = 2.97$), followed by marketing skills ($M = 2.80$).



This profile aligns with the typical structure of entrepreneurship education and student activities: management and marketing skills can be developed through team projects, business planning exercises, presentations, market research tasks, and applied classroom deliverables. These skill domains are also inherently social and performative, which may lead to more frequent practice and reinforcement across coursework and student entrepreneurship events.

By contrast, financial management skills were rated lowest ($M = 2.65$), albeit still within the “moderately proficient” interpretation. This pattern is consistent with the broader literature that frames financial competency as a challenging domain for students when learning is not consistently tied to real cash-flow constraints, pricing discipline, and financial controls (Nguyen & Nguyen, 2023; Abro et al., 2024). The gap is not trivial: financial skills influence budgeting, sustainability, and operational survivability. Weakness in this domain may lead to suboptimal decisions in capital use, pricing, or working capital management—areas that become more salient as students move from conceptual venture ideas into actual implementation.

From an incubation planning perspective, the skill profile implies that capability development should not be uniform. Instead, the incubation plan is better positioned as a targeted capability-building intervention, strengthening financial management competencies through applied modules and venture-based accounting routines (e.g., simple bookkeeping discipline, break-even analysis, cash-flow monitoring) while reinforcing marketing and management competencies through structured venture execution milestones.

Differences by Year Level and Sex: Localized Variation, Not a General Divide

The subgroup tests show selective and localized differences rather than broad-based inequality across student groups. For ecosystem variables, the finding that funding support differs significantly by year level and by sex suggests that perceived access to financial facilitation is not uniform. Such differences may reflect variation in exposure to entrepreneurship activities, engagement with available supports, or evaluative standards used when rating ecosystem availability. Interpretation should remain cautious because the results reflect perceived measures and do not establish causal explanations for subgroup differences.

For entrepreneurial skills, year level differences were observed for financial management, marketing, and overall skills, while management skills did not differ significantly. The lower ratings among fourth-year students may reflect more stringent self-assessment following exposure to applied tasks and higher performance expectations at later stages of the program, rather than a decline in capability. In addition, by sex, significant differences were observed in management skills and overall skills, but not in financial and marketing skills. These findings should be treated as context-specific variation in reported proficiency rather than as evidence of inherent capability superiority.

Ecosystem–Skills Linkage: A Coherent Association Pattern

Correlation results show statistically significant positive relationships between all ecosystem dimensions and all entrepreneurial skill domains ($p < .001$), indicating a coherent association pattern. The strongest reported relationship—Funding Support with Financial Management Skills ($r = .471$)—is theoretically consistent: perceived financial facilitation may coincide with greater emphasis on financial competence, increased exposure to financial decision contexts, or heightened awareness of financial discipline required for venture activity. Similarly, the association between Overall Ecosystem and Overall Skills ($r = .463$) supports the proposition that students who perceive the ecosystem as more available also report higher skill proficiency, consistent with ecosystem frameworks in entrepreneurship education (Akter & Iqbal, 2022; Russell et al., 2022).

However, these findings should be interpreted as associations, not causal effects. The study design does not establish whether ecosystem availability increases skills, whether higher-skilled students seek out ecosystem supports, or whether a third factor (e.g., prior entrepreneurial exposure, family support, or motivation) jointly influences both. Nonetheless, for program design, correlation evidence remains valuable because it supports strategic alignment: strengthening ecosystem supports—particularly mentorship, training, and funding facilitation—appears consistent with higher skill development profiles. This implies that an incubation plan that is structured around the measured ecosystem dimensions is defensible as an evidence-aligned intervention, provided that implementation includes



monitoring indicators and feedback mechanisms to evaluate impact over time.

5. Conclusions and Recommendations

5.1 Conclusions

The study indicates that the university's entrepreneurship environment is functioning as a developmental ecosystem with recognizable institutional supports, particularly in structured learning opportunities and guidance mechanisms. Students perceive that training programs and mentorship are present and usable, which implies that the institutional infrastructure for entrepreneurship development is not absent; rather, it is partially established and oriented toward capability-building. However, the ecosystem is also characterized by a strategic bottleneck: funding support is the least available component, suggesting that the pathway from learning to implementation remains constrained by limited financial facilitation. This pattern points to a common institutional asymmetry in entrepreneurship programs—universities are comparatively stronger at providing developmental inputs (training and mentoring) than at enabling execution conditions (capital access and funding linkages) that allow student ventures to move from conceptual readiness to real market testing.

The entrepreneurial skills profile reinforces this interpretation. Students demonstrate an emerging competence base, particularly in management and marketing capabilities that are commonly reinforced through coursework, team projects, and applied class requirements. At the same time, financial management competence appears to be the most vulnerable domain, indicating that students may be less prepared for the operational realities that often determine venture survivability, such as cash discipline, costing, pricing logic, and resource allocation under uncertainty. Taken together, the ecosystem and skills results suggest that the most meaningful readiness gap is not simply a deficit in general entrepreneurial competence, but a mismatch between the kinds of supports and skills that are adequately developed and those that are most essential at the point of venture execution—especially financial capability and financial access.

The subgroup findings further indicate that perceived access to funding support and selected skill domains varies across year level and sex,

implying that entrepreneurship development is not experienced uniformly across the student population. These differences should not be interpreted as inherent capability advantages or disadvantages, but they do imply that exposure to supports, engagement in entrepreneurship activities, or access to enabling mechanisms may differ across groups. As a practical conclusion, the university's entrepreneurship support system would benefit from stronger standardization and transparency in access pathways, ensuring that funding facilitation and incubation supports are consistently visible, accessible, and actionable across student subgroups.

Finally, the consistent positive associations between ecosystem supports and entrepreneurial skills suggest that ecosystem strengthening and skill development operate as mutually reinforcing conditions within the university context. While the study does not establish causality, the evidence supports a defensible institutional direction: entrepreneurship outcomes are likely to be improved when ecosystem supports are treated not as peripheral services but as structured inputs that are intentionally aligned with specific capability needs. Accordingly, a business incubation plan that prioritizes funding facilitation, strengthens applied financial competence, and integrates mentorship, training, resources, and networking into a coherent pathway is justified as a strategic response to the most consequential constraints identified in the study.

5.2 Recommendations

The findings support a shift from broadly offering entrepreneurship activities toward strategically sequencing and integrating incubation services around the constraints most likely to hinder venture execution. The first priority is to strengthen funding facilitation as a visible, accessible, and structured pathway rather than an informal or ad hoc possibility. This may include (a) establishing clear internal seed-funding or micro-grant windows, (b) developing predictable pitch-to-funding schedules with defined criteria, and (c) building external linkages with alumni entrepreneurs, local SMEs, cooperatives, microfinance institutions, and potential angel partners. Importantly, funding facilitation should be treated not only as "money provision," but as an institutional function that makes capital access understandable, navigable, and attainable for students through transparent processes, mentoring support for proposals, and consistent communication.



Second, the university should embed applied financial competence development into incubation milestones as a practical discipline rather than a purely conceptual topic. Given the relative weakness in financial management skills, incubation should require repeated engagement with simple but essential routines—basic bookkeeping discipline, cash-flow monitoring, costing and pricing logic, and break-even or unit economics thinking—implemented within students' venture activities. This recommendation is not merely curricular; it implies a capability-building system in which financial practices become part of venture execution requirements, supported by coaches or mentors who can guide students in translating financial information into operational decisions.

Third, existing strengths in training and mentorship should be converted into a coherent incubation pathway with defined phases (e.g., ideation and validation, prototyping and market testing, early commercialization, and scaling readiness), with each phase linked to specific deliverables, feedback cycles, and mentor engagement. Training and mentoring should not operate as stand-alone events; they should function as structured inputs that deliberately build competencies at the moment students need them. This integration strengthens continuity, reduces fragmentation, and increases the probability that skills learned in training are immediately applied in venture tasks.

Fourth, the institution should formalize access to resources and networks as repeatable systems rather than informal opportunities. Resource access can be strengthened by clarifying what students can use (facilities, tools, advisory services, market information, digital platforms), how these are accessed, and how utilization supports venture milestones. Networking should similarly be designed as a structured exposure mechanism—through scheduled partner engagement, alumni entrepreneur sessions, industry panels, mentoring circles, and student venture showcases—so that networking becomes a predictable developmental input rather than a chance encounter. In operational terms, these systems should be linked to incubation phases so that networks and resources become usable at the appropriate stages of venture development.

Finally, because perceptions of funding support and selected skill domains differ across year level and sex, the incubation system should

implement equity-of-access controls. This includes standardized entry requirements, transparent selection or participation rules, active dissemination of opportunities, and monitoring of participation and benefit by subgroup. The goal is not to force uniform outcomes but to ensure that access pathways to mentorship, training, resources, networks, and funding facilitation are consistently navigable for all eligible students. Collectively, these recommendations provide a practical foundation for a business incubation plan that is aligned to the study's most salient constraints while leveraging existing institutional strengths.

5.3 Implications of Research Findings

The findings imply that entrepreneurship development in higher education should be treated as a systems problem, not merely a training problem. The university appears to have foundational developmental supports—especially in training and mentorship—suggesting that the entrepreneurship program is capable of building competence and engagement. Yet the weakness in funding support indicates that the ecosystem may be stronger at producing learning and readiness signals than at enabling the conditions required for venture execution. This implies that institutional success in entrepreneurship education should not be evaluated solely by participation in entrepreneurship activities or the presence of training events, but also by the strength of execution enablers such as funding pathways, resource access mechanisms, and structured external linkages that allow student ventures to progress beyond classroom demonstrations.

For incubation design, the implications are particularly concrete: the most defensible incubation model is one that integrates supports into an end-to-end pathway and treats funding facilitation as a core function rather than a peripheral add-on. In this context, funding support operates as both a constraint and a development trigger: it shapes whether students can implement their ideas, and it influences the kinds of competencies students must develop—especially financial discipline and decision-making. The strong association between funding support and financial management skills implies that incubation programs should couple financial access mechanisms with sustained capability-building so that any funding opportunity is matched by the competence needed to allocate resources responsibly and sustain ventures.



For student development, the findings imply that entrepreneurial readiness is likely to be uneven if programs do not deliberately strengthen financial competence through repeated practice under realistic constraints. Management and marketing skills may develop more readily through standard entrepreneurship coursework, but financial competence typically requires structured application and accountability. This suggests that the university should prioritize applied financial routines and evaluation mechanisms within entrepreneurship activities, enabling students to internalize financial thinking as part of entrepreneurial practice rather than as a separate academic topic.

At the institutional and policy level, subgroup differences imply that entrepreneurship supports may not be experienced uniformly, highlighting the importance of transparency, standardization, and access governance. If entrepreneurship development is to be considered inclusive and scalable, support systems must be designed so that access does not depend primarily on informal networks, selective exposure, or uneven familiarity with available resources. Consequently, institutional leadership may treat the incubation program not only as a student service but also as a governance mechanism that standardizes access pathways, strengthens stakeholder partnerships, and enables the university to measure entrepreneurship support effectiveness using participation, utilization, and venture progression indicators over time.

5.4 Proposed Business Incubation Plan (Evidence-Aligned Inputs)

Building on the diagnostic findings, an evidence-aligned business incubation plan is proposed to (a) alleviate the funding-support bottleneck identified in the ecosystem profile, (b) strengthen applied financial management competence as the most vulnerable skill domain, and (c) institutionalize a coordinated set of mentorship, training, resource access, and networking services that support venture execution. The plan treats the five ecosystem dimensions as operational service channels and aligns each channel to capability outputs, accountability arrangements, and monitoring mechanisms.

Table 5 presents the proposed incubation plan as an objective–action matrix comprising seven interlinked thrusts: (1) enhance entrepreneurial skills, (2) establish a mentorship system, (3)

improve resources and infrastructure, (4) strengthen networking opportunities, (5) expand funding support, (6) create customized incubation models, and (7) monitor and evaluate programs. For each thrust, the plan specifies action steps, assigns responsible units, and identifies expected outcomes. Collectively, the design operationalizes structured capability-building (financial literacy, marketing analytics, leadership), systematic mentoring and peer-learning mechanisms, enabling infrastructure (coworking spaces, prototyping labs, digital tools), predictable engagement with external partners (industry experts, investors, entrepreneurs, and international exchanges), and formal funding facilitation (a gamified funding platform, a university-based crowdfunding platform, and seed funding pools in partnership with angel investors and financial institutions). The monitoring component embeds standardized impact assessment, regular performance reviews, and annual impact reporting to support continuous improvement of the incubation system.

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7. Tables

Table 1
Entrepreneurial Ecosystem Availability

Ecosystem dimension	Mean	SD	Verbal interpretation
Mentorship	2.68	0.81	Moderately Available
Training Programs	2.72	0.81	Moderately Available
Access to Resources	2.62	0.79	Moderately Available
Networking Opportunities	2.65	0.81	Moderately Available
Funding Support	2.49	0.82	Slightly Available
Overall Ecosystem	2.63	0.81	Moderately Available

Note. Scale interpretation: 1.00–1.75 = Not Available; 1.76–2.50 = Slightly Available; 2.51–3.25 = Moderately Available; 3.26–4.00 = Highly Available.

Table 2
Entrepreneurial Skills Proficiency

Entrepreneurial skills domain	Mean	SD	Verbal interpretation	Rank
Financial Management Skills	2.65	0.71	Moderately Proficient	3
Marketing Skills	2.80	0.74	Moderately Proficient	2
Management Skills	2.97	0.71	Moderately Proficient	1
Overall Skills	2.81	0.73	Moderately Proficient	—

Note. Scale interpretation: 1.00–1.75 = Not Proficient; 1.76–2.50 = Slightly Proficient; 2.51–3.25 = Moderately Proficient; 3.26–4.00 = Highly Proficient.

Table 3
Comparison of Means

Outcome variable	Grouping	Group 1 (M ± SD)	Group 2 (M ± SD)	t	p
Panel A: Ecosystem					
Funding Support	Year level	2.65 ± 0.63	2.40 ± 0.71	2.463	.015
Funding Support	Sex	2.68 ± 0.74	2.40 ± 0.66	2.769	.006
Panel B: Skills					
Financial Management Skills	Year level	2.79 ± 0.54	2.57 ± 0.59	2.806	.005

Outcome variable	Grouping	Group 1 (M ± SD)	Group 2 (M ± SD)	t	p
Marketing Skills	Year level	2.94 ± 0.57	2.76 ± 0.61	2.135	.034
Management Skills	Year level	3.02 ± 0.57	2.95 ± 0.61	0.915	.361
Overall Skills	Year level	2.92 ± 0.49	2.76 ± 0.52	2.239	.026
Financial Management Skills	Sex	2.75 ± 0.60	2.60 ± 0.57	1.697	.092
Marketing Skills	Sex	2.90 ± 0.59	2.78 ± 0.60	1.346	.179
Management Skills	Sex	3.12 ± 0.61	2.91 ± 0.58	2.402	.017
Overall Skills	Sex	2.92 ± 0.52	2.76 ± 0.50	2.093	.037

Note. Group 1 = Third-year students and Group 2 = Fourth-year students for the year-level comparisons. Group 1 = Male and Group 2 = Female for the sex comparisons. Values are presented as M ± SD. df = 215 for all t-tests (N = 217).

Table 4
Relationship between Entrepreneurial Skills and Entrepreneurial Ecosystem

Variables	r	p	Sig.
Financial Management Skills			
Mentorship	.421**	< .001	S
Training Programs	.291**	< .001	S
Access to Resources	.400**	< .001	S
Networking Opportunities	.272**	< .001	S
Funding Support	.471**	< .001	S
Overall Ecosystem	.451**	< .001	S



Marketing Skills			
Mentorship	.433**	< .001	S
Training Programs	.304**	< .001	S
Access to Resources	.356**	< .001	S
Networking Opportunities	.318**	< .001	S
Funding Support	.347**	< .001	S
Overall Ecosystem	.428**	< .001	S
Management Skills			
Mentorship	.304**	< .001	S
Training Programs	.262**	< .001	S
Access to Resources	.254**	< .001	S
Networking Opportunities	.270**	< .001	S
Funding Support	.256**	< .001	S
Overall Ecosystem	.328**	< .001	S
Overall Entrepreneurial Skills			
Mentorship	.445**	< .001	S
Training Programs	.329**	< .001	S
Access to Resources	.388**	< .001	S
Networking Opportunities	.330**	< .001	S
Funding Support	.411**	< .001	S
Overall Ecosystem	.463**	< .001	S

Note. Values are Pearson correlation coefficients (r). p values are two-tailed. S = Significant ($p < .05$). ** indicates $p < .01$.



Table 5

**PROPOSED BUSINESS INCUBATION PLAN FOR BS
 ENTREPRENEURSHIP STUDENTS**

Objective	Action Steps	Responsible Unit	Expected Outcome
1. Enhance Entrepreneurial Skills	- Conduct workshops on financial literacy, marketing strategies, and leadership development.	Entrepreneurship Department; Industry Experts	Improved entrepreneurial decision-making, targeting strategies, and leadership capabilities.
	Integrate marketing analytics training to empower audience targeting		
2. Establish a Mentorship System	- Launch a mentorship platform pairing students with alumni and advanced peers.	Alumni Relations; Faculty Mentors	Personalized guidance for startups, fostering confidence and collaborative learning.
	- Organize workshops, pitch sessions, and business plan competitions as peer-to-peer learning opportunities.		
3. Improve Resources and Infrastructure	- Develop coworking spaces, prototyping labs, and digital tools to foster innovation.	University Administration; Partnerships	Enhanced ability to develop products and services efficiently.
	- Rotate students through sectors for cross-industry exposure.		Broadened skill sets and adaptability.
4. Strengthen Networking	- Host structured networking events with	Career Services; Student	Increased connections



Opportunities	industry experts, investors, and entrepreneurs.	organizations	with investors and strategic partners.
	- Build partnerships with international universities for cultural and entrepreneurial exchange programs.	International Relations Office	Exposure to global ecosystems and collaborative learning.
	- Create student-led industry-focused clubs to foster niche collaboration and projects.	Student Organizations	Industry-specific networking and practical experience.
5. Expand Funding Support	- Develop a gamified funding platform where students earn points for mentorship and funding.	Finance Department; Entrepreneurship Office	Increased student engagement and access to resources.
	- Introduce a university-based crowdfunding platform for peer and community investment.		Broadened access to funding and community involvement.
	- Establish partnerships with angel investors and financial institutions for seed funding pools.		Enhanced financial support for startups.
6. Create Customized Incubation Models	- Implement an Adaptive Incubation Program categorizing startups by sector, growth stage, and challenges.	Incubation Center; Industry Experts	Tailored support systems that meet diverse entrepreneurial needs.
	- Provide modular services like market research, scaling strategies, and business model validation.		Practical, flexible support for startups at varying stages.
	- Facilitate cross-track collaboration workshops and hackathons for interdisciplinary innovation.		Increased collaboration and creative problem-solving.
7. Monitor and Evaluate	- Develop standardized impact assessment	Entrepreneurship Department;	Clear metrics to assess and



Programs	guidelines for evaluating incubation effectiveness.	Evaluation Committee	improve incubation programs.
	- Integrate regular performance reviews for students, focusing on progress and strategy refinement.	Entrepreneurship Department;	Continuous improvement in business models and market alignment.
	- Publish annual impact reports on the incubation ecosystem's strengths and areas for growth.	Evaluation Committee	Transparent evaluation and strategic adjustments.

Note. The plan operationalizes measured ecosystem dimensions as service channels and aligns delivery to observed skill and support gaps. Indicators are illustrative and may be adapted to institutional policy and resource constraints.