Needs Assessment for Entrepreneurship Development Among General Education Students

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ABSTRACT

Background and Objectives: Entrepreneurship has increasingly been positioned as a foundational competency for contemporary societies, particularly within higher education systems that aim to prepare graduates for complex and uncertain professional environments. In the Thai context, national policy emphasizes the cultivation of entrepreneurial characteristics across all disciplines, extending beyond business-related fields. However, effective development requires an understanding of learners' authentic developmental needs rather than reliance on generalized assumptions. General education courses, which engage students from diverse academic backgrounds, provide a strategic platform for cultivating an entrepreneurial mindset and entrepreneurial skills as transferable competencies. Accordingly, this study aimed to (1) examine the levels and priorities of needs for entrepreneurship development among students in the general education context, (2) analyze factors associated with these developmental needs, and (3) synthesize evidence-informed approaches for strengthening entrepreneurship development in higher education.

Methodology: This study employed a needs assessment research design. Quantitative data were collected through a dual-response needs assessment instrument consisting of 45 items measured on a four-point rating scale. The instrument assessed an entrepreneurial mindset and entrepreneurial skills across nine dimensions. Data were obtained from a sample of 672 first-year undergraduate students at Srinakharinwirot University and analyzed using the Modification Priority Needs Index ($PNI_{Modified}$) to determine the levels and priorities of developmental needs. Qualitative data were generated through semi-structured focus group discussions with 19 informants, including general education instructors and undergraduate students. Content analysis was conducted to identify underlying factors contributing to these needs and to support the synthesis of practical approaches for entrepreneurship development within the general education context.

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Results: The findings indicate that developmental needs for entrepreneurship can be organized into two interrelated dimensions: entrepreneurial mindset and entrepreneurial skills. Within the entrepreneurial mindset dimension, the highest-priority areas for development were viewing obstacles as challenges ($PNI_{Modified}$ = 0.19) and action orientation and acceptance of outcomes ($PNI_{Modified}$ = 0.19). Within the entrepreneurial skills dimension, creative ideation ($PNI_{Modified}$ = 0.21) and systematic problem solving ($PNI_{Modified}$ = 0.17) emerged as the most critical priorities. Qualitative findings further revealed that these needs are shaped by learners' psychological attributes, foundational problem-solving competencies, and instructors' pedagogical competence in facilitating entrepreneurship-oriented learning.

Discussions: The identified patterns of developmental needs can be interpreted through established psychological and educational frameworks, particularly self-efficacy theory, creative cognition, and the Theory of Planned Behavior. These perspectives help explain how learners' beliefs, dispositions, and social learning environments interact to shape entrepreneurial development. The findings reinforce the importance of designing learning environments that promote authentic engagement, social interaction, and reflective practice to foster both an entrepreneurial mindset and entrepreneurial skills in a systematic manner.

Conclusions: This study provides empirical evidence that the highest-priority developmental needs among general education students include viewing obstacles as challenges, maintaining an action orientation, and accepting outcomes within the entrepreneurial mindset dimension, along with creative ideation in entrepreneurial skills. Through pedagogically coherent instructional design and the integration of principles from learning psychology and outcome-based learning, higher education institutions can create more responsive and meaningful learning environments that support sustainable entrepreneurial development across disciplines.

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Introduction

Entrepreneurship has emerged as a critical capability for national development, as articulated in Thailand's National Strategy (2018–2037) on competitiveness enhancement, which advocates developing citizens' capacity to generate novel value across economic, social,

and environmental domains (National Strategy Secretariat Office, 2018). Individuals with entrepreneurial competencies are more likely to drive innovation, improve existing practices, and respond effectively to evolving societal demands, thereby contributing to sustainable development and long-term value creation (Jeerapattanatorn, 2020).

Rather than being exclusive to business owners or leaders, entrepreneurship encompasses the ability to integrate multidisciplinary knowledge and apply it meaningfully within diverse problem contexts. Such individuals demonstrate systems thinking, the ability to integrate information, goal orientation, and a realistic interpretation of situational dynamics (Teerathanachaiyakun, 2021). Crucially, entrepreneurial development also entails essential competencies such as systematic problem solving, constructive decision-making, and self-management, which support both individual adaptability and organizational performance (Daspit et al., 2021). These capabilities are foundational for fostering innovation, advancing organizational performance, and generating societal benefits (Abun et al., 2022).

In recognition of this strategic importance, higher education institutions have implemented structured learning frameworks to cultivate entrepreneurship among students. Two dominant programs have emerged: Entrepreneurship Education, which focuses on equipping learners with knowledge and skills for business creation and management, and Enterprise Education, which emphasizes mindset development and transferable capabilities relevant across work and life contexts. In many institutions, general education curricula serve as the primary platform for Enterprise Education, given their compulsory role in undergraduate programs (Jeerapattanatorn, 2021).

Despite this institutional emphasis, the design and delivery of entrepreneurship-related learning within general education often diverges from approaches implemented within specialized business programs. Preliminary evidence from first- and second-year students who have not previously taken entrepreneurship-related subjects reveals a common misconception: that such learning is intended solely to prepare students for commercial entrepreneurship. This misunderstanding is associated with diminished engagement and a lack of appreciation for the broader developmental value of entrepreneurship. Consequently, educators and curriculum developers in general education are positioned to play a pivotal role in clarifying learning intentions and operationalizing outcomes that foster an entrepreneurial mindset and entrepreneurial skills through real-world learning experiences. (Durán-Chinchilla et al., 2022).

The literature on enterprise education proposes diverse conceptualizations of enterprise education within general education curricula. For example, Luo et al. (2023) identify key mindsets including opportunity seeking, goal commitment, determination, resilience, and self-regulation. They also identify skills such as systematic problem solving, transformational leadership, and risk management. Nevertheless, these frameworks are frequently anchored in national policy or external stakeholder expectations rather than needs derived from student perspectives. As a result, instructional designs may remain overly broad and insufficiently differentiated according to learners' backgrounds, interests, and capability levels, thereby limiting alignment with learner-centered pedagogical principles and developmental needs (Sungsanit et al., 2024).

The study aimed to assess students' perceived current and desired levels of an entrepreneurial mindset and entrepreneurial skills, identify and rank their developmental needs, examine factors associated with these needs, and synthesize evidence-informed approaches for entrepreneurial development in general education. Its intended contribution is to provide a

dimension-specific profile of developmental priorities for the students included in the study and clarify how those priorities relate to learner characteristics. By connecting needs-assessment findings with recommendations for learning outcomes and instructional activities, the study also provides a basis for curriculum decisions that consider learner perspectives alongside broader educational expectations. The resulting recommendations are intended to guide subsequent instructional development and evaluation.

Review of Literature

Entrepreneurship in Higher Education

Entrepreneurship is defined and conceptualized differently across contexts. It involves recognizing opportunities to apply knowledge and capabilities in ways that are beneficial and contextually appropriate, assessing circumstances realistically, solving problems creatively, and working and making decisions collaboratively (Daspit et al., 2021). Entrepreneurship therefore encompasses personal attributes and capabilities (Nazari & Abd Rani, 2022), including knowledge of contextual and operational processes, cognitive and practical skills, and attitudes and motivation (Mai & Thai, 2025). Examples include critical thinking, creativity, problem solving, planning and risk management, teamwork, self-efficacy, self-regulation, and learning from failure (Adamec & Hrmo, 2023).

The literature review by Mai and Thai (2025) highlights the diversity of conceptual frameworks and approaches to measuring entrepreneurial competencies. Similarly, Branca et al. (2025) examine self-efficacy, creativity, risk-taking, and innovativeness within entrepreneurship education. Taken together, these studies provide a basis for considering both psychological attributes and practical capabilities. Accordingly, the present study examines two dimensions: an entrepreneurial mindset, which emphasizes how learners interpret situations, sustain commitment, and demonstrate willingness to act; and entrepreneurial skills, which emphasize their ability to think, make decisions, plan, and manage tasks. Although these dimensions are related, their respective emphases provide a basis for clarifying the scope of the components and questionnaire items.

Entrepreneurship in higher education involves learning experiences that develop attributes and capabilities that support systematic task performance and problem solving, while creating both broader benefits and economic value. These capabilities are relevant to students across disciplines (Saeed et al., 2019). Studies by Sungsanit et al. (2024) in Thai universities and Nazari and Abd Rani (2022) in Malaysian universities address the development of capabilities such as problem solving, creativity and innovation, teamwork, and failure management. Within the general education context, Luo et al. (2023) propose an enterprise education approach that emphasizes mindset development alongside transferable skills.

Drawing on this literature, the present study used three criteria to define its components: relevance to task performance and creative problem solving, potential for development through learning activities, and clarity in the formulation of questionnaire items. Concepts with similar meanings were grouped within the same component, whereas related concepts with different emphases were distinguished according to whether they concerned mindset or skills. Accordingly, the framework used to developmental needs related to entrepreneurship within general education comprised four entrepreneurial mindset components: (1) viewing obstacles as challenges, (2) commitment to goal achievement, (3) engaging in teamwork and systematic

problem solving, and (4) action orientation and acceptance of outcomes. It also comprised five entrepreneurial skill components: (1) collaborative decision-making, (2) creative ideation, (3) planning and risk management, (4) systematic problem solving, and (5) self-management. Within the mindset dimension, willingness to engage in collaborative problem solving refers to readiness to participate in the process, whereas problem solving within the skills dimension refers to the ability to carry out that process.

Entrepreneurship Development through Psychological Approaches

Psychological perspectives on entrepreneurship encompass three approaches. First, personality theories explain personal attributes associated with entrepreneurship, including the need for achievement, risk-taking propensity, internal locus of control, independence, proactivity, tenacity, and self-efficacy. Second, Ajzen's Theory of Planned Behavior (TPB) explains entrepreneurial intention through individuals' evaluations of the attractiveness and anticipated benefits of entrepreneurship (attitude toward the behavior), perceived social pressure or support from others (subjective norms), and perceptions of their ability and control over establishing a business (perceived behavioral control). Self-efficacy is a related concept concerning individuals' beliefs in their ability to perform the actions required. Third, entrepreneurial motivation is examined through push factors, such as the need for occupational security and economic survival, and pull factors, such as the pursuit of independence, innovation, and financial rewards (Frese & Gielnik, 2014; Moriano & Linan, 2007).

From these perspectives, teaching and learning for entrepreneurial development should emphasize a learning culture that provides opportunities for practical action, supports the development of entrepreneurial attitudes, and strengthens learners' confidence in their ability to act. Developing instructors' pedagogical capabilities is also essential for supporting entrepreneurial attitudes and skills through appropriate teaching approaches (Liu & Yu, 2021; Ou & Kim, 2024).

Drawing on these psychological perspectives, the present study examines factors related to students' developmental needs, considering personal attributes, motivation, and capabilities relevant to entrepreneurial practice. These perspectives also inform the development of approaches for enhancing entrepreneurial development in general education.

Research Methods

Research Design

This study adopted a quantitative needs assessment design to examine the levels and priorities of needs related to entrepreneurial development, followed by an analysis of associated factors and the synthesis of evidence-informed approaches to strengthen entrepreneurship development in higher education.

Participants

The quantitative phase involved data collection from a sample of 672 first-year undergraduate students, selected through simple random sampling from a population of 7,381 students at Srinakharinwirot University. None of the participants had previously enrolled in any entrepreneurship-related courses, either within faculties or within the general education curriculum. Participation was voluntary. Participants were informed of the research objectives

and assured that their responses would be treated confidentially, would be analyzed in aggregate form, and would have no impact on their academic evaluation.

Subsequently, a qualitative phase was conducted to gain insight into the underlying causes of the identified needs and to explore potential strategies for enhancing entrepreneurial development within general education. Data were collected through focus group discussions using purposive sampling. Participants consisted of 12 general education instructors and curriculum committee members responsible for the SWU198 course under the Innovative Learning Center, Srinakharinwirot University, as well as 7 undergraduate students from Years 1–2.

Instruments

A needs assessment questionnaire was developed to examine students' needs for entrepreneurial development within general education. The instrument employed a four-point rating scale using a dual-response format. Content validity was evaluated by three experts with professional backgrounds in general education pedagogy, entrepreneurship development in higher education, and needs assessment research. The finalized instrument consisted of 45 items, all of which demonstrated acceptable levels of item-objective congruence (IOC), ranging from 0.60 to 1.00. The internal consistency was assessed using Cronbach's alpha. The alpha coefficient was 0.964 for the overall scale, with coefficients ranging from 0.738 to 0.819 for the entrepreneurial mindset subscales and from 0.821 to 0.890 for the entrepreneurial skills subscales.

A semi-structured focus group discussion guide was constructed in alignment with the research objectives and study context. It included 5 questions addressing factors associated with developmental needs, as well as 5 additional questions aimed at gathering perspectives on approaches for entrepreneurship development.

Procedures

The conceptual framework was developed through a synthesis of literature on entrepreneurial mindset and entrepreneurial skills (Mai & Thai, 2025). The framework organized entrepreneurial development into two dimensions. The first dimension, entrepreneurial mindset, consisted of four components: (1) viewing obstacles as challenges, (2) commitment to goal achievement, (3) willingness to engage in teamwork and systematic problem solving, and (4) action orientation and acceptance of outcomes. The second dimension, entrepreneurial skills, included five core components: (1) collaborative decision-making, (2) creative ideation, (3) planning and risk management, (4) systematic problem solving, and (5) self-management of time, tasks, and interpersonal relationships.

These two dimensions guided the quantitative phase of the study, which examined the priority needs related to entrepreneurial development. Subsequently, a qualitative phase was conducted to explore underlying factors and to synthesize evidence-informed approaches for curriculum and instructional development within the general education context.

Data Analysis

Following data collection, completed questionnaires were screened for completeness prior to analysis. Students' needs for entrepreneurial development were analyzed using the Modification Priority Needs Index ($PNI_{Modified}$). A value of 0.15 or higher was interpreted as

indicating a meaningful level of developmental need. The index was further used to rank the components according to their relative priority for development (Wongwanich, 2015).

The qualitative phase, guided by the focus group protocol, was organized into two thematic sections. The first addressed factors contributing to students' developmental needs, including learner characteristics, instructor characteristics, and instructional processes. The second explored potential approaches to fostering entrepreneurial development within general education, encompassing both learning activity development and curriculum-based pedagogical strategies. Qualitative data were analyzed using content analysis to identify key themes and patterns.

Findings

Needs Assessment for Entrepreneurial Development among General Education Students

The assessment of students' needs for entrepreneurial development was conducted by comparing the mean scores of the existing level and the expectation level, interpreted according to four levels: high (3.28–4.00), moderately high (2.52–3.27), moderately low (1.76–2.51), and low (1.00–1.75). The Modification Priority Needs Index ($PNI_{Modified}$) was subsequently calculated to identify and rank the relative priority of developmental needs for entrepreneurship.

Overall findings (Table 1) indicate that expected levels were consistently higher than their perceived existing levels across both dimensions—entrepreneurial mindset and entrepreneurial skills—suggesting a clear developmental gap and the need for systematic educational intervention.

Table 1

Comparison of Existing and Expected Levels of Entrepreneurial Development Among General Education Students

Entrepreneurship	Existing Level		Expected Level		$PNI_{Modified}$	Priorities Order
	Mean	Level	Mean	Level		
Entrepreneurial mindset						
1. Viewing obstacles as challenges	3.01	Moderately High	3.59	High	0.19	1
2. Commitment to goal achievement	3.15	Moderately High	3.69	High	0.17	2
3. Engaging in teamwork and systematic problem solving	3.26	Moderately High	3.70	High	0.14	3
4. Action orientation and acceptance of outcomes	3.07	Moderately High	3.64	High	0.19	1

Table 1

(Cont.)

Entrepreneurship	Existing Level		Expected Level		$PNI_{Modified}$	Priorities Order
	Mean	Level	Mean	Level		
Entrepreneurial skills						
1. Collaborative decision-making	3.35	High	3.72	High	0.11	5
2. Creative ideation	3.02	Moderately High	3.64	High	0.21	1
3. Planning and risk management	3.18	Moderately High	3.69	High	0.16	3
4. Systematic problem solving	3.17	Moderately High	3.69	High	0.17	2
5. Self-management	3.27	Moderately High	3.73	High	0.14	4

Priority Needs within the Entrepreneurial Mindset Dimension. Analysis of the four components of the entrepreneurial mindset revealed that viewing obstacles as challenges and action orientation and acceptance of outcomes demonstrated the highest levels of developmental need ($PNI_{Modified}$ = 0.19). This was followed by commitment to goal achievement ($PNI_{Modified}$ = 0.17). The dimension with the lowest, yet still notable, priority was engaging in teamwork and systematic problem solving ($PNI_{Modified}$ = 0.14).

Priority Needs within the Entrepreneurial Skills Dimension. With respect to the five domains of entrepreneurial skills, the findings indicate that creative ideation emerged as the most urgent developmental priority ($PNI_{Modified}$ = 0.21). This was followed by systematic problem solving ($PNI_{Modified}$ = 0.17) and planning and risk management ($PNI_{Modified}$ = 0.16). Lower, yet still meaningful, priorities were observed for self-management of time, tasks, and interpersonal relationships ($PNI_{Modified}$ = 0.14) and collaborative decision-making ($PNI_{Modified}$ = 0.11).

Indicator-Level Analysis within the Entrepreneurial Mindset Dimension

An analysis at the indicator level revealed specific developmental concerns across the four mindset components. Within the dimension of viewing obstacles as challenges, the indicator demonstrating the highest need was students' willingness to accept failure and potential difficulties ($PNI_{Modified}$ = 0.21). For commitment to goal achievement, the most critical indicator was the ability to persist in pursuing goals despite encountering obstacles and discouragement ($PNI_{Modified}$ = 0.20). In the dimension of engaging in teamwork and systematic problem solving, the highest priority indicator was students' willingness to attempt unfamiliar tasks to gain new experiences ($PNI_{Modified}$ = 0.25). Similarly, within action orientation and acceptance of outcomes, the most critical indicator was williness to test or implement ideas even when those ideas remain underdeveloped ($PNI_{Modified}$ = 0.24).

Details of the top indicators within each dimension are presented in Table 2.

Table 2

Top Three Indicators of Entrepreneurial Mindset Development Among General Education Students

Entrepreneurial Mindset	Priorities Order	Development Needs Indicator	$PNI_{Modified}$
Viewing obstacles as challenges	1	I am willing to acknowledge failure and cope with potential obstacles or difficulties.	0.21
	2	I maintain confidence in my own worth, even when I make mistakes or experience failure.	0.20
	3	I perceive difficulties, obstacles, and problems as meaningful challenges rather than threats.	0.19
Commitment to goal achievement	1	I remain committed to my goals despite encountering difficulties and do not give up easily.	0.20
	2	I persist and devote effort until I can achieve my intended goals.	0.18
	3	I believe that setting clear and concrete goals leads to more effective action.	0.14
Engaging in teamwork and systematic problem solving	1	I am willing to try tasks beyond my comfort zone to gain new experiences.	0.25
	2	I am willing to collaborate with individuals whose interests or strengths differ from my own.	0.16
	3	I actively seek connections between my personal interests and the surrounding environment.	0.12
Action orientation and acceptance of outcomes	1	I am willing to act on or test my ideas, even when they are not yet fully developed.	0.24
	2	I take initiative and begin tasks independently rather than waiting for others.	0.19
	3	I seek collaboration and support from relevant individuals to achieve shared goals.	0.18

Indicator-Level Analysis within the Entrepreneurial Skills Dimension

At the skill-indicator level, distinct developmental priorities were also identified. For collaborative decision-making, the most critical indicator was students' ability to establish shared goals or expected outcomes with team members ($PNI_{Modified}$ = 0.14). Within creative ideation, the highest-priority indicator was students' capacity to propose novel and distinctive ideas or solutions that differ from those of others ($PNI_{Modified}$ = 0.26). In the domain of planning and risk management, the key indicator concerned the ability to define criteria for evaluating the effectiveness of alternative courses of action ($PNI_{Modified}$ = 0.19). For systematic problem solving, the most critical indicator was students' ability to observe situations and pose in-depth questions to understand others' underlying needs ($PNI_{Modified}$ = 0.19). Finally, within self-

management of time, tasks, and interpersonal relationships, the highest priority indicator involved the capacity to prioritize tasks in alignment with personal constraints and available resources ($PNI_{Modified}$ = 0.18).

Further details are provided in Table 3.

Table 3

Top Three Indicators of Entrepreneurial Skills Development Among General Education Students

Entrepreneurial Skill	Priorities Order	Development Needs Indicator	$PNI_{Modified}$
Collaborative decision-making	1	I work with team members to jointly define goals or desired outcomes.	0.14
	2	I participate in implementing team decisions to evaluate outcomes and provide feedback.	0.12
	3	I engage in discussions of both my own ideas and others' ideas using accepted principles and reasoning.	0.11
Creative ideation	1	I propose ideas or solutions that are original and different from others.	0.26
	2	I present ideas or solutions in a manner that is clear and easy to understand.	0.20
	3	I can explain the value of the ideas or solutions I propose.	0.19
Planning and risk management	1	I establish criteria for evaluating the success of alternative solutions or actions.	0.19
	2	I analyze the strengths and limitations of different options based on principles and evidence.	0.18
	3	I assess potential risks and feasibility when selecting solutions or actions.	0.17
Systematic problem solving	1	I observe situations and ask in-depth questions to understand others' needs.	0.19
	2	I select approaches or strategies that directly contribute to effective problem resolution.	0.17
	3	I organize information in ways that support logical analysis and comparison.	0.16
Self-management	1	I prioritize tasks in ways that align with my personal constraints and capacities.	0.18
	2	I prioritize tasks based on clear and reasonable criteria.	0.17
	3	I adapt my language and communication style appropriately when interacting with different individuals.	0.12

The quantitative findings indicate that the most critical developmental needs among general education students were identified within the mindset dimension of viewing obstacles as challenges, commitment to goal achievement, and action orientation and acceptance of outcomes, as well as the skill domains of creative ideation and systematic problem solving.

These prioritized components were therefore used as the analytical foundation for the qualitative phase of the study, guiding the design of focus group questions aimed at exploring the underlying causes of these needs and identifying contextually appropriate strategies for enhancing entrepreneurial development within the general education curriculum.

Factors Contributing to Students' Developmental Needs and Implications for Entrepreneurial Development

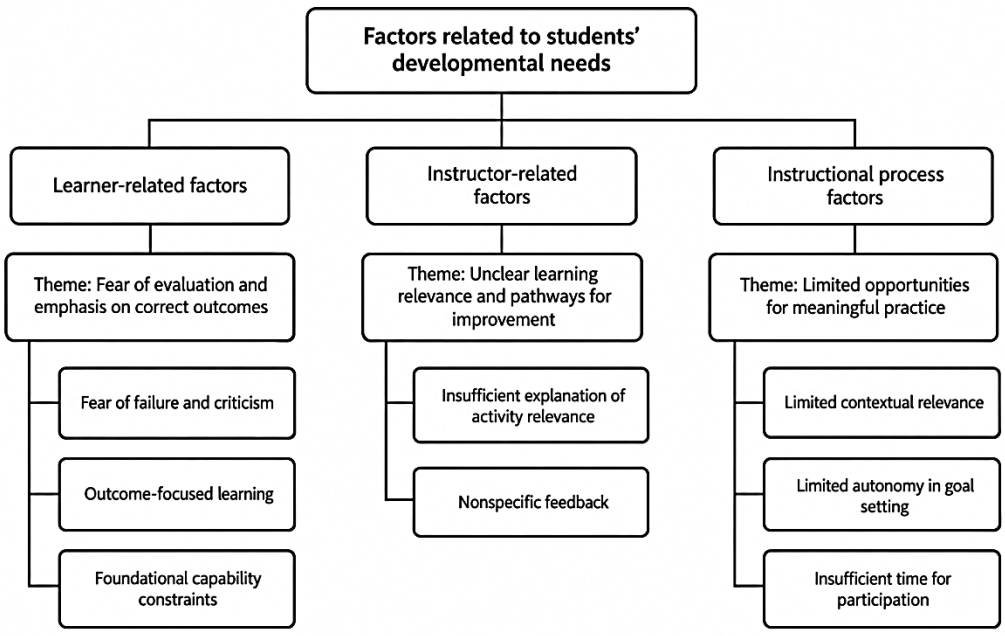
The content analysis of the focus group discussions indicates that the factors contributing to students' developmental needs for entrepreneurship within the general education context can be categorized into three interrelated domains: learner-related factors, instructor-related factors, and instructional process factors.

Factors Contributing to Students' Developmental Needs

The findings are presented through three thematic areas organized around learner-related, instructor-related, and instructional process factors. Within these domains, the accounts suggest three organizing themes: (1) fear of evaluation and an emphasis on correct outcomes constrain active participation; (2) insufficient explanation and feedback leave the relevance of learning and pathways for improvement unclear; and (3) activity conditions limit opportunities for meaningful entrepreneurial practice.

Figure 1

Thematic Map of Factors Related to Students' Entrepreneurial Developmental Needs



Learner-Related Factors. Participants described fear of failure and criticism, an emphasis on correct outcomes, and limitations in foundational competencies as barriers to entrepreneurial participation. These concerns were reflected in reported behaviors such as reluctance to propose original ideas, avoidance of unfamiliar approaches, and withdrawal from collaborative problem solving.

These characteristics were reflected in observable learning behaviors such as reluctance to participate in problem solving, avoidance of proposing original ideas, and withdrawal from collaborative processes. One instructor described this pattern as follows:

"Students often worry that their own work or their group's work will not be good enough. They are afraid of failing in front of their peers. When problems arise, they tend to leave the responsibility to the group leader rather than engaging fully in the problem-solving process." (Instructor 1 & 3)

"Many students are afraid of being criticized, so they hesitate to present ideas that are different. They are more comfortable following fixed patterns rather than trying something new." (Instructor 2)

Several participants also emphasized that students often focus more on outcomes than on learning processes, which limit opportunities to entrepreneurial competencies, skills, capabilities, etc.:

"Students tend to focus on getting the 'correct answer' rather than engaging in the learning process. As a result, they miss opportunities to develop important skills such as brainstorming and collaborative idea generation." (Instructor 2 & 7)

In addition to psychological attributes, differences in students' foundational competencies related to teamwork and problem solving were also identified. These included difficulties in goal setting, information seeking, and collaborative decision-making. As one instructor explained:

"Many students do not place enough importance on searching for sufficient information before designing solutions. This makes it difficult for them to refine or develop ideas in more creative ways." (Instructor 4)

Taken together, these accounts distinguish hesitation to participate from limitations in the capabilities needed for participation. Both were described as restricting opportunities to practice idea generation, collaborative decision-making, and problem solving.

Instructor-Related Factors. Instructors and students identified two limitations in instructional support: insufficient explanation of activity relevance and the provision of constructive feedback. These accounts concerned uncertainty about why entrepreneurial learning activities mattered and how students could improve their performance.

"Some instructors do not explain how the activities relate to us or to entrepreneurship. As a result, students do not see the value of what they are learning." (Student 3)

Similarly, instructors acknowledged limitations in feedback practices:

"Sometimes feedback is too general. Students are told that their work is 'good' but are not informed about what is good or what should be improved. This leaves them uncertain about how to develop further." (Instructor 3 & 5)

These accounts position explanation and feedback as complementary forms of support: explanation clarifies the relevance of entrepreneurial learning, while specific feedback identifies what learners can retain, revise, or develop further.

Instructional Process Factors. Participants identified three activity conditions that limited opportunities for meaningful entrepreneurial practice: insufficient connection to students' contexts, limited autonomy in goal setting, and inadequate time for collaborative participation.

One student commented on the lack of contextual relevance in classroom case studies:

"The cases we analyze are usually about people who have already succeeded and are not related to our field of study. It is difficult to see how this helps us develop entrepreneurial abilities." (Student 1)

Another student highlighted the lack of opportunities for autonomous goal setting:

"In many activities, we are told the principles, but we are not encouraged to set our own goals or try to achieve them." (Student 4)

Time constraints also reduced opportunities for meaningful participation:

"Activities are often rushed, and sometimes we must work with classmates we barely know. There is not enough time to hear everyone's ideas, so some students become hesitant to speak." (Student 7)

Participants identified three activity conditions that limited opportunities for meaningful entrepreneurial practice: insufficient connection to students' contexts, limited autonomy in goal setting, and inadequate time for collaborative participation.

Across the three themes, participation and opportunities for practice emerged as a common concern. Participants described learner hesitation, unclear instructional guidance, and restrictive activity conditions as barriers to engagement in entrepreneurial learning.

Synthesized Approaches for Enhancing Entrepreneurial Development

Beyond identifying contributing factors, the qualitative findings also enabled the synthesis of three strategic directions for enhancing entrepreneurial development within general education: learning outcome design, learning activity design, and learning assessment strategies.

Learning Outcome Design. Participants emphasized the importance of articulating learning outcomes clearly at both course and lesson levels, with behavioral indicators across knowledge, skills, and psychological attributes. Foundational outcomes considered essential for entrepreneurial development included self-awareness, self-confidence, self-efficacy, and a growth mindset.

"Students should develop self-efficacy because it is a foundation that enables them to face challenges, view problems as opportunities, and act with confidence." (Instructor 2)

Learning Activity Design. Participants consistently advocated greater use of active learning and experiential learning approaches such as role-model technique, game-based learning, which enable students to engage directly with meaningful tasks rather than passively receiving theoretical input.

"Learning activities should focus more on the process than on the outcome. Students need opportunities to practice and experience real situations; otherwise, they will not understand why entrepreneurial learning matters." (Instructor 1)

Other participants suggested the use of case-based learning, interviews, and reflective analysis as effective strategies:

"When students analyze case studies or interviews and are asked to critique and propose solutions, they naturally develop entrepreneurial skills." (Instructor 4 & 5)

Assessment Strategies. Participants also pointed out that assessments should extend beyond evaluating final products and should incorporate reflective and multi-perspective approaches, such as self-assessment, peer assessment, and third-party assessment.

"Assessment through peers, self-reflection, or external experts helps students see their real strengths and weaknesses. This allows them to set clearer goals and continue developing." (Instructor 2, 6 & 7)

Discussions

Priority Developmental Needs for Entrepreneurship in General Education Students

The quantitative findings indicate that the entrepreneurial mindset components with the highest developmental priority were viewing obstacles as challenges and action orientation and acceptance of outcomes. These attributes are closely associated with learners' cognitive regulation and self-directed behavioral processes that enable sustained goal pursuit.

These findings can be meaningfully interpreted through the lens of self-efficacy theory (Bandura, 1978), which posits that individuals' beliefs in their capacity to organize and execute actions influence their goal setting, emotional regulation, and persistence, particularly in demanding contexts. The four mechanisms underlying self-efficacy—cognitive appraisal, motivational self-regulation, affective management, and behavioral selection—correspond closely with the four components of the entrepreneurial mindset framework identified in this study (Drnovsek et al., 2010; Newman et al., 2019).

In the entrepreneurial skills dimmension, the most critical developmental needs were identified as creative ideation and systematic problem solving. These competencies reflect higher-order cognitive capacities, including openness to multiple perspectives, analytical synthesis of information, and reasoned decision-making. Consistent with Gabora (2013), such capabilities enable individuals to manage complex and uncertain situations more effectively. Moreover, Tang et al. (2024) demonstrated that creative thinking supports not only artistic performance but also scientific inquiry and academic problem solving, reinforcing the relevance of these skills across disciplines.

The findings suggest that instructional planning should address the identified developmental priorities while considering learners' confidence and readiness to participate.

Factors Related to Students' Developmental Needs

The qualitative findings suggest that learner hesitation should be considered alongside instructional guidance and activity conditions. Fear of criticism was reported together with unclear feedback, limited contextual relevance, and insufficient time for exchanging ideas. These accounts indicate that opportunities for entrepreneurial practice cannot be understood solely in terms of learners' personal attributes. TPB provides a useful interpretive lens for considering perceived social expectations and control over participation (Ajzen, 2012).

First, learner-related psychological attributes—such as fixed mindset, low self-efficacy, low self-regulation, passive learning tendencies, and excessive self-comparison—can be interpreted as factors influencing attitude toward the behavior. These characteristics are associated with reduced intrinsic motivation and weakened intention to engage in entrepreneurial learning behaviors. Kim (2009) demonstrated that targeted interaction and

formative feedback can significantly strengthen self-efficacy and learner engagement, suggesting that these psychological attributes are malleable rather than fixed.

Second, differences in students' foundational competencies for teamwork and collaborative problem solving are closely connected to subjective norms. Learning environments characterized by trust, shared commitment, and positive peer modeling are known to enhance collective learning capacity and group performance (Batt-Rawden et al., 2020). Therefore, variation in students' exposure to such environments contributes to differences in their perceived need for entrepreneurial development.

Third, instructor-related factors—including the quality of instructional explanations, the use of cognitively stimulating questions, and the provision of constructive feedback—correspond to the TPB construct of perceived behavioral control. When students perceive that instructional structures support their ability to succeed, their confidence in engaging with complex tasks increases (Andrew et al., 2020). This finding underscores the critical role of instructors in shaping the psychological conditions necessary for entrepreneurial learning.

Implications for Enhancing Entrepreneurial Development in General Education

The integrated findings suggest that instructional planning should address the identified developmental priorities while providing clear guidance and opportunities for participation. Branca et al. (2025) highlight the differing contributions of instructional approaches to entrepreneurial competencies, supporting consideration of experiential and active learning opportunities. In the present context, tasks involving idea generation, collaborative problem solving, and reflection may offer opportunities to address the identified priorities.

This orientation aligns with Nooh's (2022) conceptualization of entrepreneurship as a set of psychological and cognitive dispositions applicable to all individuals, rather than business founders. It is also consistent with Luo et al. (2023), who emphasized the role of general education in cultivating transferable entrepreneurial competencies for all undergraduate students.

From a pedagogical perspective, learning designs grounded in problem-based learning and project-based learning appear particularly well suited to fostering entrepreneurial development, as they provide authentic contexts for decision-making, creative engagement, and effort (Durán-Chinchilla et al., 2022). Complementary strategies—such as role-model learning, case-based discussion, game-based learning, inquiry-based questioning, and structured creative problem-solving—have also demonstrated effectiveness in supporting both mindset and skill development (Sungsanit et al., 2024).

In practical implementation, instructors should begin by assessing students' existing levels of entrepreneurial competence and learning preferences prior to determining appropriate learning outcomes and pedagogical strategies. Learning tasks should be designed to be moderately challenging—slightly exceeding students' current competence levels—to create productive tension that encourages growth. Such conditions are particularly conducive to strengthening the two mindset dimensions identified as highest priority in this study: perceiving challenges and persevering through action.

Equally important is the design of collaborative learning structures and reflective practices. Group-based tasks should be carefully structured to balance team size, member diversity, and role clarity to minimize social loafing and maximize meaningful participation. Transparent assessment criteria and process-oriented evidence (e.g., learning logs, drafts,

reflective outputs) can further support the development of the two most critical entrepreneurial skills identified in this study: creative ideation and systematic problem solving.

Conclusions

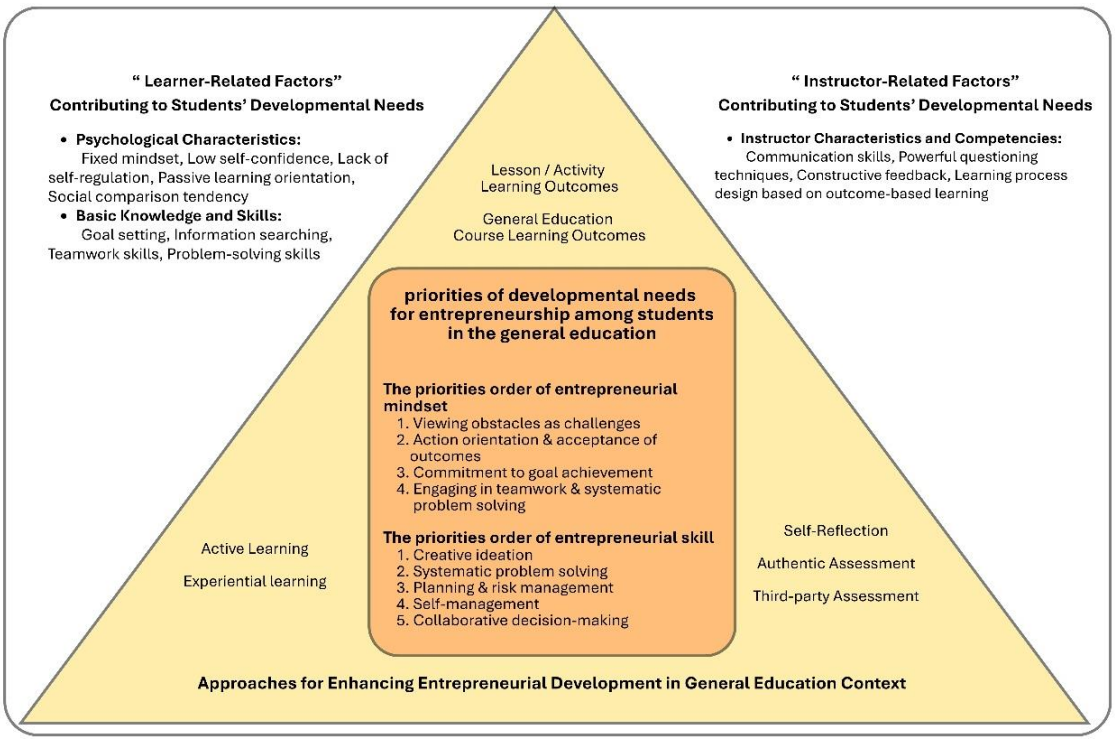
This study identified priorities for entrepreneurial development among students in the general education context. Within the entrepreneurial mindset dimension, the highest-priority needs concerned viewing obstacles as challenges and action orientation and acceptance of outcomes. Within the entrepreneurial skills dimension, creative ideation and systematic problem solving emerged as the highest-priority areas. The qualitative findings identified learner-related, instructor-related, and instructional process factors that participants described as constraining engagement and opportunities for entrepreneurial practice.

The study provides context-specific evidence on the relative developmental priorities of general education students across an entrepreneurial mindset and entrepreneurial skills. The qualitative findings complement these priorities by identifying learner-related, instructor-related, and instructional process conditions that participants perceived as barriers to entrepreneurial learning. Together, these findings offer an interpretive basis for examining developmental needs alongside the learning conditions in which they arise.

The findings also inform curriculum and instructional planning. The identified priorities can guide course- and lesson-level learning outcomes. Figure 2 summarizes the proposed approach by presenting developmental priorities alongside learner- and instructor-related considerations and suggested learning and assessment practices. This approach is intended to inform instructional planning and remains a recommendation for subsequent implementation and evaluation.

Figure 2

Essential needs for the development of entrepreneurship in general education students



Several limitations should be acknowledged. The findings reflect the context of participating students at a single university, which limits their generalizability to other institutions and student populations. The questionnaire assessed perceived current and desired levels and therefore reflects self-reported developmental needs rather than directly demonstrated competence. The qualitative findings represent participants' accounts and do not establish causal relationships among the identified factors. Moreover, the proposed instructional approach was not evaluated as an intervention within this study, and its effectiveness remains to be tested.

Implications for Future Research. Future studies should examine whether the identified priorities are comparable across institutions and student groups and complement self-report measures with performance-based assessments. Structural equation modeling could test the proposed relationships among factors, while longitudinal studies could examine changes in developmental needs over time. Research and development studies incorporating experimental or quasi-experimental evaluation should examine instructional approaches targeting the entrepreneurial mindset and skill components identified as high-priority needs.

Author Contributions

MT: Conceptualization, Methodology, Formal Analysis, Visualization, Writing—Original Draft Preparation, Writing—Review & Editing, Supervision, Project Administration.
LD: Conceptualization, Methodology, Formal Analysis, Data Curation, Writing—Original Draft Preparation, Writing—Review & Editing, Correspondence Management.

Declaration of the Use of Generative AI

During the preparation of this manuscript, the authors used Grammarly to assist with language editing and polishing of the draft. The tool was used solely to improve clarity, grammar, and overall readability. The authors reviewed and revised the output as necessary and take full responsibility for the content of the manuscript.

Ethics

This study received ethical approval from the Human Research Ethics Committee of Srinakharinwirot University and was conducted in accordance with internationally recognized ethical principles, including the Declaration of Helsinki, the Belmont Report, the International Conference on Harmonization—Good Clinical Practice (ICH-GCP), and the International Guidelines for Human Research, as well as relevant national regulations and institutional requirements (Approval No. SWUEC-682646).

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