How Can Primary Teachers Become Effective Entrepreneurship Educators? Insights from the ALLFA Learning Journey Model

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Abstract

Entrepreneurship education is increasingly emphasized in primary schools, yet many teachers are not adequately prepared to effectively cultivate students' entrepreneurial skills. This study investigated primary teachers' professional development needs for promoting entrepreneurial characteristics among students and developed a tailored learning journey model to address those needs. A mixed-method approach was employed, including a survey of 467 primary teachers in Bangkok, Thailand, and focus group interviews to gather in-depth insights. Results indicated high overall development needs, especially in designing entrepreneurship-oriented learning activities, integrating technology to enhance learning, and understanding entrepreneurial traits. No significant differences in needs were found across teacher demographics. In response to these findings, a five-stage teacher learning journey model—termed ALLFA (Awaring, Learning, Linking, Facilitating, Assessing)—was formulated to guide educators in effectively fostering entrepreneurship in the classroom. This model provides a structured framework for ongoing, flexible teacher training in entrepreneurship education. Overall, the study contributes to the field of entrepreneurship education and teacher development by identifying key competency gaps and presenting the ALLFA model as an actionable framework, with implications for teacher training policy and future research on student outcomes.

Keywords: entrepreneurial teachers, primary education, teacher professional development, entrepreneurship education, learning journey model

1. Introduction

Entrepreneurship education is increasingly recognized as a critical component of 21st-century learning, equipping students with the creativity, initiative, problem-solving skills, and adaptability needed for future challenges (European Commission, 2020; OECD, 2021; UNESCO, 2022). International frameworks, such as the OECD's Education 2030 position paper (OECD, 2018) and UNESCO's guidance on Education for Sustainable Development Goals (UNESCO, 2021), emphasize the early cultivation of entrepreneurial competencies through experiential, student-centered learning approaches. The European Commission's EntreComp framework further defines entrepreneurship as a transversal competence essential across disciplines and educational stages (Bacigalupo et al., 2016). Despite growing global momentum, the integration of entrepreneurship education at the primary level remains fragmented, often hindered by a lack of pedagogical clarity, teacher preparedness, and contextually grounded instructional models (Global Entrepreneurship Monitor [GEM], 2021; Lackéus, 2020).

Effective entrepreneurship education relies heavily on the competencies of teachers themselves (Darling-Hammond et al., 2017; Guskey, 2002; OECD, 2021). Research consistently highlights that professional development must go beyond theoretical knowledge, offering practical strategies, sustained support, and community-building mechanisms (European Commission, 2020; Grigg, 2021). However, studies reveal that most professional development initiatives inadequately address the complex, context-specific needs of primary teachers tasked with promoting entrepreneurial skills (Hardie, Highfield, & Lee, 2022; Lackéus, 2020). There is a clear consensus that frameworks alone, such as EntreComp, while valuable, are insufficient without accompanying structured pathways that guide teachers' ongoing learning journeys (Bacigalupo et al., 2016; UNESCO, 2022).

In Thailand, entrepreneurship education has been identified as a national priority, linked to economic competitiveness and future workforce development (Office of Basic Education Commission [OBEC], 2022). Policy initiatives, such as the National Education Plan 2017–2036, advocate embedding entrepreneurial mindsets into school curricula from an early stage (Office of the Education Council, 2017). In Bangkok, the Bangkok Metropolitan Administration (BMA) has introduced entrepreneurship as an elective subject and promoted integrated approaches across primary schools (BMA, 2022). Nonetheless, a significant gap persists between policy intentions and classroom realities. Research indicates that primary teachers in Bangkok recognize the importance of entrepreneurship education but feel ill-equipped to implement it effectively due to insufficient training, lack of pedagogical models, and limited resources (Meesook & Denpong, 2020; OBEC, 2022). Similar challenges have been observed internationally, where teachers often express uncertainty about instructional strategies and struggle to translate entrepreneurial competencies into actionable classroom practices (GEM, 2021; European Commission, 2020).

Addressing this gap requires a structured, empirically grounded approach to teacher development. Literature on teacher learning emphasizes that sustainable professional growth emerges from continuous, context-responsive learning pathways rather than isolated workshops (Opfer & Pedder, 2011; Darling-Hammond et al., 2017). Principles from adult learning theory (Knowles, Holton, & Swanson, 2020) and reflective practice (Schön, 1983) further support the need for developmental models that scaffold teachers' knowledge, skills, and self-efficacy over time. Yet, few studies have proposed comprehensive models tailored to primary teachers' needs in entrepreneurship education, particularly in Asian contexts.

To address this critical need, the present study explores the professional development needs of Bangkok primary school teachers and proposes the ALLFA Learning Journey Model—a five-stage framework comprising Awaring, Learning, Linking, Facilitating, and Assessing. The model is designed to guide teachers through a holistic, contextually relevant learning process that fosters their capacity to effectively nurture entrepreneurial skills and mindsets among students.

Accordingly, this study was guided by the following research questions:

What are the professional development needs of primary school teachers in Bangkok for effectively teaching entrepreneurship education?

How can the ALLFA Learning Journey Model address these identified needs and support primary teachers to become effective entrepreneurship educators?

The objectives of the research were twofold: (1) to examine the specific professional development needs of primary school teachers regarding entrepreneurship education, and (2) to develop a structured teacher learning pathway that supports their self-development in fostering entrepreneurial characteristics among students. By doing so, this study contributes to bridging the gap between policy aspirations and practical realities in entrepreneurship education, offering insights applicable both locally and internationally.

2. Methods

2.1 Research Design

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to explore primary school teachers' professional development needs and to develop a model for fostering entrepreneurial characteristics in students. The design was sequential: a quantitative survey provided broad needs assessment data, followed by a qualitative inquiry to deepen understanding and inform model development. This approach ensured that initial survey findings were elaborated and explained through in-depth qualitative insights, lending both breadth and depth to the results.

2.2 Participants

The participants were primary school teachers under the jurisdiction of the Bangkok Metropolitan Administration (BMA) in Thailand. Specifically, the target population included teachers of subjects related to entrepreneurship education, namely Social Studies, Career and Technology (covering practical work education), and Guidance/Counseling at the primary level. A total of 467 teachers participated in the survey. These teachers were drawn from a range of school sizes and experience levels to ensure a representative sample of the context. As shown in Table 1, about 39% of respondents taught in medium-sized schools and 38.8% in small schools, with the remainder from large (20.6%) and very large schools (1.7%). The sample was roughly evenly split among the three

subject areas (35.3% Social Studies, 33.4% Guidance/Counseling, 31.3% Career & Technology). Teaching experience varied: a substantial proportion were early-career teachers with 1–5 years of experience (43%), while 18.6% had 6–10 years, 14.6% had 11–15 years, and about a quarter (23.8%) had over 15 years of experience. This diverse composition of the sample suggests that findings would be applicable across different school contexts, subject specializations, and seniority levels. All participants gave informed consent, and the study was conducted in accordance with ethical guidelines for educational research.

Table 1. Demographic Characteristics of Survey Participants (N = 467)

Characteristic	Category	n	%
School size	Small	181	38.8
	Medium	182	39.0
	Large	96	20.6
	Very large	8	1.7
Subject taught	Social Studies	165	35.3
	Guidance/Counseling	156	33.4
	Career & Technology	146	31.3
Teaching experience	1–5 years	201	43.0
	6–10 years	87	18.6
	11–15 years	68	14.6
	> 15 years	111	23.8

2.3 Instruments

Quantitative Survey: A structured questionnaire was developed to assess teachers' professional development needs in relation to fostering entrepreneurial characteristics in students. The survey instrument was designed as a 5-point Likert scale rating for a series of need statements. For each statement, teachers indicated two ratings: (1) the desired or ideal level of capability/support (importance), and (2) the current level they perceive (performance or current competence). These paired ratings enabled a needs assessment using a gap analysis approach. The questionnaire items were derived from literature and preliminary interviews with experts to ensure content validity. Specifically, the content covered three broad domains: knowledge (e.g., understanding of entrepreneurship concepts and student entrepreneurial traits), pedagogical skills (e.g., ability to design learning activities, assessment methods, use of technology and resources for teaching), and support needs (e.g., school administrative support, community partnerships, access to training).

The draft survey was reviewed by a panel of experts in entrepreneurship education and educational administration to establish content validity. Items were refined based on expert feedback, with an average item–objective congruence (IOC) above 0.5, indicating acceptable relevance to the intended constructs. A pilot test with 30 teachers (not part of the main sample) was then conducted to assess the clarity and reliability of the instrument. The internal consistency was high (Cronbach's alpha > 0.9 for the overall scale), demonstrating that the survey reliably measured the intended dimensions of needs.

Qualitative Inquiry: For the qualitative phase, an interview protocol was developed to guide in-depth exploration of teachers' learning experiences and perspectives. The primary qualitative method was a focus group discussion with teachers, complemented by a few one-on-one in-depth interviews for triangulation. A semi-structured set of questions was used, probing: (a) how teachers currently pursue their own professional learning to improve entrepreneurship education in their classes (their "learning journey"), (b) perceived barriers and enablers in that journey (e.g. personal challenges, or supports/lack thereof from the school or community), and (c) suggestions for what an ideal support model or pathway for teacher development should include. These questions allowed teachers to share both experiences and ideas for improvement.

2.4 Data Collection Procedures

In the quantitative phase, data collection took place via a paper or online survey (depending on school preference)

distributed through official channels. With support from BMA's Education Office, the questionnaire was sent to primary schools city-wide. Teachers of the targeted subjects were requested to respond, and a high response rate was achieved, yielding 467 complete questionnaires. The data were collected over a period of approximately one month. Throughout this process, anonymity was assured to encourage honest responses about needs and perceived gaps in support.

In the qualitative phase, a focus group discussion was organized at a central location convenient for participating teachers. Eight teachers (across different subjects and school sizes) participated in the focus group, which lasted about 2 hours. These teachers were selected using purposive sampling – they were known to have experience or interest in innovative teaching, ensuring they could articulate thoughts on professional development for entrepreneurship education. The discussion was moderated by the researcher in Thai (the participants' native language), audio-recorded, and transcribed verbatim. Additionally, five individual in-depth interviews were conducted (either in-person or by phone) with teachers who could not join the focus group or who had unique perspectives (for example, one very senior teacher and one novice teacher were interviewed to capture different career-stage views). Furthermore, after a preliminary model of the teacher learning journey was drafted based on the survey results and initial qualitative findings, an expert panel review was held. This panel included five experts (experienced school principals, teacher trainers, and academics in entrepreneurship education) who examined the draft ALLFA model (described below) for logical consistency, practicality, and clarity. Their feedback was used to refine the model and ensure its relevance and credibility.

2.5 Data Analysis

Quantitative Analysis: Survey data were analyzed using descriptive and inferential statistics. First, means and standard deviations were calculated for the "desired" (ideal) and "current" ratings of each need item. From these, a Priority Needs Index (PNI) was computed for each item to quantify the gap. The modified PNI formula used was:

$$PNI_{\text{modified}} = \frac{(\text{Desired score} - \text{Current score})}{\text{Current score}}$$

This index indicates the relative degree of unmet need; a higher PNI suggests a more pressing need (a larger gap between what is desired and the current situation). Items were then ranked by PNI to identify the most critical development needs. In addition, composite PNIs were considered for broader categories (e.g. overall need for pedagogical skill development, overall need for resources, etc.) by averaging relevant items within each category.

To examine whether perceived needs differed by teacher background, one-way ANOVAs (Analysis of Variance) and independent-sample t-tests were conducted. ANOVAs compared mean need ratings (and PNI values) across groups such as school size (four levels: small, medium, large, very large), subject taught (three subjects), and teaching experience (four ranges as in Table 1). A significance level of $\alpha = 0.05$ was used. As reported below, these analyses revealed no statistically significant differences in needs across demographic subgroups (all $p > 0.05$), indicating that the professional development needs were consistently high regardless of teachers' context or experience. All quantitative analyses were performed using SPSS version 17.

Qualitative Analysis: The qualitative data (transcripts from the focus group and interviews) were analyzed using thematic content analysis. The researcher first performed open coding on the transcripts to identify significant statements related to how teachers learn and what challenges or supports they encounter. These codes were then grouped into broader themes corresponding to stages of the learning journey, as well as recurring barriers and enabling factors. An iterative process was used: initial thematic labels (e.g. "self-directed learning," "peer support," "lack of resources," "administrative encouragement") were refined and organized into a logical sequence that described a progressive journey of teacher development. This sequence eventually formed the basis of a five-step ALLFA model (Awaring, Learning, Linking, Facilitating, Assessing). For each stage of the model, specific sub-themes were noted regarding the barriers and enablers teachers mentioned. For example, under the "Learning" stage, teachers discussed barriers like difficulty finding relevant training and enablers like personal motivation to learn.

The credibility of the qualitative findings was enhanced by triangulation (comparing focus group and interview insights with survey results and existing literature) and by the expert panel review. The expert focus group served as a form of member checking and validation – although the experts were not the original teacher participants, they were deeply familiar with the context and could judge whether the proposed model and identified issues resonated with real-world conditions. General agreement from the expert panel on the key stages and factors suggested that the

themes captured were valid and applicable. The qualitative findings were ultimately integrated with quantitative results during interpretation, allowing the development of a comprehensive teacher learning journey model grounded in empirical data.

3. Results

3.1 Professional Development Needs of Primary Teachers (Quantitative Findings)

A total of 467 primary teachers participated in the study. As summarized in Table 1 (see Methods), the sample covered a broad range of school contexts and teacher backgrounds. The needs assessment revealed that teachers had high professional development needs overall, with particularly high gaps in certain areas. The highest priority needs (i.e. largest gaps between desired and current competencies) were in designing learning activities to promote entrepreneurship, using technology to enhance learning, and knowledge of entrepreneurial characteristics (traits and mindset). These were consistently rated as urgent needs across teachers, reflecting a widespread demand for capacity-building in both pedagogical skills and content knowledge related to entrepreneurship. Table 2 presents the top-ranked needs identified, along with their average desired and current scores and the resulting need gap index. Notably, none of the assessed need areas had a zero or negative gap – all showed room for improvement, underscoring that teacher felt no aspect of their preparation for entrepreneurship education was fully adequate.

Importantly, inferential statistics indicated no significant differences in need levels when comparing teachers by school size, subject area, or years of experience (ANOVA and t-tests, $p > 0.05$ in all cases). In other words, a new teacher in a small school and a veteran teacher in a large school reported very similar concerns and priorities. This lack of demographic differences suggests a convergence of professional development needs: the push for entrepreneurship education is a relatively new challenge across the board in this context, so almost all teachers – regardless of background – feel the need to upgrade their skills and knowledge. The consistency of needs across groups implies that the ALLFA model developed (see next section) has broad relevance and could be applied widely, rather than needing separate models or interventions for different sub-populations of teachers.

Table 2. Top-Ranked Professional Development Needs Identified by Teachers (N = 467)

Professional Development Need	Desired Level (Mean)a	Current Level (Mean)a	Need Gap Index (PNI)
Designing entrepreneurship-oriented learning activities	4.8	3.0	0.38
Integrating technology to enhance learning	4.7	3.1	0.34
Understanding entrepreneurial characteristics in students	4.6	3.2	0.31
Developing assessment methods for entrepreneurial outcomes	4.4	3.2	0.27
Securing resources and instructional media	4.4	3.3	0.25

Note: PNI (Priority Needs Index) is calculated as (Desired – Current) / Current. All values are on a 5-point scale. aMeans are on a scale from 1 (low/none) to 5 (very high).

In practical terms, the highest-ranked need – improving the design of entrepreneurship-oriented learning activities – indicates that teachers recognize the importance of active, experiential learning methods (like projects or simulations) but feel they lack the know-how or support to implement them. Similarly, the strong need for better technology integration reflects an awareness that digital tools could enhance entrepreneurship lessons, paired with insufficient training or confidence in using those tools. The need for greater knowledge of entrepreneurial characteristics suggests many teachers feel they do not fully understand concepts like creativity, risk-taking, or innovation well enough to teach and nurture these qualities in children. Needs related to developing appropriate assessment approaches for entrepreneurship (e.g., how to measure skills like initiative or teamwork) and to securing resources or materials for hands-on activities were also notable, though slightly lower in priority. Even the lowest-rated needs

(such as having a positive attitude toward entrepreneurship education, which some teachers already had) still showed positive gaps, indicating some desire for further growth. Overall, these results paint a coherent picture: primary school teachers are keen to enhance their capacity for developing students' entrepreneurial characteristics, but they face a mix of skill gaps and systemic hurdles.

3.2 Development of the ALLFA Learning Journey Model (Qualitative Findings)

To address the identified needs, the study's qualitative phase focused on how teachers learn and grow professionally in this domain, and what kind of support would help them become effective entrepreneurship educators. Through thematic analysis of the focus group and interviews, a clear pattern of a learning journey emerged – essentially, stages that teachers typically go through (or need to go through) in order to effectively foster entrepreneurial characteristics in their students. This analysis led to the formulation of a model named ALLFA, comprising five sequential stages: Awaring, Learning, Linking, Facilitating, and Assessing. Each stage corresponds to a set of activities and focus areas for teacher development, as well as associated supports needed. The ALLFA model can be viewed as a cyclical, ongoing journey rather than a one-time linear process; after completing the Assessing stage, the insights gained feedback into further awareness and learning, thus creating a continuous improvement loop.

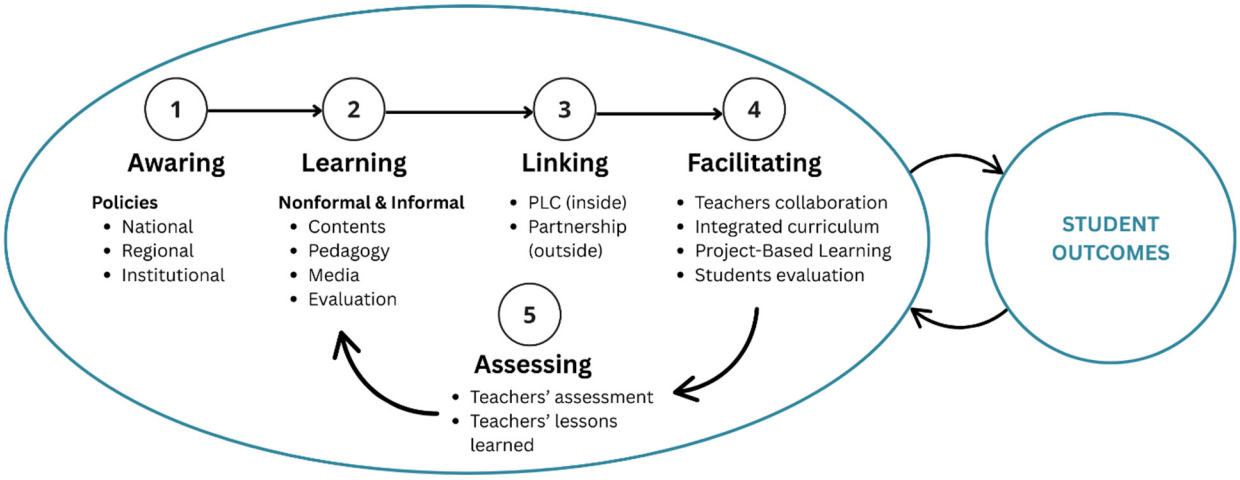

Figure 1. Visualization of the ALLFA Learning Journey Model for Teacher Development

The model consists of five stages – Awaring, Learning, Linking, Facilitating, and Assessing – arranged in a continuous cycle. Arrows indicate the progression through stages and the iterative nature of the journey (after "Assessing," the cycle loops back to "Awaring" as teachers continuously refine their practice).

Below is a detailed description of each stage of the ALLFA model, including its rationale and what it entails for teachers:

Awaring – Recognizing one's roles and context. At this stage, teachers develop awareness of entrepreneurship education and their role within it, understanding curriculum objectives and assessing their school and community context. Focus group findings showed that recognizing entrepreneurial characteristics and their importance was a crucial first step, often prompted by policy or professional discourse, though initially remaining abstract for some. The model recommends activities such as orientation workshops and self-assessment to internalize this awareness. By the end of Awaring, teachers should demonstrate cognitive and attitudinal readiness, with a clear understanding of their starting point and context. Barriers include limited understanding and low confidence; enablers include strong school leadership prioritizing entrepreneurship and exposure to successful models.

Learning – Acquiring relevant knowledge and skills. In this stage, teachers address gaps identified during awareness by actively pursuing professional learning. Activities include attending workshops, enrolling in courses, reading professional literature, and self-directed study. Qualitative data showed that teachers often combined formal in-service training with informal learning (e.g., reading articles or searching online). Major barriers include the scarcity of entrepreneurship-specific training for primary education and time constraints due to teaching loads. Generic trainings were common, but tailored programs were rare. Key enablers include teachers' intrinsic motivation and supportive school administration, such as facilitating expert workshops or granting leave for external seminars.

By the end of Learning, teachers should possess enhanced knowledge of entrepreneurial attributes and pedagogical strategies, alongside practical skills. This stage directly addresses the survey findings, where training and content knowledge were identified as top needs.

Linking – Building professional learning networks. In this stage, teachers connect with peers and external stakeholders to share experiences and resources. Linking refers both to collaboration among teachers (forming communities of practice) and outreach to community members or industry professionals supporting entrepreneurial education. Teachers emphasized that lesson planning and exchanging experiences with colleagues were highly valuable, although not all had access to active networks. Barriers include professional isolation in unsupportive school cultures and uncertainty about engaging external partners. Enablers include online forums, social media groups, school-organized meet-ups, and mentor teachers facilitating peer networking. Practical actions may involve attending networking events, forming study groups, or partnering with community organizations. Linking provides teachers with new ideas, support, and resources, reinforcing that collaborative learning sustains pedagogical change. This stage aligns with survey findings highlighting teachers' need for broader external support networks.

Facilitating – Designing and implementing student-centered learning activities. In this stage, teachers apply their learning by facilitating entrepreneurship-oriented classroom activities, acting as guides and mentors to foster entrepreneurial traits. Focus group narratives highlighted projects, simulations, and mini-ventures as common activities, aligning with a top survey priority: designing learning activities for entrepreneurship. By this point, teachers have awareness, knowledge, and networks that empower new pedagogical approaches, such as business plan projects or "market days." Barriers include limited class time, lack of resources, large class sizes, and risk aversion. Some teachers hesitated to implement activities fearing failure or misalignment with academic requirements. Enablers include access to resource kits, administrative support (e.g., flexible scheduling and material budgets), and positive student engagement, which reinforced teachers' motivation. Facilitating represents the culmination of earlier stages, where professional growth translates into transformed classroom practice.

Assessing – Reflecting on practice and engaging in continuous improvement. The final stage of the model involves assessment and reflection, both of student outcomes and of the teacher's own practice. Here, teachers evaluate how effective their efforts have been in fostering entrepreneurial characteristics. This might involve using new forms of assessment for students (since traditional tests may not capture creativity or initiative well) – for example, developing rubrics for entrepreneurial skills, conducting student self-assessments, or observing student behavior during projects. Importantly, Assessing also refers to the teacher engaging in reflective practice: thinking critically about what worked in a lesson or activity, what did not, and why. In the focus group, teachers indicated that having a chance to reflect – either individually or with peers – helped them consolidate lessons learned and plan for improvements. A barrier at this stage is that systematic assessment of entrepreneurship education is still underdeveloped; teachers often lack clear indicators or tools to measure student growth in soft skills like creativity or leadership. Furthermore, the education system's heavy emphasis on academic exam results can leave little room for recognizing entrepreneurial learning outcomes, meaning teachers may not get much external feedback or validation in this area. Time for reflection is another barrier, as a heavy workload can crowd out the opportunity to thoughtfully review one's practice. Key enablers for Assessing include providing assessment frameworks or tools for entrepreneurial outcomes (the education authority could develop and disseminate guidelines, for instance) and fostering a school culture of reflection – such as scheduling regular debrief sessions or encouraging teachers to keep learning logs. Some participants noted that when school leaders encouraged them to share outcomes of new teaching methods in staff meetings, it forced a reflective process and collective learning experience. The output of the Assessing stage for a teacher is a set of insights and lessons learned. These then feed into the next cycle: the teacher, now wiser from experience, becomes even more aware of what they need to change or learn next – thus looping back to Awaring in a continuing cycle of professional growth.

The ALLFA model thus provides a structured pathway for teacher development. It is grounded in the empirical data (teachers' articulated needs and experiences) and addresses the multi-dimensional nature of professional growth – spanning personal mindset shifts, skill acquisition, collaborative support, classroom practice, and reflective improvement. It is important to note that while presented sequentially, teachers may sometimes move back and forth or work on multiple stages simultaneously (for example, a teacher might still be learning new content while already starting to implement small classroom activities). However, the model's stages were validated by the expert panel as a logical progression; each stage "sets the stage" for the next. For instance, without Awareness, subsequent learning might not be well-targeted; without Learning, there is nothing new to implement; without networks (Linking), teachers implementing new ideas may struggle alone; without Facilitating practice, training remains theoretical; and without Assessing, teachers won't improve further. The experts agreed that ALLFA is a holistic approach that could

inform the design of teacher professional development programs.

3.3 Teachers' Perceived Barriers and Enablers at Each Stage

Throughout the above stage descriptions, various barriers (challenges) and enablers (supporting factors) were noted for each stage of the ALLFA model. These were derived from the qualitative data and provide insight into what conditions might hinder or help teachers on their learning journey. Table 3 summarizes the key barriers and enablers reported and lists suggested strategies to address each stage's needs. These strategies are proposed solutions or recommendations—formulated by combining teacher suggestions with expert input on how to overcome the barriers.

Table 3. Barriers, Enablers, and Suggested Support Strategies for Each Stage of the ALLFA Model

Stage	Key Barriers	Key Enablers	Suggested Strategies
Awaring	- Uncertainty about relevance of entrepreneurship in primary education- Low initial awareness or confidence	- Clear policies and strong leadership support- Exposure to successful practices	- Organize orientation workshops- Use self-assessment tools to evaluate teachers' current understanding
Learning	- Scarcity of entrepreneurship-specific training- Lack of time due to workload- Inadequate content in pre-service programs	- Teachers' motivation- Principal support and access to online learning	- Provide targeted in-service training- Create mentorship programs- Offer incentives for training completion
Linking	- Professional isolation- Few external partnerships- Lack of initiative to network	- Informal peer networks- Community support- Champion teachers within schools	- Establish Professional Learning Communities (PLCs)- Organize networking events- Use online sharing platforms
Facilitating	- Curriculum rigidity and exam pressures- Limited materials and budget- Large class sizes	- Resource kits and small grants- Student enthusiasm- Administrative flexibility	- Integrate entrepreneurship into existing subjects- Provide seed funds- Use team teaching when possible
Assessing	- Lack of assessment tools for soft skills- Limited time for reflection- Emphasis on academic results	- Growth mindset- Frameworks for 21st-century skills- Supportive school culture	- Develop rubrics for entrepreneurial traits- Promote reflective practices- Use portfolios and peer feedback

As shown in Table 3, each stage has distinct challenges. For example, Awaring can be hindered if teachers don't see a clear mandate or practical example of entrepreneurship education's relevance – thus a strategy is to make the goals explicit and relatable through orientations and showcasing success stories. Learning can be stalled by lack of training opportunities, which calls for creating targeted professional development programs and mentorship support. Linking suffers if teachers operate in silos, so establishing formal networks and community connection events is advised. Facilitating requires resources and flexibility – strategies include providing micro-grants and integrating projects into the curriculum to legitimize them. Assessing is hampered by the lack of suitable evaluation tools and time – hence developing rubrics and scheduling reflection opportunities can help. These recommended strategies are actionable steps that emerged from the research findings and were refined with input from the expert panel. Implementing these supports could significantly reduce the barriers and amplify the enablers, thereby smoothing teachers' progress through the ALLFA learning journey.

It is also insightful to look at common themes across the stages. Certain factors, such as administrative support, adequate resources (budget and materials), and peer/community collaboration, recur as either enablers when present or barriers when absent. This highlights that an ecosystem approach is needed – teachers can thrive in this journey when the school and community environment is conducive. Conversely, even the most motivated teacher may struggle if, for instance, no resources are available to implement their new ideas, or if they are professionally isolated.

The qualitative data provided rich evidence of these themes. Terms such as "Training," "Resources," "Support,"

"Time," and "Budget" were frequently mentioned by teachers, echoing the critical needs identified quantitatively. Words related to "Community", "Collaboration," and "Network" also appeared prominently in teacher discussions, indicating the centrality of collegial and external support as they seek to develop themselves to foster student entrepreneurship.

4. Discussion

4.1 Summary of Key Findings

This study revealed a significant gap in primary teachers' preparedness for entrepreneurship education, with consistently high professional development needs across school types, subjects, and experience levels. Teachers particularly needed support in designing entrepreneurial learning activities, integrating technology, and understanding entrepreneurial traits. In response, the ALLFA Learning Journey Model was developed, comprising five stages: Awaring, Learning, Linking, Facilitating, and Assessing. This model offers a structured pathway for teachers to build awareness, acquire knowledge and skills, create networks, implement student-centered entrepreneurial pedagogy, and engage in continuous reflection. Emerging from empirical insights, the ALLFA model directly addresses the identified needs and provides a practical roadmap for teacher development. Importantly, findings indicate that a one-off workshop is insufficient; a sustained, multi-faceted learning journey is essential to empower primary teachers as entrepreneurship educators.

4.2 Alignment with Current Literature

Our findings align closely with recent research on entrepreneurship education and teacher development. Prior studies confirm that many teachers feel underprepared, often seeing themselves as "entrepreneurial outsiders" lacking necessary competencies. A Scandinavian survey reported widespread teacher doubts about teaching entrepreneurship, highlighting the need for targeted training (Neergård et al., 2025). Similarly, a Spanish study of over 600 educators found that insufficient training and resources hinder teachers' confidence and ability to promote entrepreneurial competence (Nuñez-Canal et al., 2023). These parallels validate the ALLFA model's focus on building knowledge and pedagogical skills ("Learning" and "Facilitating" stages). Recent literature consistently emphasizes teacher professional development as critical to effective entrepreneurship education. A systematic review by Hardie et al. (2022) identified ongoing development and networking as key enablers, a view reinforced by our study. Teachers stressed the importance of continuous upskilling and collegial collaboration, reflected in the ALLFA model's "Linking" stage. Research also shows that structured frameworks and peer networks support entrepreneurial teaching (Grigg, 2021), which the ALLFA model incorporates by positioning networking and peer learning as core to teacher growth.

Finally, our finding that designing entrepreneurship-oriented activities is a top teacher need is strongly supported by literature. Studies highlight active, experiential learning—such as project-based learning, problem-solving, and simulations—as vital for fostering an entrepreneurial mindset. However, teachers often struggle to apply these methods. Henry (2020) notes the pedagogical challenge of shifting from traditional instruction to facilitating experiential learning. The ALLFA model's "Facilitating" stage addresses this gap, equipping teachers to translate entrepreneurship theory into concrete, student-centered classroom practices.

4.3 Implications for Teacher Education and Professional Learning

The findings highlight crucial implications for both pre-service and in-service teacher education. In pre-service programs, integrating entrepreneurship education into general teacher preparation is imperative. Traditionally limited to business-methods specialists, entrepreneurship is increasingly recognized as important even in primary education. Teacher training institutions should embed entrepreneurship pedagogy across curricula, through electives or by infusing principles into existing courses. The strong need for "knowledge of entrepreneurial characteristics" identified in this study suggests many primary teachers lack a basic understanding of entrepreneurship for young learners. Universities can address this by covering topics like entrepreneurial mindset, creativity, and problem-solving. Research shows that teachers with formal training feel more confident and better equipped to deliver entrepreneurial learning (Nuñez-Canal et al., 2023; Neergård et al., 2025), supporting calls to include entrepreneurship education in qualification standards (Miço & Cungu, 2023).

For in-service professional learning, sustained, practice-oriented development is essential. Effective programs should emphasize active learning, collaboration, and ongoing support rather than isolated workshops (Darling-Hammond et al., 2017). The ALLFA model offers a structure for such development. Programs might begin with workshops on contextual reflection (Awaring), followed by targeted training on entrepreneurial concepts and pedagogy (Learning),

and then foster professional learning networks (Linking) through teacher working groups or mentorship initiatives. Enabling collaboration helps teachers overcome isolation, share ideas, and sustain motivation.

Facilitating has important implications: teachers should implement entrepreneurship lessons during training, through approaches like action research or lesson study cycles. Designing and carrying out class projects, supported by mentorship, allows teachers to build confidence and skills through practice. Studies show that practicing new methods with feedback significantly increases sustained adoption. Therefore, professional development should include a practicum where entrepreneurial teaching strategies are applied and reflected upon.

Finally, the Assessing stage emphasizes the need for reflective practice. Schools and professional development (PD) providers should promote regular evaluation of entrepreneurial teaching effectiveness through reflection journals, peer feedback, or project portfolios. Establishing continuous improvement loops helps teachers grow from novices to expert entrepreneurship educators. To support practical application, the ALLFA model may be implemented over approximately one academic term (12–16 weeks). Each stage—Awaring, Learning, Linking, Facilitating, and Assessing—can be allocated 2–4 weeks, depending on school context and teacher readiness. While the stages may overlap (e.g., Linking occurring alongside Learning), a sequential yet flexible approach ensures sustainable development. The model is cyclical, enabling continuous reflection and iteration in subsequent terms.

4.4 Implications for School Leadership and Policy

School leaders play a pivotal role in enabling entrepreneurship education. Our findings show that teacher needs are systemic across demographics, highlighting the importance of school-wide leadership action. Leaders should prioritize entrepreneurship in their school's mission and planning documents, visibly valuing and encouraging entrepreneurial learning through resource allocation and recognition of innovative practices. Research indicates that strong leadership support fosters successful entrepreneurship education (Korhonen et al., 2019). Leaders should advocate for resources, including budgeting for materials, teacher training, and forming community partnerships.

Supporting teacher professional development is equally crucial. Principals can organize in-house training, sponsor external workshops, or collaborate with colleges for specialized courses. They should also grant teachers autonomy to experiment with interdisciplinary projects and nontraditional methods, buffering them from rigid curricular demands. Cultivating an entrepreneurial mindset in school leadership sets the tone for teachers to progress along the ALLFA journey—allowing exploration (Awaring), collaboration (Linking), and reflection (Assessing) to flourish.

At the policy level, entrepreneurship education should be formally recognized as a core teacher competence, similar to standards for digital or inclusive education. Policymakers can embed entrepreneurship in professional development programs and offer funding schemes to facilitate teacher upskilling. Policies should also strengthen school–community links, supporting external partnerships with entrepreneurs and businesses. Authorities could maintain databases of potential mentors or incentivize collaborations, providing real-world contexts and resources that enhance both teacher capacity and student entrepreneurial learning outcomes.

4.5 Limitations of the Study

Despite its contributions, this study has several limitations. First, it is context-bound, focusing on primary educators under Bangkok's metropolitan administration. Differences in curricula, resources, and cultural contexts elsewhere may limit the generalizability of the findings and the ALLFA model's applicability. Future studies should explore if rural or culturally diverse settings reveal different needs, particularly among novice teachers or smaller schools facing challenges like multi-grade teaching or limited peer support.

Second, data collection relied on self-reported questionnaires and focus groups, introducing subjectivity and potential bias. Perceived needs may not fully reflect actual classroom competencies, and unrealized needs could exist. Researcher interpretation during model development, despite expert feedback, may also introduce bias; the ALLFA model might omit factors beyond its five stages, such as institutional or student feedback influences.

Third, this study did not evaluate the implementation or impact of the ALLFA model on teaching practice or student outcomes. The model remains theoretically and empirically grounded but untested in practice. Additionally, the needs assessment was cross-sectional, capturing perceptions at a single point in time. As educational reforms advance, teacher needs may evolve. Longitudinal research following teachers' adoption of entrepreneurship education would provide deeper insights into changing needs and the long-term relevance of the ALLFA model.

5. Conclusion

As education systems worldwide strive to prepare learners for an uncertain, opportunity-rich future, entrepreneurship

education in primary schools is emerging as a vital strategy. This study's findings and recommendations underscore that the key to success lies in developing our teachers. With well-designed support and training – guided by models like ALLFA – primary teachers can indeed become effective entrepreneurship educators who ignite the entrepreneurial spark in young children. Stakeholders at all levels should act on these insights: crafting enabling policies, delivering relevant training, and fostering school environments where entrepreneurial teaching and learning can thrive. Through collective effort, we can build teacher capacity and confidence, ensuring that education not only imparts knowledge but also cultivates the innovators and entrepreneurs of tomorrow.

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Authors contributions

Mr. Chaleomkiat Kitsanajan and Dr. Pattarawat Jeerapattanatorn were responsible for the study design, data collection, data analysis, and overall manuscript preparation. Dr. Sutithep Siripipattanakul and Dr. Thanapat Sripan contributed to drafting and revising the manuscript. All authors read and approved the final manuscript.

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