EMBEDDED ENTREPRENEURSHIP PEDAGOGY: SIX KEY PRACTICES FOR AN ENTREPRENEURIAL CLASSROOM

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ABSTRACT

Embedded entrepreneurship pedagogy represents a transformative approach to teaching entrepreneurship by integrating entrepreneurial thinking and action into the fabric of classroom practice. This paper identifies and explores six key pedagogical practices that cultivate an entrepreneurial mindset and promote experiential learning in educational settings: (1) Authentic Problem Solving, (2) Opportunity Recognition, (3) Iterative Experimentation, (4) Learner Autonomy, (5) Stakeholder Engagement, and (6) Reflective Practice. Grounded in constructivist and experiential learning theories, these practices prioritize real-world relevance, student agency, and collaborative value creation. By embedding entrepreneurship into the curriculum through these practices, educators can foster critical skills such as creativity, resilience, adaptability, and innovation. This framework serves as a practical guide for educators aiming to build entrepreneurial capacity in diverse educational contexts, moving beyond traditional didactic models toward a more dynamic, learner-centered approach.

Keywords: Entrepreneurship Education Embedded Pedagogy, Entrepreneurial Mindset, Experiential Learning, Classroom Innovation, Opportunity Recognition, Student Autonomy.

INTRODUCTION

In 2016, the World Economic Forum decreed, "We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before." This statement referenced what is now regarded as the Fourth Industrial Revolution, a period of rapid technological transformation marked by, "a vast ecosystem of interconnected, complex and dynamic interaction between humans and the built environment" (Ross & Maynard, 2020, p. 159). This revolution has significant implications for global education systems, leaving them to grapple with remarkable social and economic uncertainty. Indeed, the school-as-training model (Knight, 2008), where students gather specific, esoteric, and context-bound knowledge is vanishing, leaving vital questions about curriculum and pedagogy.

These economic, social, and educational realities are juxtaposed with a secondary school system suffering from a crisis of creativity, or what Runco et al. (2017) called "the creativity gap." This gap is evident in how schools often diminish students' creative capacities (Robinson, 2006) by continuing a system rooted in reproduction of knowledge rather than creation of knowledge (Ferrari, Cachia & Punie, 2009, p. iii.). Looming systemic forces can provide an explanation with blame commonly pointed at, selectively, lingering standardized testing (Creely at al., 2019), approaching failure punitively (Hartlaub & Schneider, 2012), definitional ambiguity in curriculum outcomes (Patston et al., 2021), teacher uncertainty how to include creativity-supporting practices in their areas of expertise (Patston et al., 2021), and positioning assessments in terms of a right-wrong dichotomy—practices, one could argue, that stifle creativity. For instance, as Zhou (2012) found, when

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math performance rose in PISA states, the degree of perceived entrepreneurialism fell. This suggests that education systems that produce high standardized test scores have lower entrepreneurial activities and by extension, we may infer, creative capabilities.

It is in considering these concerns that we propose a theoretical and practical addition to contemporary learning models: embedded entrepreneurship pedagogy (EEP). Under this approach, the knowledge, skills, attitudes, and dispositions commonly associated with entrepreneurship, and those of the entrepreneur, are embedded into all learning experiences, regardless of the discipline, allowing students to develop an entrepreneurial way of being (e.g., creativity, innovativeness, persistence) while satisfying the demands of prescribed curricular outcomes.

Embedded entrepreneurship pedagogy is uniquely situated to support the needs of contemporary schooling and later, employment. Educationally, the calls for new pedagogies that move away from siloed, discipline-specific learning is growing louder (e.g., Herodotou et al., 2019; Ryan & Tilbury, 2013; Scott, 2015) leading to more technology-based, interdisciplinary, collaborative, and soft-skills anchored pedagogies. These new pedagogies have largely been borne out of necessity, for labour demands in the 21st century have become remarkably ill-defined and characterized by a new geography of work (Emanuele et al., 2017), and the ostensible movement away from credentialism (Murray, 2008). In modern times, employers place a strong preference for candidates who can demonstrate a prediction for creativity, persistence, innovativeness, and collaboration (Tushar & Sooraksa, 2023). These qualities are abstract and create tension for teachers who must wonder what it means to teach for, as an example, creativity (McLure et al., 2024) or, as another example, persistence. It is in this space where entrepreneurship education bears fruit, for entrepreneurially informed learning is inherently creative and could provide teachers with a conceptual pathway towards meeting the expectations of modern education and coveted employment qualities.

This paper is informed by a recently completed research project involving practicing entrepreneurs. The project, which examined how secondary schools can sharpen their entrepreneurial offerings to students pointed at the possibility of infusing key entrepreneurial principles into all curricular learning experiences. To illustrate this approach, this paper will propose embedded entrepreneurship pedagogy as a part of curricular and pedagogical planning. It introduces six key practices for embedding entrepreneurial principles in learning and explores their curricular and cross-curricular potential. These six practices offer a unique contribution to the notion of embedded entrepreneurship pedagogy, as first described by Gibbs (1993). They are practice oriented and aim to provide course instructors with a map toward the creation of an entrepreneurial classroom.

Theorizing Entrepreneurship

For the purposes of the proposed framework, entrepreneurship is conceptualized as a broad set of knowledge, skills, and competencies of near universal value (Bacigalupo et al., 2016) and highly responsive to the economic demands of modern life. As Diochen (2003) explained, "Over time, entrepreneurship has become associated with business initiation or ownership, but entrepreneurial characteristics are not…restricted to certain individuals or conditions.

Furthermore, a broad notion of entrepreneurship, in an educational context, offers specific benefits to students. These can include, as Alagappar et al. (2021) noted, the identification of opportunities and the creation of unique ideas in their specific discipline, the development of ideas and exploitation of opportunities, and the cultivation of skills and competencies relevant for the 21st century.

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The Deficiencies of Existing Educational Models and the Value of EEP

Transitioning schooling away from more traditional models (i.e., rote memorization; excessive testing), infusing creativity into learning, and cultivating an entrepreneurial way of being demands the creation of new curricular and pedagogical pathways. Some examples exist. Inquiry-based Learning (IBL) has become popular for its employ of integrated learning, problem-solving, and student collaboration. Challenge-based Learning (CBL), another multidisciplinary pedagogy, encourages students to leverage the technology to solve real-world problems. These pedagogies, now widely accepted and implemented, have merit, and are associated with academic self-efficacy, risk-taking, and persistence through failure (Dochy et al., 2003; Gu et al., 2015). They are, however, not without criticism. Kirschner et al. (2006) found that approaches to instruction, including project-based learning, inquiry learning, and discovery learning, that rely on minimally guided instruction are ineffective and inefficient ways to teach with limited educational returns that focus more on product than on process. Further, the research literature is generally quiet on the skills and competencies development potential of IBL. According to Wessels (2019), "although a broad potential for fostering a wide array of competences is attributed to inquiry-based learning, this has yet to be systematically researched and demonstrated".

These conclusions align with our concerns of IBL pedagogy, where skills and competencies are treated as implicit rather than explicit curricular/pedagogical features, and while it might be argued that youth entrepreneurialism can be cultivated under IBL/CBL models, it is our intention to develop youth entrepreneurship-specific teaching approaches with a stronger emphasis on cultivating the qualities and dispositions of the entrepreneur. Three complaints have informed this conclusion:

1. IBL/CBL can be overly teacher-directed, limiting students' ability to lead the inquiry (Aulls, 2002);
2. IBL/CBL can be task-oriented and prescriptive, and may not cultivate student problem-solving skills, curiosity, or multi-disciplinary knowledge (Singer, 2000); and
3. IBL/CBL can treat soft skills development as implicit.

By contrast, EEP moves beyond the implicit treatment of entrepreneurial skills seen in IBL and CBL by offering a structured, competency-based approach that explicitly focuses on cultivating the key dispositions and skills of successful entrepreneurs. This pedagogical framework not only emphasizes risk-taking, innovation, and resilience (Lackéus, 2015), but also integrates core entrepreneurial challenges (e.g., opportunity recognition, problem-solving in volatile environments, and iterative prototyping) within the learning process itself.

Unlike IBL and CBL, which often prioritize broad academic competencies or real-world applications without a specific focus, EEP's foundational aim is to develop students' ability to navigate uncertainty, manage failure, and iterate solutions—skills critical to the entrepreneurial process (Neck & Corbett, 2018). EEP draws from effectuation theory (Sarasvathy, 2001), where learners are taught to make decisions based on available resources, rather than predefined goals, as is common under IBL/CBL models. This contrasts with IBL's reliance on a structured inquiry process, where students may not experience the trial-and-error learning central to entrepreneurial contexts (Kirschner, Sweller, & Clark, 2006).

Moreover, the real-world, authentic problem-solving embedded in EEP focuses on process over product, encouraging learners to see failure as a key component of learning. This is another significant deviation from IBL and CBL models, which sometimes stress delivering polished projects at the expense of in-depth process learning (Gu, Gomes, & Bragança, 2015). EEP's potential inclusion of financial literacy, opportunity identification, and market analysis makes it distinctive, as these are skills rarely highlighted in IBL and CBL frameworks, yet they are vital for helping students develop and entrepreneurial mindset (Rae,

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2007; Fayolle & Gailly, 2008).

In terms of practical applications, EEP integrates project-based work, enabling students to work on real-world ventures with iterative feedback loops (Lackéus & Middleton, 2015). This continuous engagement with real-world contexts ensures that students develop entrepreneurial self-efficacy and creativity not only as secondary benefits but as central learning outcomes. Importantly, EEP reframes the role of the educator from a guide or facilitator to a coach and mentor, focusing more on fostering student autonomy and strategic decision-making—a key distinction from the sometimes teacher-directed nature of IBL and CBL (Aulls, 2002; Singer, 2000).

LITERATURE REVIEW

Youth Entrepreneurship Education: An Overview

Research on youth entrepreneurship education highlights its role in fostering an entrepreneurial mindset rather than business creation, aiming to cultivate qualities like creativity, resilience, and problem-solving that benefit students in broader societal and organizational contexts (Göksen-Olgun et al., 2022; Bacigalupo et al., 2016). However, significant gaps remain in understanding how these qualities are best nurtured in younger learners, as most studies target university-aged or adult populations (Maleki et al., 2021; Busenitz et al., 2014; Kim et al., 2021). The existing models often reflect a "one-size-fits-all" approach (Kolb & Kolb, 2005), which overlooks developmental differences and may limit the effectiveness of entrepreneurship education for youth (Lackéus, 2014; Moberg, 2014).

One prominent gap in the literature is the predominance of technical, business-centric models, often confined to specific classroom subjects rather than being integrated across the curriculum (Bager, 2011; Hadley, 2023). Current research calls for teaching strategies that not only engage students in business concepts but also foster cross-disciplinary skills like collaboration, critical thinking, and emotional resilience (Rasmussen & Sørheim, 2006). Addressing this gap, youth-focused entrepreneurship programs should move beyond traditional business training to develop a comprehensive framework that includes cognitive, social, and emotional competencies.

Pedagogical Goals and Outcomes in Youth Entrepreneurship

Youth entrepreneurship education is increasingly recognized as essential for modern education systems, equipping students with skills to navigate a complex economy (Kwapisz, 2022; Acs et al., 2016). Scholars emphasize that effective programs go beyond business training by fostering an entrepreneurial mindset through qualities such as creativity, opportunity recognition, and risk tolerance (Bae et al., 2014; Moriano, 2012). However, these programs often remain narrowly focused on technical skills like business plans, internships, and product development, which may not fully support mindset development in younger students (Russell et al., 2008; Sherman, Sebora, & Digman, 2008; Arend, 2019). Furthermore, the overemphasis on tangible outcomes, such as product creation, often minimizes the potential for personal growth in skills like resilience and adaptability, which are central to youth entrepreneurship (Bell, 2015; Zozimo et al., 2017).

Youth entrepreneurship pedagogy must therefore balance hard skills—such as financial literacy and marketing strategy—with softer, developmental skills that foster adaptability and creativity. The following table (Table 1) summarizes essential entrepreneurial knowledge, skills, and attitudes (KSAs) for youth, distinguishing between hard and soft competencies:

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Table 1 HARD AND SOFT ENTREPRENEURIAL KNOWLEDGE, SKILLS AND ATTITUDES	
Hard Entrepreneurial KSAs	**Soft Entrepreneurial KSAs**
Value Proposition Articulation	Opportunity Recognition
Venture Accounting and Finance	Interpersonal Skills & Emotional Intelligence
Marketing Strategy	Creativity and Innovativeness
Prototyping and Testing	Persistence and Resilience
Design Thinking	Risk Tolerance

Youth-focused programs that focus on both types of KSAs may better address the needs of younger learners (Kim et al., 2021), as these skills support personal and academic development in diverse contexts.

Gaps in Youth Entrepreneurship Pedagogy

Considerable work remains to differentiate youth entrepreneurship education from adult models. Studies often concentrate on university-level learners, leaving secondary and elementary contexts underexplored (Maleki et al., 2021; Kim et al., 2020). Moreover, the field has been criticized for a narrow focus on business skills, which restricts the potential for cross-curricular learning, thus limiting exposure to creativity, collaboration, and design thinking (Gonzalez, Lauroba, & Beitia, 2019). While some cross-disciplinary approaches have been proposed (Hadley, 2023), these remain sparse, and further research is necessary to design and assess pedagogies that connect entrepreneurship to subjects like STEM, arts, and social studies.

Furthermore, youth-specific entrepreneurship programs must account for age-appropriate instructional approaches that nurture curiosity and independence. Programs should incorporate real-world challenges to help students develop the resilience and critical thinking skills necessary for future success (Hamzah & Othman, 2023; Kryvovyazyuk et al., 2019). Teaching approaches that include experiential learning and project-based tasks have been effective in university contexts but are rarely tailored for younger students (Ireland et al., 2003; Hartmann et al., 2022). Building on these foundations, research could develop strategies that integrate entrepreneurial learning into general education, thus helping students build transferable skills within a supportive learning environment.

Selected Research Study Learnings

EEP emerged from a comprehensive research project that explored how secondary schooling impacted entrepreneurial propensity among young entrepreneurs. To achieve a nuanced understanding of these experiences, we adopted a qualitative research design utilizing semi-structured, in-depth interviews as the primary data collection tool. Given the study's focus on participants' reflective accounts of schooling experiences and how these influenced their entrepreneurial development, qualitative methods were ideal for eliciting rich, detailed narratives. Following an iterative and reflexive design process (Srivastava & Hopwood, 2009), we collected and analyzed data to identify emergent themes and patterns relevant to entrepreneurship education.

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Selection and Number of Participants

Participant selection was based on three key criteria: (1) age range of 35-40 years, balancing sufficient entrepreneurial experience with the ability to recall secondary school experiences, (2) diverse representation across industry sectors (e.g., technology, retail, creative sectors, and hospitality), and (3) geographical diversity, ensuring that urban, rural, and international perspectives were captured. The participant pool aimed to reflect the heterogeneity of entrepreneurial pathways and the diverse challenges entrepreneurs face, depending on industry and location. One exception to the selection protocol was made to include a 17-year-old technology entrepreneur, whose recent experience in secondary schooling offered a more contemporary view of education's role in entrepreneurial development.

Participants were recruited through purposeful network sampling (Merriam & Tisdell, 2014), leveraging professional networks, media sources, and "Top 40 Under 40" lists to identify a diverse pool of candidates. The final sample consisted of 10 entrepreneurs—four women and six men—representing various stages of business development, including early-stage startups and established ventures. This method allowed us to recruit participants who could provide insight into the research questions from various entrepreneurial and personal perspectives. For detailed demographic and business information on each participant, see Appendix A.

While sample size in qualitative research is often determined by the depth and richness of data rather than the breadth, our sample of 10 participants was deliberately chosen to support in-depth exploration of entrepreneurial learning within the constraints of the study. The emphasis on purposive sampling (Yadav, 2021) and the generation of over 12 hours of interview data aligns with qualitative research practices that prioritize depth of understanding over large, probabilistic samples (Fusch & Ness, 2015).

Data Collection

Data were collected through in-person, semi-structured interviews lasting between 90 to 120 minutes, conducted in locations chosen by the participants (e.g., their offices, co-working spaces, or homes). Interview questions were designed to elicit both retrospective accounts of participants' secondary school experiences and their reflections on entrepreneurial development. The questions were organized into five thematic categories: (1) entrepreneurial venture description, (2) lived experiences as an entrepreneur, (3) general secondary school experiences, (4) specific pedagogical or extracurricular experiences, and (5) pedagogical recommendations for fostering entrepreneurship in schools. This structure enabled us to gather a wide range of data, from personal reflections to actionable insights on improving entrepreneurship education.

Sample interview questions included:

1. "How did your secondary school experience influence your approach to problem-solving in your business?"
2. "What courses or extracurricular activities in high school, if any, contributed to your entrepreneurial mindset?"
3. "Can you describe a learning experience you believe would benefit future entrepreneurs in high school?"

Theoretical Framework

The study was theoretically grounded in Entrepreneurship Education Management Theory (Bikse, Riemere, & Rivza, 2014), which posits that entrepreneurship education should be integrated across all levels of education and subjects, facilitated by well-trained

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teachers, and aimed at developing entrepreneurial competencies. This theoretical lens guided both the design of the interview protocol and the interpretation of the data. By positioning entrepreneurship education as a curricular necessity, this framework allowed us to critically examine participants' schooling experiences and their contributions to entrepreneurial competency development.

Data Analysis

Interview data were analyzed using an inductive-deductive thematic analysis approach, supported by NVivo software (Creswell, 2011). The coding process was conducted in two stages. First, open coding was used to break down the data into smaller units of meaning (Miles & Huberman, 1994), identifying potential themes related to participants' entrepreneurial development, their high school experiences, and their reflections on curriculum. These emergent themes were then refined through axial coding, which involved grouping related codes into broader categories, such as teaching practices, school culture, and extracurricular experiences.

In the second stage, deductive coding was applied to align these emergent themes with the study's theoretical framework, Entrepreneurship Education Management Theory (Bikse et al., 2014). This process ensured that the final themes related to the theoretical dimensions of teaching, learning, lived experiences, and curriculum potential. Throughout the analysis, codes such as "rigidity in curriculum," "lack of creative outlets," and "extracurricular leadership experiences" were identified as recurrent themes across the interviews.

Integration of Findings into Themes

Through this rigorous coding process, several key themes emerged, leading to important insights about the role of secondary education in fostering entrepreneurship:

1. **Entrepreneurship through Student Collaboration:** One of the dominant themes to emerge from the data was the importance of collaboration. Several participants highlighted that working with peers in group projects, extracurricular activities, or sports was instrumental in developing the interpersonal and leadership skills crucial to entrepreneurial success. This led to the recommendation that secondary schools should emphasize collaborative learning tasks.
2. **Entrepreneurship through Experiential Learning:** Another prominent theme was the role of experiential learning in entrepreneurial development. Participants cited various extracurricular activities—such as running student-led clubs, participating in sports, or working on creative projects—as essential to building entrepreneurial propensity. These findings suggest that entrepreneurship can be more effectively developed through micro-ventures, pitch events, and problem-based learning tasks.
3. **Entrepreneurial Knowledge, Skills, and Attitudes (KSAs) in Non-Business Contexts:** A significant portion of participants pointed to their school-adjacent experiences as crucial in building their entrepreneurial mindset. For example, extracurricular activities like student government, debate clubs, or sports teams were repeatedly mentioned as spaces where students developed essential KSAs, including creativity, innovation, and persistence. Based on these insights, the study recommended that entrepreneurship education should be expanded beyond business-specific courses to include all areas of study.
4. **Latent Entrepreneurial Development in Traditional School Settings:** Interestingly, although participants described traditional classrooms as often anti-entrepreneurial, they acknowledged gaining latent entrepreneurial skills from certain activities. For example, public speaking assignments, group projects, and creative tasks, while not explicitly entrepreneurial, contributed to their development of leadership, communication, and critical thinking. This suggests that while traditional education may not be explicitly designed to foster entrepreneurship, it can still contribute to the entrepreneurial development of students through indirect means.

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Theme Refinement and Final Recommendations

To refine the final set of themes, the analysis underwent multiple iterations of theme refinement. The initial 30 codes were reduced to 10 primary themes, which were clustered into four overarching categories aligned with the study's theoretical framework. The final themes, such as entrepreneurial learning through extracurricular activities and the limitations of traditional classroom learning, guided the formulation of key recommendations, such as the need for more experiential, collaborative, and cross-curricular learning opportunities.

Embedded Entrepreneurship Pedagogy

In previous work (Hadley, 2022), we argued that youth entrepreneurship education should not be entirely focused on venture development but rather, as an exercise in mindset development. This approach is rooted in the idea that entrepreneurship can be treated as a set of foundational skills that should be developed in different curricular contexts (National Research Council, 1994). In practical pedagogical terms, this often manifests in the promotion of entrepreneurial knowledge, skills, and attitudes (Busenitz et al., 2014; Hadley, 2022; Kim et al., 2021) and the employ of an experiential learning (Kolb & Kolb 2005) through entrepreneurship (Moberg, 2014; Lackéus, 2014). This work is complex, and demands that teachers structure their classes, broadly, for mindset development informed through explicit, class-by-class entrepreneurship learning experiences.

Six Key Practices

The proposed six key practices are grounded in the major conclusions of the study, with each reflecting the types of educational experiences that participants credited with fostering their entrepreneurial skills. For example, problem and application- learning based emerged from participants' emphasis on authentic, hands-on experiences that allowed them to apply knowledge in real-world contexts. Likewise, creativity-infused learning was derived from participants' reflections on how open-ended tasks encouraged innovative thinking, while collaborative learning spaces responded to their appreciation of teamwork experiences that built interpersonal skills. Challenging learning tasks address participants' reports of resilience-building through adversity, a quality they linked to entrepreneurial success. Cross-curricular learning aligns with participants' insights on the importance of synthesizing knowledge across subjects, while technological integration reflects their recognition of technology's role in supporting problem-solving and innovation.

These practices translate abstract entrepreneurial qualities—like creativity, resilience, and collaboration—into tangible, cross-disciplinary teaching approaches. They provide a cohesive framework for developing an entrepreneurial mindset across diverse classroom contexts, directly informed by participants' lived experiences and the competencies they identified as essential.

As such, and given the "spirit" of entrepreneurship, where learning rests on active, participatory, and collaborative experiences (Ilonen, 2021), we propose six key pedagogical practices that could help build an entrepreneurial classroom and by extension, entrepreneurship-minded students. These practices are research-supported and designed to move entrepreneurial concepts that present as abstract (e.g., creativity and persistence) into tangible teaching practices. They are also deliberately free of any specific connection to secondary school subject matter. That is, they could be just as effective in a science class as a business class. The following six teaching practices form the basis on embedded entrepreneurship education:

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1. Problem and application-based learning, where students are given the time and space to use course learnings in an authentic manner.
2. Creativity-infused learning, where students are encouraged to develop novel ideas/perspectives on topics of relevance.
3. Collaborative learning spaces, where students work in small, flexible teams.
4. Challenging learning tasks, where students are face frustration, difficult questioning, and the need to refine their work.
5. Cross-curricular learning, where multiple subject disciplines are woven into all learning experiences.
6. Technological integration, where students use assistive technology to support their learning.

Table 2
ALIGNMENTS BETWEEN KEY PRACTICES AND ENTREPRENEURIAL KSAS

Embedded Entrepreneurship Pedagogy Key Practice	Associated Entrepreneurial KSA
Problem and application-based learning, where students are given the time and space to use course learnings in an authentic manner.	Connection-making, observation, and analysis (Kuckertz et al., 2017)
Creativity-infused learning, where students are encouraged to develop novel ideas/perspectives on topics of relevance.	Creativity and innovative thinking/perspectives (Fillis & Rentschler, 2010)
Collaborative learning spaces, where students work in small, flexible teams.	Collaboration (Krawczyk-Brylka at al., 2020)
Challenging learning tasks, where students are face frustration, difficult questioning, and the need to refine their work.	Strong internal locus of control (Hamzah & Othman, 2023); Resilience and perseverance (Hartmann at al., 2022)
Cross-curricular learning, where multiple subject disciplines are woven into all learning experiences.	Synthesizing and integrating knowledge (Kim et al., 2012)

To maximize the possible effectiveness of these approaches, teachers must seek to utilize them in a fulsome manner. That is, incorporating one or two pedagogies, while neglecting others, may stultify the development of an entrepreneurial classroom. The research, described previously, pointed to a possible synergy between these practices that, when integrated together, stand the best chance of building an entrepreneurial mindset among students in Table 2.

Theory to Practice

Embedded entrepreneurship education seeks to bridge theory with practice where teachers, a) conceptualize youth entrepreneurship education as the pursuit of an entrepreneurial way of being, b) employ the six key practices as the pedagogical basis for their practice, and c) develop class-by-class learning experiences under each key practice. The following figure (Figure 1) outlines the theoretical and practice foundations of embedded entrepreneurship education.

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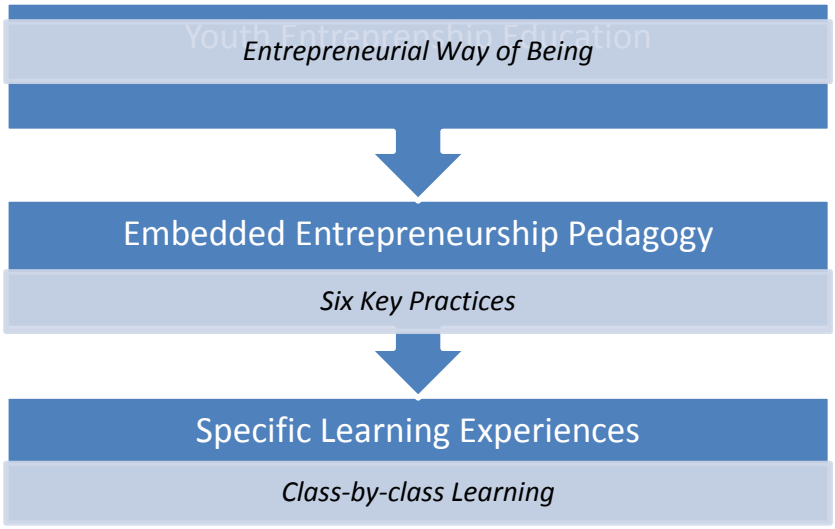

FIGURE 1
THEORETICAL AND PRACTICAL FOUNDATIONS OF EMBEDDED ENTREPRENEURSHIP EDUCATION

Potential Outcomes for Students

Embedded entrepreneurship pedagogy aims to cultivate an entrepreneurial way of being among students. As outcomes, this approach seeks to help learners think in novel ways and make unique contributions to course requirements. It allows for subject-specific learning (i.e., hard skills) but explicitly promotes soft skills (e.g., effective communication). Through its use of problem-based learning models, students face challenging academic tasks that demand persistence, knowledge transference, and the support of technology. These outcomes are consistent with the research on youth entrepreneurship development (Geldhof et al., 2014); Hadley, 2022; Hadley, 2023).

Role of the Teacher

The embedded entrepreneurship classroom is led by a teacher who assumes a facilitator role. As a facilitator, direct instruction is limited and is designed to impart the basic, fundamental knowledge needed to launch the learning experience. The teacher would then transition to classroom circulator, providing targeted supports to students engaging in group work, offering points for the refinement of work, or interjecting with rich questioning designed to challenge the conclusions of the group.

Embedded entrepreneurship pedagogy: In Practice

A focal point of this pedagogy is to fully embed, both implicitly and explicitly, a wide range of entrepreneurial KSAs into the classroom dynamic. That is, during every class, core KSAs are interwoven in all learning experiences. Typically, embedded entrepreneurship pedagogy would cater to those KSAs mostly commonly associated with youth entrepreneurship. They include creativity, innovation, persistence, problem-solving, risk-taking, and goal setting.

The following example is designed to contextualize, and illustrate, an embedded entrepreneurship pedagogy learning experience. In it, students work in small teams to solve a

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local, community-based problem. While the general parameters of the experiences are somewhat prescriptive, the way students take up the task is not. This learning experience would be suitable for a variety of curricular contexts beyond a business or entrepreneurship class.

The Riddle of Jones and Main

The learning experience, named The Riddle of Jones and Main, was generated from a local case, and centred on the following entrepreneurial quandary:The corner of Jones Street and Main Street has proven to be an entrepreneurial quagmire, with eight opening businesses opening and closing since 1987. A former board member of the Chamber of Commerce described the corner of Jones Street and Main Street as a "revolving door of businesses" requiring "an imaginative person to help it realize its potential."

Students then transition to a period of incubation where their respective ideas are refined ahead of the composition of a venture plan. The venture plan, once completed, is expected to draw from other academic disciplines. For example, students very often use business math to create a financial picture of their proposal. These additional elements introduce a cross-curricular element to the learning experience. At the conclusion of the learning experience, students present their creations to their peers.

Pedagogical Analysis

This multi-class learning experience captures the essence of embedded entrepreneurial pedagogy as guided by the pursuit of entrepreneurial mindset development among youth. Broadly, the various tasks found in this learning experience can defendably link to entrepreneurialism, where:

1. Students, assembled in teams of three, work on vertical whiteboards to promote collaboration, inter-personal, and communication skills (Liljedahl, 2020);
2. Design thinking protocols (e.g., ideation, comparison, revision, innovation) help create novel (i.e., creative) solutions to the stated problem;
3. Cross-curricular integration allows students to us content knowledge from other subject areas to sharpen their proposals;
4. Promotion of opportunity recognition and persistence, as groups work to refine and make their plans actionable and confront scrutiny from the instructor and their peers; and
5. Cultivation of self-regulation, plan their approach to problem solving, monitor their progress, and reflect on their work given feedback (Zimmerman, 2000)

The entire activity is active, experiential, and problem based. It aligns with the findings of the previously described research study, where the findings denoted classroom spaces built on those pedagogies and learning experiences, and commonly accepted qualities of entrepreneur/entrepreneurship. Furthermore, given the student-led nature of this exercise, the instructor shifts to a facilitator role who poses challenging questions, provides specific feedback, and encourages revision.

Entrepreneurial KSA Development

The explicit promotion of entrepreneurial KSAs (e.g., creativity, innovation, persistence, collaboration, opportunity recognition, and communication) are the at the cornerstone of embedded entrepreneurship pedagogy. Indeed, as the research indicated, youth entrepreneurial propensity must be first developed from a KSA perspective as part of the cultivation of the entrepreneurial mindset. The above-described learning experience includes

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many embedded entrepreneurial KSAs given the non-linear nature of the task. The creations of students can take many forms and how they arrive at those creations is entirely at their discretion. Indeed, the divergence of the task stands in antithetical terms to the traditional, teacher-led classroom.

Embedding Entrepreneurial KSAs in Other Content Areas

Embedded entrepreneurship pedagogy integrates entrepreneurial concepts across various subjects beyond traditional business courses. This approach recognizes that entrepreneurial skills such as creativity, problem-solving, and opportunity recognition are valuable in a wide range of contexts, not just in starting or managing a business. For high school teachers, infusing entrepreneurship into different courses can make learning more relevant, engaging, and practical for students, while simultaneously fostering a school-wide culture of innovation and entrepreneurial thinking. Indeed, there is space in all curricular areas for the inclusion of, for example, creativity, innovation, problem-solving, persistence, and collaboration.

An important finding from our study of young entrepreneurs was that entrepreneurialism is not an entity reserved for business courses. To be sure, several participants expressed the wish that *all* secondary courses become more entrepreneurial. Many of those entrepreneurs also revealed that useful entrepreneurial KSAs were gathered in non-curricular areas (e.g., student council, 4-H, sports teams). To be sure, for the study's participants, many high school courses were anti-entrepreneurial and served to stifle the entrepreneurial thrust they felt. As such, they recommended pedagogical priority placed on a select few entrepreneurial KSAs. These include creativity, problem solving, collaboration, and venture development. It is with this understanding where an embedded entrepreneurship pedagogy bears fruit.

As Gregory (2013) argued, creative thinking and problem solving can be built into instruction in many ways. If the ability to be creative is indeed vital for students' future success, teachers must explicitly foster and teach entrepreneurialism in school. The following table (Table 3) outlines the possible form of embedded entrepreneurship pedagogy in other curricular areas. These suggestions are general but reflect the broader theme on pairing specific course content with entrepreneurial action. They are each also aligned with the six key practices, described previously.

Table 3
EMBEDDED ENTREPRENEURSHIP PEDAGOGY IN OTHER CURRICULAR AREAS

Subject Area	Topic	Learning Experience
Science	Carbon Emissions	Students develop a comprehensive plan, including field work, data collection, and persuasive writing, to lower school-based carbon emissions.
Social Studies/Civics	Accessibility Rights	Students identify an accessibility (e.g., aging architecture and lack of wheelchair access) concern their home community and develop novel solutions.
Physical Education	Personal Health	Students create a wellness start-up initiative that provides/promotes physical and mental well-being services in their community.
Language Arts	Persuasive Writing	Students develop persuasive writing and speaking skills by creating an entrepreneurial venture proposal and participating in a pitch event.
Cross-curricular Courses	Innovation Challenge	Students, working in small teams, are provided with a business or social issue/concern, and tasked with generating plausible ideas/solutions within a defined (short) period time.

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CONCLUSION

Embedded Entrepreneurship Pedagogy (EEP) offers an innovative approach to modern education that prioritizes and makes actionable the entrepreneurial mindset. For educators and policymakers, EEP provides strategies for embedding entrepreneurial skills and dispositions across subjects, fostering creativity, resilience, and problem-solving abilities in a structured, cross-disciplinary context. This approach not only aligns with global calls for educational reform but also responds to labor market needs by equipping students with skills valuable beyond traditional business roles. As stakeholders consider the future of education, adopting EEP practices can bridge curriculum with real-world applicability, ensuring students are well-prepared for complex, collaborative, and innovative work environments.

FUTURE RESEARCH

Changes in pedagogical practice, at the classroom level, require significant buy-in from teachers (Chapman & Heater, 2014). As such, understanding how teachers can be trained or supported to transition to entrepreneurial pedagogies, assume a facilitator role, and craft entrepreneurial learning experiences would be valuable. Additionally, exploring how embedded entrepreneurship education can manifest, in terms of class-by-class learning experiences, in non-business contexts, would serve to strengthen the framework. Finally, and more specifically, assessing the effectiveness, in terms of outcomes for student, of embedded entrepreneurship pedagogy is warranted. Such an assessment could detail a pre and post assessment of entrepreneurial KSAs among secondary school students.

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