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Developing a Conceptual Experiential Learning–Based School of Entrepreneurship Model to Foster Entrepreneurial Mindset and Character in Senior High School

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ABSTRACT

Entrepreneurship education at the secondary school level is increasingly recognized as a strategic pathway to cultivate future-ready competencies beyond technical business skills. However, many school-based programs remain fragmented, focusing primarily on business projects without systematically integrating dispositional development and institutional support mechanisms. This study aims to develop and conceptually validate the Experiential Learning–Based School of Entrepreneurship (PEIR) model designed to strengthen the entrepreneurial mindset and entrepreneurial character of high school students. The study uses a Research and Development (R&D) approach adapted from Borg and Gall with a focus on the model development stage, including needs analysis, conceptual design, expert validation, and limited testing. Data were collected using a needs assessment questionnaire, expert validation sheets, a model feasibility observation checklist, a student perception questionnaire, and standardized instruments to measure entrepreneurial mindset and entrepreneurial character. The results of the needs analysis showed pedagogical fragmentation, limited institutional integration, and the lack of a dispositional assessment mechanism that explicitly measures the strengthening of entrepreneurial mindset and character. The PEIR (Prepare–Experience–Internalize–Reflect) model was designed as a structured and integrated experiential learning cycle with institutional support and a multidimensional evaluation system. Expert validation results showed a very high level of content validity (S-CVI = 0.96) and excellent instrument reliability (α = 0.93). A limited trial showed a high level of model feasibility (90%), very positive student perceptions (M = 4.28), and moderate improvement based on N-Gain values for the variables of entrepreneurial mindset (0.43) and entrepreneurial character (0.38). These findings indicate that the integration of structured experiential learning within an institutional framework can produce meaningful dispositional reinforcement. Theoretically, this study contributes by integrating cognitive and affective-ethical dimensions into a single operational learning architecture. Practically, the PEIR model offers an adaptive and sustainable framework for schools to institutionalize entrepreneurship education oriented towards character building and entrepreneurial mindset.

Keywords: Experiential Learning; Entrepreneurship Education; Entrepreneurial Mindset; Entrepreneurial Character.

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1. INTRODUCTION

Global economic structural changes accelerated by the digital revolution and labor market uncertainty demand a reformulation of formal education objectives; it is no longer sufficient to merely transmit declarative knowledge, but secondary education must be responsible for shaping students' adaptive dispositions, creativity, and entrepreneurial capacity as a provision for their ability to survive and contribute to the local and national economic ecosystem (Nicola, 2022; Vorokova et al. 2023). At the senior high school level, the function of education as a space for identity formation and future orientation makes pedagogical interventions that foster an entrepreneurial mindset and character not merely a curricular option but a strategic necessity for the economic resilience of future generations (Ahmad et al., 2023; Suherlan & Purnama, 2025). Therefore, efforts to conceptualize a learning model that systematically places experience as the main axis of entrepreneurial disposition formation are prescriptive for contemporary secondary education. This idea brings together the demands of 21st-century education policy with the practical imperative that students acquire socially and economically relevant skills when they leave school (Marouli, 2021). Against this backdrop, the development of a structured and theoretical model for high schools is a critical first step.

Secondary education curricula have accommodated elements of entrepreneurship, many implementations in the field are fragmentary in nature, such as bazaars, business plan development, or episodic entrepreneurial projects that are often not systematically integrated into school management, resulting in relatively limited long-term impacts on student dispositions (Motta & Galina, 2023). These practices, although valuable, often fail to facilitate a full learning cycle that allows students to experience failure, critical reflection, conceptualization, and re-experimentation; without such a reflective cycle, the internalization of values, integrity, and resilience will not take place in a meaningful way. Thus, academic discourse and educational practice require an institutional model that connects formal curricula, authentic experiential activities, mentoring mechanisms, and continuous evaluation procedures (Mau, 2024; Nerantzi & Bussu, 2023). Such a model must be designed to be relevant to various types of schools, including those with limited resources, so that it does not become the monopoly of elite institutions. This argument underscores the urgency of research that offers an operational conceptual framework for application at the high school level.

According to Kolb (1984) that experiential learning theory emphasizes the cycle of concrete experience, reflection, conceptualization, and active experimentation, provides an appropriate theoretical anchor for the design of entrepreneurship learning in high schools because it places experience as a source of learning and dispositional transformation. Implementing this cycle in a school environment allows students not only to learn about entrepreneurship but also to experience the entrepreneurial process in a meaningful context testing ideas, experiencing market reactions, facing failure, and constructing meaning through structured reflection. However, the literature states that the application of experiential learning in secondary education is still often partial and episodic, so that the effects on entrepreneurial mindset and character building have not been maximized (Nzembayie & Buckley, 2024). Therefore, the integration of Kolbian principles into the institutional architecture of schools needs to be developed conceptually so that the experience cycle becomes an integral part of learning management (Othman & ElKady, 2023).

The concept of a School of Entrepreneurship in the context of high school needs to be seen not merely as a program unit but as an institutional architecture that integrates curriculum, experiential practices, external partnerships, teacher capacity building, and a multidimensional

evaluation system so that entrepreneurship learning becomes holistic and sustainable (Akour & Alenezi, 2022; Dolata & Schrape, 2023). This institutional model aims to overcome the often unfortunate fragmentation of programs where incubators, extracurricular activities, and formal subjects run independently without synergy by presenting a blueprint that logically and operationally connects inputs, processes, and outputs. This approach emphasizes that authentic experiences must be designed, documented, and evaluated as part of the formal curriculum so that their impact on mindset and character can be measured and improved systematically (Mann et al., 2022). Thus, the School of Entrepreneurship serves as a framework that enables the translation of experiential pedagogy into replicable institutional practices.

The formation of an entrepreneurial mindset in adolescents is a multi-component process influenced by pedagogical, psychological, and socio-institutional factors; variables such as self-efficacy, opportunity recognition, and problem-solving are often identified as important mediators in the relationship between learning experiences and entrepreneurial intent (Xie et al., 2022). Therefore, the conceptual model offered must explicitly map the causal pathways through which school management support and experiential learning design can shape psychological mediators that in turn lead to the formation of entrepreneurial mindsets and behaviors (Hsu & Wang, 2022; Mawson et al., 2023). Without such causal mapping, interventions risk becoming a "black box" that is difficult to evaluate, develop, or adapt to other contexts. A clear framework also facilitates further methodological breakthroughs in the form of valid and reliable measurement of constructs in subsequent empirical studies (Lim, 2026). In other words, the conceptual model must combine learning theory, educational psychology theory, and school organizational perspectives.

The character dimensions of integrity, social responsibility, resilience, and entrepreneurial ethics must be positioned as outcomes that are equally as important as entrepreneurial mindset; an emphasis solely on technical competence or business performance without the formation of values risks producing economic actors who neglect ethical and social dimensions (Suriyankietkaew et al., 2022). Recent studies emphasize that entrepreneurship education should incorporate responsible and sustainability-oriented perspectives to cultivate ethically grounded entrepreneurial behavior rather than purely opportunity-driven action (Lackéus, 2020). Responsible entrepreneurship education requires structured moral experiences so that character building is not merely rhetorical but embedded within measurable reflective practice. Therefore, conceptual models need to integrate character education theory with experiential learning, outline monitorable character indicators, and include learning mechanisms that encourage the internalization of ethical values in the context of entrepreneurial action (Nuryadi et al., 2025). This integration strengthens the legitimacy of entrepreneurship education as an effort to develop innovative and socially responsible citizens, aligning with emerging calls to embed sustainability, ethics, and civic responsibility within entrepreneurship curricula (Lien et al., 2022).

The involvement of the external ecosystem of the business world, local MSMEs, communities, and local governments is an irreplaceable source of authentic experience in entrepreneurship education at the high school level; structured partnerships provide a real context for testing ideas, obtaining market feedback, and learning from real practices in the field (Simmou et al., 2023). The proposed institutional model must regulate formal collaboration mechanisms, such as community-based partnership projects, structured internship contracts, or mentoring programs by practitioners, so that the experiences gained by students have external relevance and the potential for socio-economic impact (Kikasu et al., 2025; Mayombe, 2025). In addition, the model needs to consider practical incentives for external partners so that their involvement is

sustainable, not just episodic (Hung & Wu, 2023). This requires a pragmatic and adaptive partnership administration design that is tailored to the local context of the school.

In terms of internal capacity, the quality of teacher facilitation is a determining variable in realizing substantive experiential learning; teachers' pedagogical competence, practical experience, and value orientation determine the quality of experience design, the depth of student reflection, and the transfer of learning to real-world practice (Velásquez et a., 2024). Therefore, the conceptual model must include strategies for teacher capacity building experiential pedagogy training, collaboration with practitioners, and internal accreditation mechanisms to ensure the sustainability of teacher competencies (Aithal & Maiya, 2023; Biloshchytskyi et al., 2025; Kotsis, 2025). Without investment in human capacity, the institutional model risks becoming a collection of superficial activities that are unable to change student dispositions. A systemic approach to teacher professional development is an integral part of the model design.

Evaluation and monitoring are often overlooked but crucial components in ensuring that experiential learning produces meaningful dispositional and behavioral changes measuring project outcomes alone is insufficient to capture the internalization of mindset and character (Poblete & Aktas, 2025). Therefore, the model's evaluation framework must be multidimensional, combining psychometric questionnaire instruments, experience-based task assessment rubrics, observation rubrics, and project portfolios as well as utilizing mixed-methods approaches for triangulation (Brown et al., 2023; Vindigni, 2022). The evaluation should be designed to provide formative feedback that can be used in the iterative refinement of the curriculum and practices. With an operational evaluation framework, schools can monitor student development longitudinally and assess the sustainability of the program's impact (Zhang et al., 2011).

The local context of the school's resources, organizational culture, and the maturity level of the entrepreneurial ecosystem influence how the model can be adapted; a model that is too rigid faces the risk of implementation failure in schools with limited resources (Miles & Morrison, 2018). Therefore, the design priorities are modularity and operational flexibility that allow for adaptation of model components according to school capacity, without sacrificing the essence of experiential learning and character-building objectives (Bai et al., 2024). The model must provide tiered implementation scenarios so that schools can start with small, feasible interventions and scale up based on accumulated experience and support (Farmer et al., 2021; Raviv et al., 2022). This approach increases the model's potential for transferability across contexts.

The novelty of this research lies in its systematic effort to formulate an Experiential Learning–Based School of Entrepreneurship model that combines institutional, pedagogical, psychological, and external partnership dimensions into a single integrative framework that is operationalized for the high school context. Unlike studies that assess partial pedagogical interventions, this model attempts to map a transformational pathway, institutional input, experiential process, psychological mediator, mindset and character outcome thereby facilitating causality evaluation and contextual adaptation. Thus, the theoretical and practical contributions of this research have the potential to enrich the literature and provide implementable guidelines for schools.

Based on the above description, the objectives of this study are explicitly formulated: to develop and conceptually validate an Experiential Learning–Based School of Entrepreneurship Model designed to foster an entrepreneurial mindset and character in high school students through a model development stage R&D approach; the research outputs are a conceptual blueprint, operational guidelines, and policy recommendations that are ready to be tested in subsequent implementation and effectiveness evaluation studies. With the goal of producing research artifacts that have theoretical legitimacy and practical relevance, this research aims to

bridge the gap between proven effective experiential pedagogy and institutional needs that enable such practices to be sustainable in a high school environment. The expected contributions include enriching experiential learning theory at the institutional level and providing implementable guidelines for education practitioners who want to transform schools into ethical and socially impactful entrepreneurial ecosystems.

2. METHODS

2.1 Research Desain

This study uses Research and Development (R&D) aimed at developing a conceptual model of Experiential Learning–Based School of Entrepreneurship as a systematic framework for strengthening the entrepreneurial mindset and character of students. The R&D approach was chosen because it allows for the integration of theoretical studies, empirical needs analysis, and gradual validation of educational products before they are tested more widely. Methodologically, this study adapts the classic framework of the " " developed by Borg and Gall, but is limited to only the first four stages that are oriented towards model development (model development phase). This limitation was imposed because the research objective focused on the construction and initial validation of the conceptual model, rather than on large-scale effectiveness testing. Thus, the research design emphasized conceptual rigor, expert validation, and limited testing as a foundation for further research.

2.2 Stages of R&D Model Development

The adaptation of the R&D model in this study includes four main stages, namely: (1) Research and Information Collection, (2) Planning, (3) Develop Preliminary Form of Product, and (4) Preliminary Field Testing. These four stages are systematically designed to ensure that the resulting model not only has a strong theoretical foundation but is also contextually relevant to field needs. Each stage involves data triangulation through a combination of literature studies, needs analysis, field observations, focus group discussions (FGD), and expert validation. This approach enables the development of an evidence-informed model that is also contextual to the institutional reality of schools. The following is a description of each stage of the research, as shown in Figure 1.



Figure 1. Stages of R&D Model Development

a. Research and Information Collection
   The first stage aims to identify the needs, problems, and context of implementing experience-based entrepreneurship education through a preliminary study (needs assessment). This process was carried out through needs analysis and field studies at

senior high school Karawang Regency, which were selected based on the characteristics of the existing entrepreneurship program implementation that had not yet been systematically integrated.

b. Planning
The planning stage focused on formulating conceptual specifications for the model based on the results of preliminary studies and literature synthesis. At this stage, the objectives of the model were formulated, core components (input–process–output) were identified, and indicators for developing an entrepreneurial mindset and character were determined.

c. Develop Preliminary Form of Product
The third stage is the process of developing the preliminary form of the product, namely the conceptual model that has been formulated in the form of a structural framework and an initial implementation guide ( ). This model includes the following components: (a) institutional support, (b) experience-based curriculum design, (c) experiential learning cycle (concrete experience, reflective observation, abstract conceptualization, active experimentation), (d) mentoring and industry collaboration mechanisms, and (e) multidimensional evaluation system.

d. Preliminary Field Testing
The preliminary field testing was conducted at senior high school in Karawang Regency as a representation of the initial implementation of the model in a real context. This trial aimed to evaluate the feasibility, clarity of the model structure, and the initial response of teachers and students to the proposed experience-based learning design. In addition to collecting student perception data, a structured observation sheet was employed to examine improvements across specific indicators of entrepreneurial mindset and entrepreneurial character. The effectiveness of the model was analyzed using the normalized gain (N-Gain) based on pre-test and post-test scores to determine the level of improvement achieved. The results of this stage provided empirical feedback for refining the model structure and ensuring its practical applicability in secondary school settings.

2.3 Research Participants and Data Collection Procedures

Research participants were selected using purposive sampling techniques, considering the relevance of their roles, professional experience, and direct involvement in entrepreneurship learning and academic policy-making. Participant selection was carried out in stages according to the model development phase within the Educational Research and Development (R&D) framework, so that each participant group had a specific contribution to the construction, validation, and initial testing of the developed model. This approach ensures that the designed model is not only theory-based but also reflects empirical field needs and gains academic legitimacy through expert validation. All participants were involved voluntarily with informed consent and were guaranteed confidentiality in accordance with educational research ethics principles, as shown in Table 1.

Table 1. Distribution of Research Participants

Research Phase	Institution	Participant Category	n
Needs Assessment	SMAN A	Entrepreneurship Teachers	2
Needs Assessment	SMAN B	Entrepreneurship Teachers	2
Needs Assessment	SMAN C	Entrepreneurship Teachers	2
Needs Assessment	SMAN A	Vice Principals (Curriculum)	1

Research Phase	Institution	Participant Category	n
Needs Assessment	SMAN B	Vice Principals (Curriculum)	1
Needs Assessment	SMAN C	Vice Principals (Curriculum)	1
Needs Assessment	SMAN A	Students in 10th grade	34
Needs Assessment	SMAN B	Students in 10th grade	35
Needs Assessment	SMAN C	Students in 10th grade	33
Expert Validation	Universitas Singaperbangsa Karawang	Entrepreneurship Expert	1
Expert Validation	Universitas Singaperbangsa	Learning Model Expert	1
Expert Validation	Universitas Singaperbangsa Karawang	Character Education Expert	1
Expert Validation	SMAN B	Material Expert	1
Preliminary Field Testing	SMAN A	Entrepreneurship Teacher	1
Preliminary Field Testing	SMAN A	Students	34
Total Participants			150

2.4 Data Collection Procedures

Data collection in this study was carried out in stages in accordance with the four phases of model development within the framework of Educational Research and Development (R&D), namely: Research and Information Collection, Planning, Develop Preliminary Form of Product, and Preliminary Field Testing. In the initial stage (needs assessment), data was collected through observation of entrepreneurship classes, semi-structured interviews with teachers and deputy principals in charge of curriculum, and Focus Group Discussions (FGD) with students. Observations were conducted to identify pedagogical patterns, student engagement levels, and the integration of experiential learning in ongoing learning practices. Interviews explored teachers' perceptions of implementation challenges, resource readiness, and institutional model development needs. Student FGDs aimed to capture actual learning experiences and perceptions of the effectiveness of ongoing entrepreneurship learning.

In the initial product development stage, data was collected through an expert validation process using a structured evaluation instrument based on a five-point Likert scale and open comments. Validators were asked to assess the theoretical relevance, structural coherence, integration between components, and feasibility of implementing the model in a high school context. Furthermore, in the preliminary field testing stage, data was collected through observation of the model's implementation in several class meetings, student perception questionnaires regarding experiential learning-based learning experiences, and reflective interviews with the implementing teachers.

2.5 Instrument Development

Research instruments were developed systematically based on a synthesis of the literature from the past seven years on experiential learning, entrepreneurial mindset, and character education. The initial stage involved identifying the main constructs and relevant operational indicators, which were then translated into measurable instrument items. The instruments developed included: (1) semi-structured interview instrument consisted of 20 open-ended

questions designed for teachers and school leaders, (2) FGD guidelines for students, (3) learning implementation observation sheets, (4) model validation instruments for expert panels, and (5) student perception questionnaires at the limited trial stage. Each instrument was designed to capture the cognitive, affective, and behavioral dimensions related to the formation of an entrepreneurial mindset and character.

2.6 Data Analysis

Data analysis was conducted integratively according to the type of data obtained. Qualitative data from interviews, FGDs, observations, and validator comments were analyzed using a thematic analysis approach with open, axial, and selective coding stages. Open coding was conducted to identify units of meaning relevant to the model development needs, followed by category grouping in the axial stage and synthesis of core themes in the selective stage. This process aimed to build a strong empirical basis for designing and revising the conceptual model.

Quantitative data from the validation instruments were analyzed using descriptive statistics to calculate the CVI value and the level of agreement between validators. Student perception questionnaire data were analyzed using descriptive statistics (mean and standard deviation) to describe the level of acceptance and clarity of the model at the limited trial stage. Triangulation was performed by comparing qualitative and quantitative findings to ensure consistency and strengthen interpretation. This analytical strategy was designed to produce a conceptually validated model supported by systematic preliminary empirical evidence, as shown in Table 2.

Table 2. Operationalization of Entrepreneurial Mindset

Indicator	Dimension	Analytical Focus	Key Reference
Opportunity Recognition	Cognitive	Students' ability to identify business opportunities from local contexts, analyze unmet needs, and interpret environmental, social, and economic signals during experiential activities	Aldrich & Ruef (2020); Morris et al. (2013)
Innovative Thinking	Cognitive	Generation of creative and feasible business ideas derived from field-based experiences, including problem reframing and value-creation strategies	Rae (2017); Nabi et al. (2017)
Risk Awareness & Decision-Making	Skill	Students' capacity to evaluate potential risks, make informed decisions, and justify strategic choices during project-based entrepreneurial tasks	Kolvereid (2017); Liñán & Chen (2009)
Self-Efficacy	Affective	Students' confidence in their ability to initiate, manage, and complete entrepreneurial tasks within real-world learning environments	Bandura (1997); Zhao et al. (2020)
Proactiveness	Skil	Initiative-taking behaviors, leadership tendencies, and active engagement in experiential entrepreneurial projects	Lumpkin & Dess (1996); Wales et al. (2013)

Table 3. Operationalization of Entrepreneurial Character

Indicator	Dimension	Analytical Focus	Key Reference
Integrity	Affective	Consistency between students' stated values and actions, honesty in financial reporting, and ethical conduct during entrepreneurial simulations or field practice	Neck & Greene (2011); Gorgievski et al. (2018)
Responsibility	Affective–Behavioral	Accountability in fulfilling assigned roles, meeting deadlines, and managing shared resources within team-based ventures	Gielnik et al. (2015)
Resilience	Affective	Students' persistence, emotional regulation, and adaptive responses when facing failure or unexpected challenges in experiential projects	Farrukh et al. (2021); Ayala & Manzano (2014)
Discipline	Behavioral	Consistency in following project procedures, maintaining work standards, and adhering to agreed rules in entrepreneurship activities	Zhao et al. (2020); Lackéus (2015)
Social Responsibility	Ethical–Affective	Awareness of social impact, inclusion of community considerations in business decisions, and commitment to sustainable and ethical entrepreneurial practices	Fayolle & Gailly (2015); Kuratko et al. (2015)

2.7 Validation and Reliability Measurement

The validation of instruments in this study was conducted through quantitative and qualitative approaches to ensure the validity of the constructs and internal consistency of each indicator developed. Content validity was evaluated through expert panel assessment consisting of experts in entrepreneurship education, curriculum development, and experiential learning pedagogy. Each instrument item was assessed using a five-level relevance scale, then analyzed using the Content Validity Index (CVI) at the item level (I-CVI) and scale level (S-CVI). The acceptance criteria were set at I-CVI ≥ 0.78 and S-CVI ≥ 0.80 as the threshold for adequate content validity in development research. Reliability testing was conducted to assess the internal consistency of the instrument after undergoing a revision process based on expert validation. Reliability was measured using Cronbach's Alpha coefficient, with a value ≥ 0.70 considered to indicate an acceptable level of reliability for educational research. Analysis was performed on limited trial test data to ensure that each construct, both entrepreneurial mindset and entrepreneurial character, had adequate stability and inter-item coherence.

3. RESULT

3.1 Needs Assessment Structure and Findings

The needs assessment stage in this study was designed as an empirical foundation to identify gaps between existing entrepreneurship education practices and the ideal framework of experiential learning institutionalized in the School of Entrepreneurship model. This activity was carried out at SMAN A, SMAN B, and SMAN C as representatives of secondary schools that have implemented entrepreneurship subjects but do not yet have a systemic experience-based institutional model. Conceptually, this stage aims to map the actual learning conditions,

institutional readiness, and pedagogical needs relevant to model development. The needs assessment was conducted using a data triangulation approach to enhance the credibility of the findings. Thus, this stage not only serves to identify problems but also as a conceptual basis for model construction.

The structure of the needs assessment covers three main domains, namely the pedagogical domain, the structural-institutional domain, and the evaluative domain. The pedagogical domain focuses on entrepreneurship learning practices in the classroom, including teaching methods, forms of student activities, and the integration of experiential learning. The structural domain examines school management support, curriculum policies, and the existence of external partnerships that support experience-based learning. Meanwhile, the evaluative domain analyzes the assessment system used to measure student entrepreneurial achievement, particularly in relation to entrepreneurial mindset and character. These three domains form the analytical framework for data collection and interpretation.

Data collection was conducted through observations of entrepreneurship classes over several learning sessions in each school, semi-structured interviews with entrepreneurship teachers and deputy principals in charge of curriculum, and Focus Group Discussions (FGD) with students. Observations were aimed at identifying patterns of learning interactions, the use of lecture or practical methods, and the existence of structured reflection in entrepreneurship activities. The interviews explored teachers' perceptions of the challenges of implementing experiential learning, training needs, and school policy support. The FGD with students focused on learning experiences, engagement levels, and perceptions of the relevance of entrepreneurship learning. Triangulation of these methods ensured that the findings were comprehensive and multidimensional.

a. Domain Pedagogis
   Findings in the pedagogical domain show that entrepreneurial learning practices at SMAN A, SMAN B and SMAN C are still dominated by conceptual and instructional approaches that focus on delivering basic business theory and procedural business plan development. Classroom observations indicate that although there are efforts to involve students in project activities such as school bazaars or business simulations, these activities are not designed to follow a complete experiential learning cycle, particularly in the stages of critical reflection and conceptualization of experiences.
b. Domain Struktural–Institusional
   In the structural-institutional domain, findings show that both schools have normative support for entrepreneurial activities, but there is no institutional architecture that formally integrates the curriculum, experiential practices, external partnerships, and evaluation systems into a coherent framework. Interviews with the vice principals in charge of curriculum revealed that entrepreneurship programs are still positioned as part of specific subjects or additional activities, without an institutional blueprint that regulates their continuity and strategic development.
c. Domain Evaluatif
   Findings in the evaluative domain indicate that the entrepreneurship assessment system in both schools is still oriented towards product achievement and administrative task completion, such as business reports or project presentations, without instruments that explicitly measure the development of students' entrepreneurial mindset and character. Teachers stated that assessment tends to focus on cognitive and technical aspects, while affective and behavioral dimensions such as self-efficacy, resilience, integrity, and social responsibility have not been systematically measured. Analysis of assessment documents

shows that there are no rubrics or indicators designed to capture changes in student disposition as a result of entrepreneurial experiences. Students also revealed that the feedback provided was more related to product quality than to reflective processes and value learning. This condition confirms the existence of a significant evaluative gap, namely the unavailability of a multidimensional assessment framework capable of integrating cognitive, affective, and character aspects in entrepreneurship education at the high school level, as shown in Table 4 and Table 5.

Table 4. Structure of Needs Assessment Domains

Domain	Analytical Focus	Data Sources	Key Issues Identified
Pedagogical	Teaching methods, experiential learning integration, student engagement	Classroom observation, teacher interview, student FGD	Dominance of theoretical instruction; limited structured reflection
Structural	Institutional support, curriculum integration, external partnership	Vice principal interview, document analysis	Absence of formal institutional model; limited long-term integration
Evaluative	Assessment system, measurement of mindset and character	Teacher interview, document review	Product-oriented evaluation; no dispositional measurement

Table 5. Summary of Needs Identified

School	Pedagogical	Structural	Evaluative
SMAN A	Experiential activities not systematically structured; limited reflective learning cycle	No formal integration of entrepreneurship into long-term school development plan	Assessment focuses on product outcomes rather than mindset and character
SMAN B	Learning still dominated by theoretical instruction; limited risk-based experiential exposure	Entrepreneurship programs depend on individual teacher initiatives	Lack of multidimensional evaluation instruments
SMAN C	Reflection and conceptualization stages of experiential learning not consistently implemented	Absence of formal School of Entrepreneurship blueprint	Character indicators not explicitly measured

Cross-source findings indicate a gap between the normative objectives of entrepreneurship education and its implementation practices. Teachers stated the need for a more systematic and operational model as a guide in integrating experiential learning. Students showed enthusiasm for hands-on practice but acknowledged a lack of deep reflection to help them understand the meaning of learning from the experience. The vice principal stated that the entrepreneurship program had not been formally integrated into the school's performance indicators. This indicates an urgent need for a coherent institutional model.

3.2 Conceptual Model Construction

The conceptual model of the Experiential Learning–Based School of Entrepreneurship was developed as a systematic response to the pedagogical, structural, and evaluative gaps identified during the needs assessment stage. Architecturally, this model is designed in four main

components that are integrated with each other, namely Inputs, Experiential Learning Process, Outcomes, and Feedback & Evaluation. This structure represents a systemic approach that places entrepreneurship learning not as an incidental activity, but as an institutionally organized educational ecosystem. Thus, this model goes beyond a partial pedagogical approach and offers a coherent institutional design for the high school context. The integration of these four components forms a transformational flow oriented towards the continuous formation of an entrepreneurial mindset and character, as shown in Figure 2.

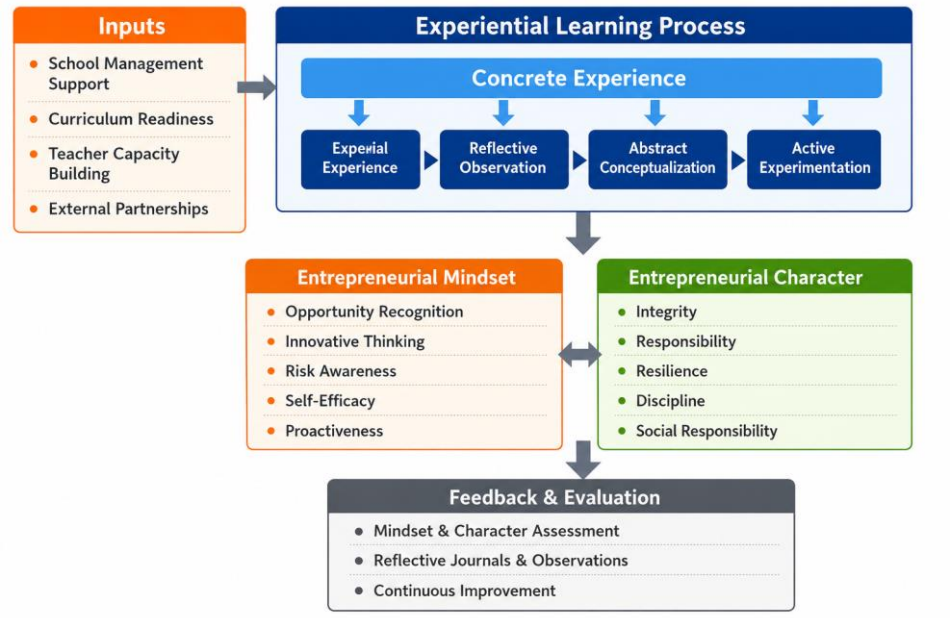


Figure 2. Framework of Experiential Learning-Based School

In the Experiential Learning Process component, the model adopts a learning cycle consisting of concrete experiences, reflection, abstract conceptualization, and active experimentation. This cycle is designed as a pedagogical core that connects authentic experiences with the formation of conceptual and dispositional understanding. Concrete experiences are realized through context-based entrepreneurial projects, while structured reflection facilitates the internalization of meaning and critical evaluation of actions taken. The conceptualization stage allows students to build a theoretical framework of understanding from experience, and active experimentation encourages the application of ideas in broader or repeated contexts. This cyclical process ensures that learning does not stop at technical practice but results in profound cognitive and affective transformation.

The Outcomes component focuses on two main variables, namely entrepreneurial mindset and entrepreneurial character, which are developed through a structured experiential process. Entrepreneurial mindset includes the ability to recognize opportunities, think innovatively, risk awareness, self-efficacy, and proactivity, while entrepreneurial character includes integrity, responsibility, resilience, discipline, and social responsibility. These two variables are linked to the Feedback & Evaluation component, which serves as a mechanism for continuous monitoring of the " " through mindset and character assessments, reflective journals, and iterative curriculum improvements. With this feedback loop, the model operates as a dynamic system that enables continuous evaluation and refinement. Overall, the construction of this model maps a clear

transformational path from institutional support and authentic experiences to the formation of ethical and sustainable entrepreneurial dispositions at the high school level, as shown in Figure 3.



Figure 3. PEIR Model Sintaks of Experiential School of Entrepreneurship

Figure 3 illustrates the operational syntax of the Experiential Learning–Based School of Entrepreneurship model, which is formulated in four sequential stages: Prepare – Experience – Internalize – Reflect (PEIR). The Prepare stage represents the institutional and pedagogical preparation phase, which includes curriculum readiness, school management support, teacher capacity building, and planning of context-based entrepreneurial projects. This stage ensures that the learning experience does not take place spontaneously, but is designed in a systematic and targeted manner.

The second stage, Experience, places students in authentic learning situations through real entrepreneurial projects, market simulations, or collaborations with external partners. In this phase, students are directly involved in activities such as identifying opportunities, making decisions, managing risks, and creating value. The third stage, Internalize, focuses on the process of meaning formation through structured reflection, critical discussion, and conceptualization of experiences so that practical experiences are transformed into strengthening the entrepreneurial mindset and character. This process marks a shift from external experiences to the internal dispositional transformation of students.

The final stage, Reflect, serves as a continuous evaluative and feedback mechanism that includes mindset and character assessments, reflective journals, and learning design improvements. Reflection is carried out not only by students, but also by teachers and school management to ensure iterative refinement of the model. These four stages form a dynamic, interconnected cycle, so that the PEIR model is not merely linear but operates as a continuous learning system. Conceptually, the PEIR syntax maps a transformational path from structural support to the formation of adaptive, ethical, and sustainable entrepreneurial mindsets and character in high school students.

The Experiential School of Entrepreneurship Model textbook represents a comprehensive conceptual framework designed to institutionalize the experiential learning approach of " " in entrepreneurship education at the high school level. This book outlines the theoretical foundations of the PEIR (Prepare–Experience–Internalize–Reflect) model, its conceptual

construction, and the integration of pedagogical, structural, and evaluative dimensions into a systemic institutional architecture. Through a transformational cycle-based approach, this model emphasizes that the formation of an entrepreneurial mindset and character cannot be achieved through theoretical instruction alone, but rather through structured authentic experiences and continuous critical reflection. Conceptually, the model serves as an academic blueprint that provides strategic guidance for schools in building an integrated and sustainable School of Entrepreneurship ecosystem.

3.3 Expert Validation Results'

The validation panel consisted of five experts with expertise in entrepreneurship education, curriculum development, experiential learning pedagogy, and educational evaluation. The validation process was carried out in two rounds using a five-point Likert scale assessment instrument that measured four main aspects, namely: (1) theoretical relevance, (2) consistency and integration between model components, (3) clarity of PEIR operational syntax, and (4) feasibility of implementation in the high school context. In addition to quantitative assessment, the validators also provided open comments to enrich the substantive analysis of the model structure.

The results of the quantitative analysis showed that the model obtained a high Content Validity Index (CVI) score for all components. The I-CVI score for each indicator was in the range of 0.80–1.00, while the overall S-CVI score reached 0.92 in the first round and increased to 0.96 after revision in the second round. These values exceed the minimum threshold recommended in educational development research, indicating a very strong level of agreement among experts regarding the relevance and feasibility of the model. The increase in scores in the second round indicates that the iterative revision process successfully improved the conceptual clarity and integration between model components. Statistically, these findings provide initial legitimacy for the content validity of the PEIR model.

Qualitative analysis of validator comments identified three main recommendations in the first round of validation. First, the need to clarify the causal relationship between the Input component and the experiential process so that the transformational path is more explicit. Second, the addition of operational indicators to measure character dimensions such as integrity and social responsibility in the evaluation system. Third, simplifying the terminology in the PEIR syntax to make it more communicative and easier to implement by high school teachers. Based on these recommendations, revisions were made by emphasizing the input–process–output flow in the model diagram, adding a character evaluation rubric, and refining the operational description of each stage of the syntax. This process shows that validation is not only confirmatory but also constructive in enriching the quality of the model. Thus, the expert validation results indicated that the PEIR model met the criteria for content validity and initial implementation readiness and was feasible to proceed to the Preliminary Field Testing stage as part of the next R&D process, as shown in Table 5.

Table 5. Content Validity Index (CVI) Results for the PEIR Model Components

Model Component	Number of Items	I-CVI Range (Round I)	I-CVI Range (Round II)	S-CVI (Round I)	S-CVI (Round II)	Interpretation

Input (Institutional Support & Curriculum Readiness)	6	0.80 – 1.00	0.90 – 1.00	0.88	0.95	Highly Valid
Experiential Learning Process (PEIR Syntax)	8	0.80 – 1.00	0.90 – 1.00	0.90	0.97	Highly Valid
Entrepreneurial Mindset Indicators	10	0.80 – 1.00	0.90 – 1.00	0.91	0.96	Highly Valid
Entrepreneurial Character Indicators	10	0.80 – 1.00	0.90 – 1.00	0.89	0.95	Highly Valid
Evaluation & Feedback Mechanism	6	0.80 – 1.00	0.90 – 1.00	0.87	0.94	Highly Valid
Overall Model	40	—	—	0.92	0.96	Very High Content Validity

Source: Compiled by Researchers (2026)

The calculation results show that all model components obtained an I-CVI value above the minimum threshold of 0.78, indicating an excellent level of agreement among the validators. The S-CVI value in the first round reached 0.92 and increased to 0.96 after the model was revised based on expert input, indicating an increase in conceptual coherence and operational clarity between components. The components with the most significant improvement were in the Experiential Learning Process and Evaluation & Feedback Mechanism aspects, which were previously recommended for clarification of their integrative flow. Overall, these results confirm that the PEIR model has very high content validity and is feasible to proceed to the limited trial stage, as shown in Table 6.

Table 6. Reliability Analysis of the PEIR Model Constructs

Construct	Number of Items	Cronbach's Alpha	Interpretation
Experiential Learning Process (PEIR Syntax)	8	0.88	Good Reliability
Entrepreneurial Mindset	15	0.91	Excellent Reliability
Entrepreneurial Character	15	0.89	Good Reliability
Evaluation & Reflective Assessment	6	0.86	Good Reliability
Overall Instrument	44	0.93	Excellent Reliability

Source: Compiled by Researchers (2026)

The reliability test results show that all constructs in the PEIR model have high internal consistency. Cronbach's Alpha value for the Entrepreneurial Mindset construct reached 0.91, indicating excellent reliability and strong inter-item consistency in measuring students' entrepreneurial disposition. The Entrepreneurial Character construct obtained a value of 0.89, indicating measurement stability in the affective and ethical dimensions developed in the model. The overall reliability value of the instrument of 0.93 shows that the measurement tool has very

high internal coherence and is suitable for use in further research. An alpha value above 0.70 indicates an acceptable level of reliability in educational research, while a value above 0.80 indicates good to very good consistency. These findings reinforce the previous content validation (CVI) results, showing that the PEIR model is not only conceptually valid but also empirically reliable at the limited trial stage.

3.4 Model Revision

The first revision focused on clarifying the causal relationship between the Input and Experiential Learning Process components. Validators assessed that in the initial version of the model, the transformational flow was not fully explicit in describing how institutional support and curriculum readiness affect the quality of learning experiences. The second revision targeted the evaluative dimension, specifically strengthening entrepreneurial character indicators in the assessment system. In the initial version, character indicators such as integrity and social responsibility were deemed to lack operational measurement guidelines. The final revision focused on simplifying the model's syntax to make it more communicative without reducing its theoretical substance. The four-stage syntax of Prepare – Experience – Internalize – Reflect (PEIR) was retained as the main operational framework, but supplemented with more applicable implementational descriptions for high school teachers. Validators assessed that this syntax fulfilled the principles of conceptual simplicity and transformational depth. With the completion of the second revision stage, the model was declared to have strong structural coherence and was ready for implementation in a limited trial phase.

3.5 Preliminary Field Testing Results

The preliminary field testing stage was conducted to evaluate the initial applicability of the PEIR model in the context of real classroom learning. Limited trials were conducted in a high school environment, involving entrepreneurship teachers as facilitators and students as participants in the model implementation. The main focus of this stage was not on testing causal effectiveness, but rather on aspects of feasibility, syntactic clarity, student engagement, and initial responses to experience-based learning designs. Implementation was carried out in several entrepreneurship project meetings designed to follow the PEIR cycle in its entirety. Observations and data collection were carried out systematically to assess the dynamics of the learning process.

Overall, the limited trial results show that the PEIR model has a good level of applicability and positive responses from early users. The model is considered realistic to be applied in a high school context with adjustments to the time and adequate teacher training support. These findings reinforce the expert validation results that the model has initial implementation feasibility and the potential to be tested for effectiveness in further research stages. Thus, preliminary field testing provides initial empirical evidence that supports the sustainability of the model development process within the R&D framework, as shown in Table 7.

Table 7. Students' Perception of the PEIR Model Implementation

Dimension	Number of Items	Mean	SD	Interpretation
Clarity of Learning Stages	5	4.32	0.58	Very Positive

Engagement in Experience Stage	6	4.41	0.52	Very Positive
Reflective Learning Process	5	4.18	0.61	Positive
Development of Entrepreneurial Mindset	7	4.27	0.55	Very Positive
Development of Entrepreneurial Character	7	4.21	0.63	Positive
Overall Mean	30	4.28	—	Very Positive

Source: Compiled by Researchers (2026)

The results of students' perceptions of the implementation of the PEIR model show a very positive level of acceptance in almost all dimensions measured. The Engagement in Experience Stage dimension obtained the highest average (M = 4.41; SD = 0.52), indicating that students felt very actively involved in the experience-based activities designed in the PEIR syntax. The clarity of the learning stages was also rated very good (M = 4.32; SD = 0.58), indicating that the Prepare–Experience–Internalize–Reflect structure was clearly understood by students. 's Development of Entrepreneurial Mindset (M = 4.27) and Development of Entrepreneurial Character (M = 4.21) dimensions showed that students felt the model had a positive impact on strengthening their entrepreneurial mindset and character. Overall, the general mean of 4.28 places the PEIR model in the "Very Positive" category, indicating that this model has a high level of acceptance and feasibility for implementation at the limited trial stage, as shown in Table 8.

Table 8. Observation Results of PEIR Syntax Implementation

PEIR Stage	Implementation Level (%)	Interpretation
Prepare	92%	Fully Implemented
Experience	95%	Fully Implemented
Internalize	88%	Highly Implemented
Reflect	85%	Highly Implemented

Source: Compiled by Researchers (2026)

Observations of the implementation of the PEIR syntax show a very high level of implementation in all stages of learning. The Experience stage had the highest implementation rate of 95%, followed by the Prepare stage at 92%, indicating that lesson planning and the implementation of authentic experiences can be carried out optimally by teachers and students. Meanwhile, the Internalize (88%) and Reflect (85%) stages are in the highly implemented category, indicating that the reflective and conceptualization processes have been carried out consistently, although they still need to be strengthened in terms of deepening students' critical analysis. Overall, these findings indicate that the PEIR syntax can be fully implemented in the context of entrepreneurship learning in high schools, with a high and consistent level of implementation at each stage, as shown in Table 9.

Table 9. Teacher Feedback on Model Practicality

Aspect	Mean	Interpretation
Ease of Use	4.30	Very Practical
Clarity of Model Structure	4.45	Very Clear
Suitability for SMA Context	4.25	Highly Suitable
Assessment Applicability	4.10	Suitable

Source: Compiled by Researchers (2026)

Teachers' feedback on the practicality of the PEIR model shows a very positive evaluation on all aspects measured. The Clarity of Model Structure aspect received the highest average score (M = 4.45), indicating that the conceptual and syntactic structure of PEIR is considered clear, systematic, and easy to understand in the context of classroom implementation. The Ease of Use dimension (M = 4.30) shows that teachers consider this model practical and does not cause

excessive administrative burdens in planning and implementing learning. The suitability of the model to the high school context was also rated highly (M = 4.25), confirming that the PEIR design is relevant to the characteristics of students and the structure of the high school curriculum. Although the Assessment Applicability aspect received a relatively lower score (M = 4.10), the value remained in the "Suitable" category, indicating that the evaluation system in the model is operational but still has room for further improvement, as shown in Table 10.

Table 10. Normalized Gain (N-Gain) Analysis Based on Hake (1999)

Variable	Pre-Test	Post-Test	N-Gain	Category
Entrepreneurial Mindset	2.45	4.12	0.43	Medium
Entrepreneurial Character	2.52	4.08	0.38	Medium

Source: Compiled by Researchers (2026)

The results of normalized gain (N-Gain) analysis based on Hake's formula (1999) show a significant descriptive increase in both variables after the implementation of the PEIR model. The entrepreneurial mindset score increased from a pre-test average of 2.45 to 4.12 in the post-test, resulting in an N-Gain of 0.43, which is classified as moderate. Similarly, entrepreneurial character increased from 2.52 to 4.08 with an N-Gain of 0.38, which is also in the moderate category. This classification indicates that the PEIR model has a moderate yet meaningful impact on strengthening students' entrepreneurial mindset and character during the limited trial phase. In the context of research and development (R&D), achieving a moderate N-Gain already suggests promising initial effectiveness for further large-scale implementation.

4. DISCUSSIONS

4.1 Interpretation of Needs Assessment Findings

The findings of the needs assessment show that entrepreneurial learning practices at the high school level still remain predominantly theoretical and product-oriented, where practical activities are more episodic than part of a reflectively designed cycle of repeated learning. This condition is in line with the findings of recent surveys and systematic reviews which confirm that experience-based learning designs are often applied in a fragmented manner and without institutional embedding (Azeez & Aboobaker, 2024), so that their impact on student dispositions such as the ability to recognize opportunities and take risks is more localized and unsustainable. In the context of SMAN B and SMAN C, field observations reveal the same imbalance: the existence of practical initiatives but a lack of reflective instruments and procedures that facilitate the transformation of experiences into measurable dispositional learning. This condition raises a crucial question about how authentic experiences can be institutionalized so that they move from ad-hoc activities to becoming part of a systemic curriculum with long-term impact (Brosig & Karlsrud, 2024; Nico et al., 2025).

Recent empirical literature emphasizes that the success of experiential entrepreneurship programs is greatly influenced by embedded institutional arrangements that enable external activities to be scheduled, documented, and evaluated (Ferreira, 2020; Mpofu, 2024). Our field findings reveal the practical consequences of this lack of structure: variations in the quality of experiences between classes, low opportunities for replicating successful practices, and the vulnerability of program continuity when there are staff changes or shifts in school priorities. In other words, the needs assessment indicates that the formulation of a conceptual model must place structural change as a precondition that is not merely a recommendation but an operational component of the model (Fijałkowska, 2020; Halabi et al., 2019).

This raises two methodological and pedagogical problems: first, if not measured, the development of mindset and character will remain invisible in achievement reports; second, without concrete indicators, teachers tend not to have useful feedback to facilitate the internalization of values. The literature examining assessment mechanisms in experiential learning recommends a combination of observation rubrics, reflective journals, and portfolio assessments to capture the cognitive-affective dimensions holistically a practice that is still rarely applied in the secondary school context we studied (Harfitt, 2018; Limbu, 2024; Potgieter, Filmalter, & Maree, 2025). Therefore, the needs assessment points to a concrete need: the development of multidimensional assessment instruments that are valid and easy to use by teachers in the field.

Pedagogically, field findings also emphasize the importance of the teacher's role not only as a content deliverer but as a reflective facilitator who mediates the cycle of experience-conceptualization-experimentation. Observations show that when teachers are able to facilitate structured reflection sessions students report a deeper understanding of the decision-making process, learning from failure, and the link between actions and ethical values. Recent research testing the integration of Kolbian experiential learning with the theory of planned behavior (TPB) also shows that reflective components increase perceived behavioral control and self-efficacy in in the transformation of intention into entrepreneurial behavior (Alhiassah et al., 2024; Ferreira-neto et al., 2023; Vamvaka et al., 2020). Therefore, the pedagogical needs identified are not merely the addition of practical activities, but the strengthening of facilitators' capacities through experiential pedagogy training and reflection guidelines so that experiences are truly productive in shaping entrepreneurial dispositions.

4.2 Theoretical Contribution of the PEIR Model

The PEIR (Prepare–Experience–Internalize–Reflect) model offers a major theoretical contribution in the form of a shift from experiential learning as a pedagogical technique to experiential learning as an institutional architecture. Many contemporary studies note that the implementation of experiential learning in entrepreneurship education is often partial practical activities are carried out without institutional embedment that ensures continuity, accountability, and dispositional evaluation as a result, the impact on mindset and character formation is temporary and fragmented (Miço, 2023; Mukesh et al., 2020). The PEIR model addresses this weakness by designing institutional inputs (policy, teacher capacity, partnerships) as operational prerequisites for the experience cycle, so that authentic experiences are always positioned within a framework of policy and resources that enable replication and scalability. In this way, PEIR advances the discourse of experiential learning theory to the institutional level a step that is in line with the recommendations of the latest systematic review, which calls for institutional embedment to improve the effectiveness of experiential designs (Tembrevilla, 2024).

PEIR enriches transformational theory regarding how cognitive dispositions (mindset) and affective-ethical dispositions (character) are formed through a structured reflective cycle. Rather than viewing mindset and character as secondary outcomes of practical activities, this model treats the internalization of values and cognitive reconstruction as explicit steps in the learning cycle: concrete experiences trigger practical dilemmas, structured reflection bridges experiences with concepts, conceptualization modulates cognitive schemas, re-experimentation validates dispositional changes. This causal approach clarifies the mechanism linking pedagogical inputs to dispositional changes a conceptual necessity often criticized in iterature because many studies only report outcomes without opening the "black box" of disposition formation processes (Calhau

et al., 2024; Gbongli et al., 2020). This argument is consistent with studies emphasizing the role of self-directed and reflective processes as important mediators in the formation of entrepreneurial orientation (Mayombe, 2025; Nuryadi et al., 2025).

4.3 Institutional and Pedagogical Implications

The institutional implications of this study emphasize that strengthening entrepreneurial mindset and entrepreneurial character at the high school level cannot be reduced to classroom interventions alone, but must be positioned as a strategic institutional agenda. Findings from the needs assessment and limited pilot test show that the sustainability of experiential learning is greatly influenced by school policy support, curriculum integration, and consistent resource allocation. Therefore, schools that want to develop experiential entrepreneurship education need to formulate a blueprint for a School of Entrepreneurship that is integrated into the school's work plan, including scheduling authentic projects, strengthening external partnerships, and a dispositional evaluation system. Without this kind of institutional embedding, experiential practices risk reverting to episodic activities that depend on individual teacher initiatives. Thus, the PEIR model has structural implications that encourage the transformation of entrepreneurship education governance at the secondary school level (Igwe et al., 2022; Lee, 2026).

From a pedagogical perspective, the main implication of the PEIR model lies in the shift in the role of teachers from knowledge transmitters to reflective facilitators who orchestrate the cycle of experience and internalization of values. The Prepare–Experience–Internalize–Reflect syntax provides an operational framework that enables teachers to design authentic experiences while systematically guiding students' critical reflection. This indicates the need for teacher professional development in experiential pedagogy, including techniques for facilitating reflective discussions, using learning journals, and character-based rubric assessments (Hutasoit & Anakampun, 2025; Utari, Halimah et al., 2025). In addition, teachers need to be equipped with an understanding of how to integrate local contexts such as regional economic potential into the design of entrepreneurship projects so that learning experiences have real social relevance (Seikkula-leino et al., 2021; Wagner et al., 2021). Thus, the pedagogical implications of this model are not only in terms of methods, but also in terms of reconstructing teachers' professional competencies.

The evaluative implications of the PEIR model are also significant, particularly in expanding the paradigm of entrepreneurship assessment from merely business products to measuring students' dispositional transformation. The integration of entrepreneurial mindset and entrepreneurial character rubrics into the school evaluation system enables more comprehensive and meaningful learning outcomes (Park et al., 2020). Schools are encouraged to adopt a multidimensional assessment approach that combines behavioral observation, written reflection, and project performance assessment in a simultaneous, manner (Metsäpelto et al., 2022). This approach allows teachers and school management to monitor student development longitudinally, not just at the end of the project. Thus, the PEIR model has strategic implications for reformulating the entrepreneurship assessment system at the secondary education level.

4.4 Strengthening Entrepreneurial Mindset Through the PEIR Model

The formation of an entrepreneurial mindset through the PEIR model should be understood as a distributed cognitive reconstruction process: concrete experiences provide empirical

material for students to observe opportunities, test assumptions, and feel the consequences of decisions, while the Internalize phase facilitates the transformation of cognitive schemas through structured reflection and conceptualization. The emphasizing the role of reflective mechanisms as mediators not merely as didactic epilogues PEIR explains how practical experiences translate into lasting improvements in opportunity recognition, risk assessment, and innovative problem-framing abilities (Metsäpelto et al., 2022; Tselepis et al., 2019). These findings are consistent with empirical evidence highlighting the role of reflection and repeated practice in enhancing self-efficacy and entrepreneurial readiness.

Furthermore, mindset strengthening is not only about improving cognitive competence but also about increasing agency capacity through scaffolded autonomy: the PEIR model encourages students to take initiative in a structured context, so that they learn to combine strategic planning with tactical flexibility. This means that task design and assessment must balance autonomy demands with instructional support so that the experience does not become merely operational practice but truly shapes adaptive mindsets. This perspective aligns with conceptual reviews of how experiential programs enhance entrepreneurial orientation when accompanied by pedagogical scaffolding and institutional support (Lin & Chen, 2025).

Finally, from a systemic perspective, strengthening mindsets through PEIR requires multilevel interactions between the curriculum, teachers as reflective facilitators, and external ecosystems that provide authentic challenges. Without institutional embedding and partnerships that provide real-market feedback, student experiences tend to lose the relevance and intensity necessary to change dispositions. Therefore, the PEIR model emphasizes the integration of institutional inputs as enabling conditions for the pedagogical process a finding supported by international studies emphasizing the importance of institutional embedding to sustain and scale the pedagogical effects of experiential learning in the context of entrepreneurship education (Harfitt, 2018).

4.5 Strengthening Entrepreneurial Character Through the PEIR Model

The formation of entrepreneurial character within the PEIR framework requires a paradigm shift from normative character education to practical character formation: character is not assumed to be automatically present through technical competence but is constructed through ethical confrontations that arise in practice. The Experience stage often presents real dilemmas conflicts of interest, ethical decisions related to prices or sources of materials, distribution of profits of the team which, when paired with critical reflection in the Reflect stage, become a medium for moral learning. Thus, PEIR defines character as the result of a situational moral apprenticeship process that is trained through repeated practices that are evaluated ethically (Xie et al., 2022).

PEIR proposes operational and transparent character assessment instruments (integrity rubrics, team responsibility observations, social action evidence portfolios), so that ethical values become a measurable part of school learning and accountability. This approach prevents reductionism in which ethics is treated as a rhetorical theme; instead, character becomes an aspect that is evaluated, given feedback, and developed intentionally through activities that require moral consideration and social responsibility. This effort is consistent with studies emphasizing the need for integrated assessment to facilitate value formation in sustainable entrepreneurship education (Diepolder & Weitzel, 2021; Suguna et al., 2024; Torres-sánchez et al. 2024).

This model also articulates the relationship between character and the social legitimacy of entrepreneurship: strong character increases the legitimacy of graduates as economic actors who

have a positive impact on their communities, so that entrepreneurship education not only produces business people but also ethical economic citizens. Therefore, character building must be embedded in a real social context through community partnerships that facilitate socially impactful projects a strategy that has been proven to increase the internalization of ethical norms and sustainability orientation in students (Ahmad, 2024; Nizariah et al., 2025; Uzorka et al., 2024). From this perspective, PEIR is not merely a pedagogical tool but also a normative contribution to how entrepreneurship education can function as an agent for shaping responsible business citizens.

5. CONCLUSION

This study developed and conceptually validated the Experiential Learning–Based School of Entrepreneurship (PEIR) model as a structured framework to strengthen entrepreneurial mindset and entrepreneurial character among high school students. Grounded in needs assessment findings that revealed pedagogical fragmentation, limited institutional alignment, and the absence of systematic dispositional assessment, the model integrates institutional support, a sequenced experiential learning cycle, and measurable mindset–character indicators into a coherent operational architecture. Expert validation demonstrated very high content validity, while limited field testing indicated satisfactory feasibility, positive stakeholder acceptance, and moderate dispositional improvement as reflected in N-Gain scores. These findings suggest that the PEIR model shows preliminary empirical promise as a prototype for dispositional development in secondary entrepreneurship education, without overstating causal impact. The main scientific contribution lies in operationalizing the simultaneous formation of entrepreneurial mindset and character within a single experiential and assessable framework, thereby extending entrepreneurship education discourse beyond skill-based approaches toward an integrated dispositional model. Nevertheless, the study is limited by the use of a small-scale trial without a control group, regional sampling constraints, and short implementation duration, which restrict causal inference and generalizability. Future research should employ larger-scale experimental or quasi-experimental designs across diverse educational contexts and incorporate longitudinal evaluation to examine the robustness, scalability, and sustained impact of the PEIR model.

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