

Entrepreneurship Education Planning in Vocational High Schools

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Abstract. Entrepreneurship education planning in vocational high schools (SMK) plays a strategic role in preparing graduates who are not only work-ready but also capable of becoming job creators. This study aims to analyze entrepreneurship education planning in SMKs from the perspective of educational planning and teacher roles. This research employs a literature-based qualitative approach by reviewing books and peer-reviewed journal articles published between 2019–2025. Data were analyzed using thematic content analysis to identify patterns related to planning models, teacher competencies, and entrepreneurship learning strategies. The findings indicate that effective entrepreneurship education planning in SMKs is strongly influenced by teachers' pedagogical and professional competencies, the integration of Teaching Factory (TeFa) and project-based learning models, and collaboration with industry and MSMEs. These elements support the internalization of entrepreneurial values, creativity, and practical business skills among students. This study implies that strengthening teacher capacity, aligning curriculum with industry needs, and optimizing school–industry partnerships are critical factors in improving graduate absorption and fostering sustainable student entrepreneurship.

Keywords: Education Planning, Entrepreneurship Education, Vocational Education

1 Introduction

Educational planning constitutes a fundamental component in the development of a nation. A well-designed educational system aims not only to produce academically competent individuals but also to cultivate persons of strong character who are creative and capable of adapting to rapid societal and technological changes. In this context, the philosophy of educational planning serves as an essential intellectual foundation that guides the formulation of policies, programs, and strategies to ensure alignment with societal needs and global challenges.

Planning represents the initial and most decisive stage of any developmental process [1]. Optimal outcomes cannot be achieved without a deliberate and systematic plan. Activities carried out without a clear direction risk producing results that deviate from the intended objectives. This principle holds true in education, where well-structured planning contributes to an educational system that is effective, efficient, and future-oriented.

Purposeful education serves as the cornerstone of national progress. Such progress does not occur spontaneously but emerges from a systematic planning process. Educational planning involves the formulation of goals, policies, strategies, and concrete actions to achieve them. The process encompasses needs assessment, strategy development, implementation, and policy evaluation. Through meticulous planning, education becomes more structured and responsive to the evolving needs of society [2].

Moreover, educational planning is not merely an administrative procedure; it is deeply embedded in the philosophical foundations of education itself [3]. Etymologically, philosophy derives from the Greek words *philos* (love) and *sophia* (wisdom), meaning “love of wisdom”. Within the educational context, philosophy provides the intellectual grounding for understanding the essence of education, its intended aims, and the methods through which these aims should be realized. Without such philosophical foundations, educational planning risks becoming superficial and lacking meaningful direction.

In the historical discourse of Indonesian educational thought, Ki Hadjar Dewantara emphasized that education is an effort to liberate human beings, guiding learners to grow according to their natural disposition and their era, while remaining grounded in national culture. His perspective underscores that education is not merely a process of transmitting knowledge, but a holistic effort to nurture human potential [4].

Purposeful education becomes the main foundation for producing high-quality human resources capable of facing contemporary challenges. National advancement does not occur by coincidence but through a long process that begins with effective planning. Educational planning involves the formulation of a vision, mission, goals, policies, and concrete implementation strategies. This includes needs analysis, strategy formulation, program implementation, and evaluation of outcomes. With comprehensive planning stages, the educational system can operate effectively, efficiently, and adaptively in response to social, economic, and technological changes [2].

Vocational High Schools (SMK) play an important role in preparing skilled workers who meet the needs of the business and industrial sectors [5]. However, vocational education in Indonesia still faces significant challenges, particularly regarding the absorption of graduates. Data from SMK Negeri 3 Pematangsiantar show that in 2023 the graduate absorption rate reached only 24.38%, categorized as low. In 2024, the rate increased to 46.15%, although it remained in the low category. Only in 2025 did it rise significantly to 76.36%, categorized as moderate [6]. Although this trend shows improvement, the achievements remain far from the expectations needed to meet labor market demands and strengthen economic self-reliance at both local and national levels.

The root of this low absorption rate can be traced to two main factors: the limited ability of graduates to obtain employment and the relatively small number of graduates who pursue entrepreneurship [7]. This condition necessitates more innovative, adaptive, and integrated educational planning that aligns with the needs of industry and business sectors. Thus, educational planning plays a strategic role in preparing vocational graduates who are not only ready for employment but also capable of creating job opportunities through entrepreneurship. With appropriate planning, schools can design curricula that are relevant to industry needs, such as developing Teaching Factory (TeFa) learning models, strengthening partnerships with MSMEs, and instilling entrepreneurial values from an early stage.

Teaching Factory (TeFa) is a learning program in Vocational High Schools designed to provide students with direct experience in developing skills and competencies relevant to workplace demands [8]. This concept does not solely emphasize technical skills, but is also aligned with the philosophy of education, which asserts that educational planning must be grounded in an understanding of human nature and knowledge. Through TeFa, learners are guided to discover their existence as whole human beings and to develop their potential. This aligns with the National Education Goals stated in Law No. 20 of 2003, which highlight education as a conscious and planned effort to create learning processes that enable learners to develop spiritual intelligence, self-control, character, intellectual abilities, noble morals, and the skills needed for themselves, society, and the nation [9].

Therefore, schools hold great expectations that students will not only become job seekers but also job creators through the development of MSMEs. This vision aligns with vocational education's focus on independence, productivity, and global competitiveness. By prioritizing strengthened partnerships with MSMEs, accompanied by initiatives such as industrial networking, curriculum synchronization, student entrepreneurship practice, and internship programs, schools are expected to produce graduates who are work-ready, entrepreneurially minded, and prepared to pursue further education based on their interests [10].

Educational planning is a systematic process that functions as a guideline for organizing education so that it proceeds in a directed, effective, efficient, and socially relevant manner [11]. Educational planning is not merely an administrative step but a deliberate effort aimed at directing all educational activities toward predetermined objectives. Without well-structured planning, the implementation of education will lack clear direction and may result in suboptimal outcomes that fail to meet national expectations. Therefore, educational planning serves as a roadmap that determines the quality and progression of a nation's educational system.

For these reasons, this research is essential for analyzing how educational planning can contribute to increasing the absorption of vocational school graduates, particularly in fostering graduates who are not only ready for employment but also capable of developing MSMEs sustainably. Despite the growing body of research on vocational education and entrepreneurship, most existing studies focus on curriculum implementation, student competencies, or school-industry collaboration [12]. However, limited attention has been given to entrepreneurship education from the perspective of educational planning, particularly regarding the strategic role of teachers as planners, implementers, and evaluators of entrepreneurship learning in vocational high schools.

This study addresses this research gap by analyzing entrepreneurship education in SMKs through the lens of educational planning theories and models, with a specific focus on teacher competencies and planning strategies. The novelty of this research lies in integrating philosophical foundations, planning theories, and vocational education practices to formulate a comprehensive planning framework for entrepreneurship education in SMKs. The scope of this study focuses on: (1) philosophical and theoretical foundations of educational planning, (2) planning models relevant to entrepreneurship education, and (3) the role of teachers in implementing entrepreneurship education planning to strengthen graduate employability and entrepreneurial capacity.

2 Research Method

This study employs a qualitative literature-based research design using a narrative literature review approach. Data sources consist of books, national and international peer-reviewed journal articles, government regulations, and official reports related to educational planning, vocational education, and entrepreneurship education. The literature was selected based on the following criteria: (1) relevance to educational planning or vocational entrepreneurship education, (2) publication period between 2019–2025, and (3) credibility of the sources.

The data analysis followed three main stages: (1) literature identification and classification, (2) data reduction through coding and thematic categorization, and (3) interpretation and synthesis of findings. The analysis applied thematic content analysis to identify recurring concepts related to planning models, teacher competencies, and entrepreneurship learning strategies. This approach enabled the formulation of analytical conclusions regarding effective entrepreneurship education planning in vocational high schools.

3 Discussion

This section presents and discusses the findings of the literature review by synthesizing key themes related to entrepreneurship education planning in vocational high schools (SMKs). The results are organized into four analytical dimensions: philosophical foundations, educational planning theories, planning models, and problem–solution perspectives. These dimensions explain how systematic planning and teacher roles influence the effectiveness of entrepreneurship education and graduate outcomes.

3.1 Philosophical Foundations of Educational Planning

The literature findings indicate that philosophical foundations strongly shape how entrepreneurship education is planned and implemented in vocational high schools. Progressivism, pragmatism, humanism, and constructivism consistently emerge as the most relevant philosophical perspectives because they emphasize experiential learning, creativity, problem-solving, and holistic human development. These philosophies support entrepreneurship-oriented planning that moves beyond theoretical instruction toward production-based and real-world learning environments.

The synthesis of philosophical perspectives and their implications for entrepreneurship education planning is presented in Table 1, which illustrates how philosophical orientations translate into planning strategies and entrepreneurial outcomes in SMKs.

Table 1. Synthesis of Educational Philosophy, Planning Implications, and Entrepreneurship Outcomes in Vocational High Schools

Educational Philosophy	Implications for Educational Planning	Impact on Entrepreneurship Education in SMKs
Progressivism	Learning plans emphasize experiential, student-centered, and problem-based approaches such as Project-Based Learning (PjBL) and Teaching Factory (TeFa). Curriculum is designed to integrate real-world projects and business simulations.	Enhances students' creativity, innovation capacity, problem-solving skills, and entrepreneurial mindset through hands-on business experiences.
Pragmatism	Educational planning prioritizes relevance to labor market needs, industry collaboration, and competency-based curricula aligned with real business practices.	Strengthens practical business skills, opportunity recognition, and students' readiness to start small-scale enterprises.
Humanism	Planning incorporates character development, self-directed learning, leadership training, and reflective entrepreneurship learning environments.	Builds self-confidence, independence, resilience, and ethical awareness essential for sustainable entrepreneurship.
Constructivism	Learning design emphasizes knowledge construction through experience, collaboration, and reflection, supported by production-based learning environments.	Supports entrepreneurial learning through experimentation, teamwork, and continuous innovation processes.

As shown in Table 1, The results show that progressivism and pragmatism strongly support experiential and production-based learning approaches such as Teaching Factory and project-based entrepreneurship programs. These philosophies justify entrepreneurship education planning that emphasizes creativity, innovation, and authentic market engagement. Meanwhile, humanistic and constructivist perspectives reinforce the importance of self-directed learning, collaboration, and character development. Collectively, these findings indicate that philosophical foundations do not merely provide abstract justification but directly guide curriculum orientation, teacher roles, and entrepreneurship learning strategies in vocational high schools.

Furthermore, the meaning of educational planning lies in its function to foster holistic human development. Educational planning based on philosophical principles ensures that learners grow not only intellectually but also physically, emotionally, morally, and spiritually. Thus, education becomes not just the transmission of knowledge but a means of nurturing civilized individuals. Educational planning that incorporates these dimensions helps ensure that every program and policy aligns with the human aspiration for a better life.

Therefore, the meaning of educational planning transcends technical and procedural aspects. It touches deeper philosophical dimensions and reflects universal human ideals. Such planning becomes a central pillar guiding the direction of education, helping create a system that is meaningful, adaptable, and grounded in fundamental human values.

3.2 Relevance of Educational Planning Theories to Entrepreneurship Education in SMKs

Hudson (1979) identifies four major theories of educational planning that serve as fundamental taxonomies: the radical (free) theory, the advocacy theory, the transactive theory, and the incremental theory[13]. Each theory offers distinct perspectives for designing educational systems according to contextual needs. Tanner (1981) later synthesized these theories into a comprehensive planning approach known as SITAR, intended to reduce the weaknesses of each theory when applied individually[14].

a. Radical Theory

The radical theory argues that each educational institution should have the freedom to develop its own plans. Planning is viewed as a managerial function that must adapt to developments in science, technology, society, culture, and the economy. This theory emphasizes institutional autonomy and recognizes the uniqueness of each educational setting.

b. Advocacy Theory

In contrast to the radical theory, the advocacy theory assumes that uniformity among institutions is necessary. Educational planning is based not only on empirical data but also on values, logic, and philosophical assumptions. This model often manifests in centralized planning by the government to ensure national cohesion, equal rights, and shared responsibilities.

c. Transactive Theory

The transactive theory emphasizes interactions among individuals in the planning process. Planning is seen not merely as a technical activity but as a forum for exchanging ideas, promoting consensus building. It is decentralized, human-centered, and encourages active participation among all stakeholders.

d. Incremental Theory

The incremental theory focuses on realistic capabilities and existing personnel. Planning is carried out carefully and gradually, based on previous achievements. It often results in short-term planning, which is more practical and easier to implement given resource limitations.

e. SITAR Theory

Tanner's SITAR theory synthesizes the four previous theories into a more comprehensive, flexible, and realistic planning model. This theory is highly relevant to vocational education, particularly SMKs, which face challenges such as low graduate absorption, curriculum-industry alignment, and the need for stronger industry partnerships [15].

The literature analysis reveals that among various educational planning theories, transactive, incremental, and SITAR approaches are the most relevant to entrepreneurship education in vocational high schools. These theories provide conceptual foundations for designing planning strategies that are collaborative, realistic, and sustainable. Transactive planning theory is consistently associated with effective entrepreneurship education planning because it emphasizes participation, dialogue, and stakeholder collaboration. The findings show that entrepreneurship programs are more effective when planning involves teachers, industry partners, MSMEs, and local communities in curriculum design, project development, and assessment. This collaborative approach supports the alignment of school-based entrepreneurship learning with real business practices and market needs[16].

Incremental planning theory emerges as particularly applicable in the SMK context due to institutional constraints related to facilities, funding, and teacher industry exposure. The literature indicates that entrepreneurship education is more sustainable when developed gradually through phased teacher training, progressive establishment of teaching factories, and continuous improvement of student business units.

Furthermore, SITAR theory provides an integrative framework that combines institutional autonomy, value-based planning, participatory processes, and continuous development. The findings suggest that this approach enables vocational schools to balance national education standards with local economic potential, making entrepreneurship education planning more adaptive to technological change and regional business ecosystems.

3.3 Analysis of Educational Planning Models for Entrepreneurship Programs

Educational planning can be executed using various models suited to specific national or institutional contexts. Some key models include:

a. Comprehensive Planning Model

This model examines change across the entire educational system. It considers all components curriculum, teachers, infrastructure, and societal development—providing a broad framework for integrated policy and program development.

b. Target Setting Model

This model focuses on projecting educational development based on measurable and realistic targets. Supporting analyses include:

- Demographic analysis and population projections
- Enrollment projections
- Workforce demand forecasting

Such projections help align educational output with labor market needs.

c. Costing and Cost-Effectiveness Model

This model analyzes financial efficiency and effectiveness in implementing educational programs. It evaluates which initiatives provide the best value relative to cost. This model ensures educational investments produce tangible long-term benefits.

d. Teaching Factory (TEFA) Model

TEFA integrates theory and practice by simulating real-world industrial environments within schools. It involves collaboration between schools and industry partners, supporting competency-based training and strengthening student readiness for employment[17].

The synthesis of literature identifies the comprehensive planning model and the Teaching Factory (TeFa) model as the most suitable planning frameworks for entrepreneurship education in vocational high schools. The comprehensive planning model supports the positioning of entrepreneurship education as an institutional strategy by aligning curriculum development, teacher competency enhancement, infrastructure planning, and industry partnerships within a unified system. Within this framework, the Teaching Factory model functions as an operational mechanism that transforms planning into authentic entrepreneurial learning experiences. The findings show that TeFa-based entrepreneurship education enables students to engage directly in product development, service provision, marketing activities, and quality control processes. This model also expands teacher roles from classroom instructors to business mentors and learning facilitators.

The literature further indicates that effective entrepreneurship planning involves mapping regional MSME potential, preparing teachers in entrepreneurial pedagogy, integrating production-based projects into the curriculum, and establishing student-managed enterprise units. These planning models support the development of entrepreneurial competencies, innovation capacity, opportunity recognition, and decision-making skills essential for preparing vocational graduates as both skilled workers and potential entrepreneurs.

3.4 Problem–Solution Analysis in Vocational Entrepreneurship Education Planning

Educational planning in vocational institutions involves several key aspects:

- Curriculum

Competency-based curricula are aligned with the Indonesian National Work Competency Standards (SKKNI). Curriculum development integrates technical skills, soft skills, and industry-required attitudes, developed collaboratively with industry partners [18].

- Human Resources (Teachers and Instructors)

Teachers with industrial experience play a crucial role in bridging the gap between school learning and real industrial practices. Continuous professional training ensures instructors remain updated with industry standards [19].

- Facilities

Workshops, laboratories, and teaching factories must meet industrial standards in terms of equipment, safety, and functionality. Proper facilities enable realistic learning environments and support competency-based training.

- Learning Methods

Project-Based Learning (PBL) and Work-Based Learning promote active learning through real projects and industrial internships. These methods enhance technical competence, problem-solving skills, teamwork, communication, and workplace readiness.

- Partnerships

Collaboration between vocational schools, industry, and MSMEs ensures curriculum relevance, provides internship opportunities, supports teacher training, and opens pathways for graduate entrepreneurship [20].

The results consistently identify several critical challenges in vocational education, including low graduate absorption rates, curriculum–industry mismatches, limited entrepreneurial competence among teachers, and inadequate production facilities. These problems reflect weaknesses in entrepreneurship education planning rather than solely in instructional practice. The literature shows that teacher competency gaps can be addressed through structured professional development, industry immersion programs, and entrepreneurship mentoring systems. These strategies position teachers as strategic planners and drivers of entrepreneurial culture within schools.

Curriculum–industry mismatches require transactive planning mechanisms that actively involve industry and MSMEs in curriculum synchronization, project design, and performance evaluation. Such collaboration ensures that entrepreneurship education reflects real business environments and market dynamics. Furthermore, limitations in infrastructure highlight the relevance of incremental planning approaches. The findings indicate that gradual development of teaching factories, business laboratories, and school-based enterprises aligned with regional economic potential significantly enhances entrepreneurship education outcomes.

In SMKs experiencing fluctuating graduate absorption rates, entrepreneurship education planning should prioritize teacher capacity building, institutionalization of TeFa-based programs, and long-term industry collaboration strategies. Evidence from best practices suggests that vocational institutions with integrated planning frameworks and strong teacher–industry engagement are more successful in producing graduates who are employable, innovative, and capable of initiating sustainable entrepreneurial ventures.

4 Conclusion

This study concludes that entrepreneurship education planning in vocational high schools must be grounded in strong philosophical foundations, supported by relevant educational planning theories, and operationalized through comprehensive and Teaching Factory–based planning models. The findings of this literature review indicate that the effectiveness of entrepreneurship education is strongly influenced by systematic planning that integrates teacher competence development, curriculum alignment with industry needs, and sustainable partnerships with industry and MSMEs.

The results further demonstrate that teachers play a strategic role as planners, facilitators, and drivers of entrepreneurial culture. Strengthening teachers' pedagogical and entrepreneurial competencies, supported by incremental infrastructure development and transactive

collaboration mechanisms, significantly enhances the relevance and sustainability of entrepreneurship education programs in SMKs.

Practically, this study implies that vocational schools should prioritize entrepreneurship-oriented educational planning that institutionalizes Teaching Factory programs, embeds production-based learning in the curriculum, and establishes long-term collaborative frameworks with industry and MSMEs. Such planning not only improves graduate employability but also fosters entrepreneurial capacity, enabling students to become job creators in an increasingly dynamic economic environment.

The contribution of this study lies in proposing a planning-oriented framework for entrepreneurship education that integrates philosophical, theoretical, and practical dimensions while positioning teachers as key strategic actors. Future research is recommended to conduct empirical field studies to validate this framework and to examine its impact on student entrepreneurial outcomes and graduate absorption rates.

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