Entrepreneurial Motivation among Vocational High School Students: A Hybrid Systematic Literature Review and Bibliometric Analysis

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Abstract. This paper is a systematic review of entrepreneurial motivations in vocational high school students considered a multi-layered phenomenon between macro educational policy and micro individual and situational factors. A systematic search, screening, and analysis of 43 peer-reviewed articles were conducted from 2018-2026, following the guidelines of PRISMA.. The gathered literature was subsequently evaluated using a qualitative thematic approach. The thematic synthesis revealed that entrepreneurship education was the most frequently investigated theme (37 of 43 studies) followed by self-efficacy (31 of 43 studies). A recurring tension emerged between theoretically oriented curricula and experiential learning , indicating that entrepreneurship education alone is insufficient without embedded practice. This synthesis is expanded on in this study by proposing an "Educational–Contextual Integration" framework to extend both Social Cognitive Career Theory (SCCT) and the Theory of Planned Behavior (TPB) by explicitly including family, institutional, and technological antecedents that have been addressed only partially in previous applications to vocational settings. The framework offers educators and policymakers a single analytical lens for aligning standardized curricula with authentic entrepreneurial mindsets among vocational learners. The review is limited to Scopus-indexed publications and highlights the need for future research using longitudinal designs and technology-enhanced learning measures.

Keywords: Entrepreneurial motivation, Entrepreneurship education, Self-efficacy, Teaching factory, Theory of planned behavior, Vocational high school.

1 Introduction

Vocational education systems worldwide are being reshaped by a growing consensus that 21st-century competencies are indispensable in preparing students for a shifting labor market. Capacities such as critical thinking, creativity, communication, and teamwork equip graduates to remain competitive in employment [1]. International labor market statistics underscore the need for this agenda, as youth unemployment is still structurally higher than adult unemployment globally, and the International Labor

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Organization (ILO) research indicates that active labor-market interventions combining skills training with entrepreneurship support consistently outperform traditional employment services in boosting the labor outcomes of youth.
[2]. In this broader framework, developing entrepreneurial skills of vocational high school students has emerged as a concern of vocational systems of developing and industrialized nations, a concern that attempts to combine readiness for the workforce and achievement of economic independence. However, vocational high schools continue to have difficulty consistently training students who are employable and entrepreneurs. The global tension is exemplified in Indonesia with the evidence that graduates of vocational high schools (SMK) have the highest unemployment rate, as indicated by the data at the national level. This is a similar pattern in other vocational systems, and raises doubts about the effectiveness of entrepreneurship education in fostering students' real interest in entrepreneurship.

Entrepreneurial activity supports national economies through job creation, and vocational schools are positioned as important incubators of future entrepreneurs. Even so, a number of studies point to weak entrepreneurial interest among vocational students, many of whom do not regard entrepreneurship as a realistic post-graduation path [3]. Realizing these educational aims in practice therefore demands attention to the micro-level realities — the specific experiences and circumstances that shape individual students. Although the benefits of entrepreneurship education are well established, putting it into practice still runs into structural obstacles. In particular, project-based approaches still have not been fully realized: learning is still primarily theoretical, despite the inclusion of activities like product development and business simulations. Some common constraints are limited time for instruction, needing better facilities/infrastructure, and teachers who are poorly prepared to develop project-based learning experiences [4].

A closer examination of the existing body of research points to several shortcomings that constrain a fuller understanding of entrepreneurial motivation in vocational settings. To begin with, the terminology varies inconsistently from study to study: entrepreneurial motivation, entrepreneurial intention, and entrepreneurial interest are treated almost interchangeably, even though these are conceptually separate constructs that shape the decisions and behaviors underlying entrepreneurial activity and, in turn, economic development [5]. This inconsistency is not just linguistic, but also a theoretical one, as tests of the Theory of Planned Behavior (TPB) and the Social Cognitive Career Theory (SCCT) with vocational students yield different patterns of significance for the variables of attitude, subjective norm, and self-efficacy, but these differences are not easily explained within one single theory. Methodological gaps further complicate this issue. Most existing reviews rely on simple narrative summaries rather than structured, replicable frameworks. Furthermore, key details—such as exact search strings, eligibility criteria, and quality appraisal protocols—are rarely disclosed, leaving future researchers with little basis to verify or replicate these findings.Finally, a contextual gap persists, as much of the existing review literature leans heavily toward cognitive determinants while giving comparatively little attention to equally relevant factors such as family background, hands-on experience, and institutional governance; relatively little is known about how these conditions combine across different vocational and national settings to give rise to entrepreneurial motivation in the first place.

This study as a theoretical perspective considers entrepreneurial motivation in vocational education as a complex socio-educational phenomenon, which is linked to macro level curriculum design and individual student factors. In terms of methodology, it integrates bibliometric mapping and qualitative thematic analysis, thus providing a more comprehensive picture of the research trends. In practice, the study draws together evidence across domains to provide actionable directions for practice with educators, highlighting the importance of experiential learning to motivate students. This inquiry is guided by these objectives, and the following research questions were created:
RQ1: How has research on entrepreneurial motivation among vocational high school students developed over time in terms of its trends and structure?
RQ2: In what ways do global theoretical frameworks intersect with local contextual conditions to account for entrepreneurial motivation among vocational high school students?
RQ3: In what ways do contextual influences including family background, school climate, and hands-on experience contribute to the formation of entrepreneurial motivation?

2 Literature Review

2.1 Theoretical Foundations

The Theory of Planned Behavior (TPB) has been considered as the main framework to explain entrepreneurial intention among vocational-school students at the macro level. Building on this framework, an earlier inquiry traced the connection between entrepreneurial intention and the success of entrepreneurship-education programs, arriving at a fuller account of the factors that push students toward entrepreneurial choices [6]. Elsewhere, social cognitive theory has been paired with TPB to explain the combined function of entrepreneurial self-efficacy and entrepreneurial mindset within entrepreneurship curricula, demonstrating that both constructs operate as mediating pathways linking such education to students' entrepreneurial intention[7]. At the micro level, Social Cognitive Career Theory (SCCT) offers another useful perspective. It shows how entrepreneurial knowledge, self-efficacy, and expected outcomes work together to shape students' entrepreneurial interest in vocational settings [8].

2.2 Entrepreneurship Education in Vocational Schools

Across many national systems, entrepreneurship education is treated as a key driver of economic growth, creative capacity, and innovation — a status that has led numerous governments to embed it as a compulsory subject at every schooling level. It usually combines the development of entrepreneurial attitudes and behaviour with practical skills in planning and running a business [9]. The overall objective is to provide entrepreneurial skills to the learners so they can spot business opportunities, set up business and venture into self-employment. Evidence of this pattern extends well beyond Indonesia: research on higher-vocational students in China finds that entrepreneurship education lifts entrepreneurial intention through a moderated-mediation pathway running through self-efficacy and risk propensity [10], while cross-national comparative work shows that the strength of the link between entrepreneurship education and subsequent business activity differs systematically from one education

system to another[11] a finding that underscores the relevance of this review's synthesis for vocational systems outside Indonesia as well.

2.3 Entrepreneurial Self-Efficacy

Entrepreneurial self-efficacy concerns the behavioral choices a person makes, the degree of effort they are prepared to commit, and their own sense of competence in running a business. This underlying self-belief shapes the confidence with which individuals confront the risks and openings that come with starting a new enterprise [12].

2.4 Entrepreneurial Mindset

An entrepreneurial mindset equips students to spot opportunities, weigh and accept calculated risk, and inject creativity and innovation into business operations. Students who develop this mindset are more inclined to view entrepreneurship as an appealing career path [13].

3 Methodology

To investigate entrepreneurial motivation among vocational high school students, this study combined a Systematic Literature Review (SLR) with a bibliometric analysis. Transparency and methodological rigor were maintained by following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) protocol throughout the review process. Scopus was chosen as the exclusive data source in light of its broad coverage of high-quality, peer-reviewed international journals within education and entrepreneurship research[14].

To identify literature that has relevance to the study, a targeted search string was used that consisted of three core concept groups: motivation terms ("entrepreneurial motivation" OR "entrepreneurial intention" OR "entrepreneurial interest"), vocational context ("vocational education" OR "vocational high school" OR "SMK" OR "secondary education"), and "entrepreneurship education. Journal articles published in English or Indonesian in peer-reviewed journals from 2018 to 2026 were searched. Four PRISMA 2020 stages—identification, screening, eligibility assessment, and inclusion—were used for article selection. We included empirical studies—whether quantitative, qualitative, or mixed-methods—that examined entrepreneurial motivation, intention, or entrepreneurship education specifically among vocational high school students. Conversely, we excluded research focused on higher education, conceptual papers, editorials, conference proceedings, abstracts, and articles unrelated to vocational schooling. The final corpus consisted of 43 articles after the process. Every study included was independently assessed for clarity of research aims, suitability of method, validity of measures (or in the qualitative studies, trustworthiness), and reporting.VOS viewer (version 1.6.20) was used to map publication trends, keyword co-occurrence, and thematic clustering across the bibliometric layer of the analysis. The qualitative layer, in turn, applied Braun and Clarke's six-phase approach to thematic analysis — familiarizing with the data,

generating initial codes, searching for candidate themes, reviewing those themes, defining and labeling them, and compiling the final report.

4 Results and Discussion

4.1 How Have the Trends and Structure of Research Evolved? (RQ1)

Scholarly output on entrepreneurial motivation among vocational high school students has expanded considerably, reflecting sustained academic attention to the topic. Creativity, innovation, problem-solving, and strategic decision-making are consistently identified in the literature as core competencies underlying student success [15]. Bibliometric mapping shows that entrepreneurship education, self-efficacy, entrepreneurial intention, and practical learning are the most prominent themes. However, expanding the curriculum is not enough. Implementation still runs into practical issues, including scarce resources, underprepared teachers, and teaching methods that fail to build real-world entrepreneurial skills [16]. Most existing studies focus heavily on entrepreneurship education, self-efficacy, and the family environment. However, research exploring how vocational students develop entrepreneurial skills within their specific local contexts is still quite limited [17].

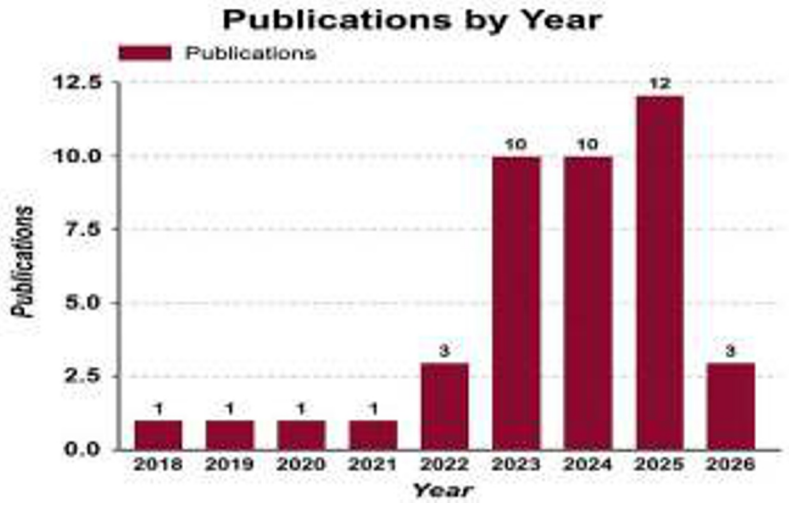


Figure 1. Publication by Year

Publications by Year (2018–2026). It was almost in the same level between 2018 and 2021, with an output of approximately 1 publication per year, and increased to 3 publications in 2023. This increased to 10 in 2024–2025 and then to 12 in 2025–2026, and then slowed somewhat to 3 in 2026–2027, mirroring a growing, but not yet fully established research field.

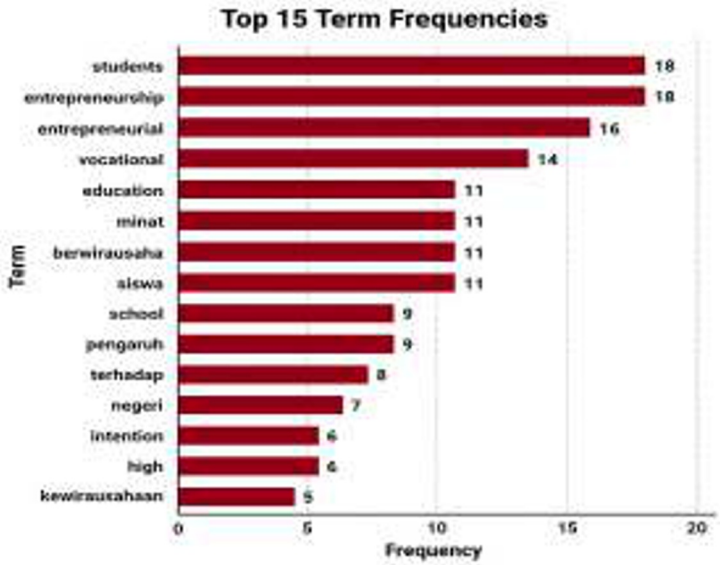


Figure 2. Top 15 Most Frequent Terms in the Literature.

Top 15 Most Frequent Terms in the Literature. Among the fifteen most frequently occurring terms, “students,” “entrepreneurial,” “vocational,” and “education” appear most often, underscoring the literature’s central focus on entrepreneurship education within vocational high schools. Frequent terms like 'interest (minat),' 'intention,' and 'school' show that researchers mostly view motivation through school-based programs and psychological factors. **Not**ably, terms denoting contextual or structural drivers — such as "family," "digital," "teacher," or "policy" — do not appear among the fifteen most frequent terms despite the substantial effect sizes these factors report within individual studies (Section 4.4). These results provide direct evidence of the contextual gap mentioned earlier. The field's core terms have fallen behind actual research findings, meaning factors like family, institutions, and technology receive much less theoretical attention than cognitive or teaching-related concepts..

4.2 Global Theoretical Perspectives and Local Contextual Dynamics (RQ2)

At the macro level, the international literature has produced a range of theoretical frameworks that account for how entrepreneurial motivation and intention take shape. These frameworks offer the conceptual groundwork needed to examine how individuals — vocational students in particular — develop an entrepreneurial orientation and make career choices.

Theory of Planned Behavior (TPB). Internationally, TPB stands as the most widely used framework for explaining entrepreneurial intention. Attitudes toward entrepreneurship consistently emerge as predictors of intention, whereas perceived behavioral control varies across contexts and subjective norms show considerable inconsistency. Within the TPB model, entrepreneurship education functions as both a moderating and a mediating variable [18].

Among Technical Secondary School students in Malaysia, only subjective norm showed a significant relationship with intention (β = .331, p = .000), whereas neither attitude (β = .064, p = .474) nor self-efficacy (β = .070, p = .438) reached significance [19]. Within Indonesia's SMK system, a gap persists between the aims of entrepreneurship education and actual unemployment outcomes. Applying TPB to SMK students' career planning, one study found that attitude, subjective norms, and perceived behavioral control each contribute significantly, both on their own and in combination.

Social Cognitive Career Theory (SCCT). Studies based on SCCT show how hands-on learning, self-belief, and expected outcomes shape entrepreneurial goals and actions. By focusing on career development, this approach offers clearer insights than conventional intention models [20]. In a study of 302 Indonesian vocational high school students, personal entrepreneurial motivation, entrepreneurial attitude, and entrepreneurial self-efficacy were all found to significantly shape entrepreneurial intention, with attitude and self-efficacy serving as critical mediators that convert baseline motivation into concrete intention — highlighting the value of strengthening these psychological pathways through formal schooling [3].

Shapero's Entrepreneurial Event Model. Complementing TPB, Shapero's Entrepreneurial Event Model (SEE) attributes entrepreneurial motivation to the joint influence of perceived desirability and feasibility. Evidence from Indonesia points to a synergy between these two frameworks, in which favorable attitudes, supportive social norms, and a strong sense of behavioral control reinforce one another to sustain entrepreneurial intention.

Push-Pull Framework. The Push–Pull Framework explains how external pressures, such as economic need or job scarcity, work alongside internal desires like independence and self-fulfillment to shape career choices. Often, shifting economic conditions and local job market demands push people to choose entrepreneurship as a practical solution[21]. How these factors operate depends heavily on context, as differences in socio-economic stability between developed and developing countries shape motivation in structurally different ways [22].

Synthesis of Macro-Level Internal and External Factors. At the macro level, entrepreneurial motivation arises from an ongoing interplay between internal cognitive traits and external ecosystem conditions. Evidence from Indonesia indicates that internal dispositions, such as locus of control, interact strongly with school support and parental encouragement to spark entrepreneurial intention — even in cases where a generalized need for achievement shows little direct effect on its own [23]. At the same time, project-based and collaborative experiential learning, in which instructors take on a mentoring rather than a purely lecturing role, meaningfully strengthens students' entrepreneurial motivation, tolerance for risk, and self-confidence through genuine, real-world business exposure[20].

4.3 Entrepreneurial Motivation among Vocational High School Students (Zoom In)

Moving beyond the macro-level frameworks discussed above, this section turns to the ground-level realities of entrepreneurial motivation within Indonesian Vocational High Schools (SMK). **The Indonesian Vocational High School Context.** The persistently high unemployment rate among SMK graduates suggests that entrepreneurship

education has not yet fully built an entrepreneurial culture: graduates acquire considerable technical skill yet still make up a disproportionate share of youth unemployment.

Personal entrepreneurial motivation, attitude, and self-efficacy each exert a significant influence on students' entrepreneurial intention, while career guidance integrated with entrepreneurship education plays a vital supporting role in career decision-making [24]—**effectiveness of Entrepreneurship Learning Models.** Vocational schools have increasingly turned to experiential, practice-based learning models. Entrepreneurship education proves most effective when theoretical content is paired with genuine business activity through "learning by doing," with teachers functioning as facilitators who build students' confidence and encourage them to see entrepreneurship as a viable career [18].

Self-Efficacy Dynamics. Other than formal interventions, the self-efficacy towards entrepreneurship also affects the motivation of students, although its effects are determined by the context, including the interactions of the family, the economic situation, access to resources, and practice[6].

4.4 The Role of Contextual and Institutional Factors (RQ3)

Family Environment and Parental Support. A strong, statistically significant relationship exists between parental support and entrepreneurial interest. Combined, family environment and entrepreneurship education account for 68.0% of the variance in entrepreneurial interest [21], and together with intrinsic motivation form a foundational ecosystem that nurtures entrepreneurial orientation [22].

School Environment and Learning Climate. Both entrepreneurship education and the school environment play a decisive role in shaping entrepreneurial mindsets and motivation. Each has a positive, statistically significant effect on students' entrepreneurial interest on its own, and jointly the two account for 41.2% of the variance in that interest [23]. From a curricular perspective, how well entrepreneurship programs succeed depends substantially on institutional inputs — such as qualified educators and sufficient infrastructure — together with structured processes aligned with national educational standards that allow entrepreneurial values to be genuinely internalized [25].

Practical Learning and Teaching Factory (TEFA). Combining theoretical study with hands-on involvement in business activities has proven effective in strengthening entrepreneurial intention—encouraging students to pursue entrepreneurship, plan to start a business right after graduation, and prioritize entrepreneurship as their first career choice. The Teaching Factory (TEFA) model, in particular, has a substantial effect on students' entrepreneurial interest, accounting for 63.3% of its variance. This reflects a broader aim of vocational education: reshaping graduates' mindsets so they are prepared not only to seek employment but also to become independent entrepreneurs [26].

While some studies report only moderate baseline levels of TEFA execution and student interest, a strong correlation nonetheless remains between creative, project-based instruction and entrepreneurial drive [27], [28]. Students' entrepreneurial mentality shifts noticeably once they engage directly in business practice, driven by **active participation alongside a supportive social environment and**

entrepreneurial attitude: within teaching-factory settings, attitude alone explains 87% of the variance in entrepreneurial interest, underscoring how central attitude formation is to motivation [29].

Together, entrepreneurship lessons and independent attitudes have a significant combined effect on vocational students' entrepreneurial motivation, explaining 80.7% of its variance, with the remaining 19.3% attributable to other factors[30]. **Multi-Factor Integration and the Educational–Contextual Integration Framework. Read** across the preceding sections, three cross-cutting patterns emerge. Entrepreneurship education and self-efficacy are essential, but they cannot work in isolation. Together, education and school-environment factors account for roughly 41% to 68% of the variance in students' entrepreneurial interest [23], [25], while attitude and self-efficacy consistently mediate the path from instruction to intention [4], [7]. Second, there is a clear paradox in the concept of family and institutional support as revealed in research. Some studies consider these factors only as background factors, others indicate that they are the main factors. In fact, family environment on its own accounts for just as much variance in student interest as complex educational models [19] a**s** multi-variable education models do [23], indicating contextual factors are undertheorized relative to their empirical weight. Third, there is a developmental pattern across the timeline (Figure 1): studies since 2023 tend to integrate TPB/SCCT constructs with practical and digital interventions, like TEFA, e-learning, and social media, instead of testing the constructs alone, and this is a maturing but still 'fragmented field [1], [31], [32] instead of testing individual components — a maturing but still disjointed field.

This study proposes the concept of Educational–Contextual Integration (ECI) that is based on these patterns. Based on this, entrepreneurial motivation is seen to be a product of three interrelated layers. First, a TPB based instructional layer connects curriculum design with attitudes and perceived behavioral control of students. Second, an SCCT-based psychological dimension is developed to connect classroom teaching with intention: self-efficacy and outcome expectancies. Thirdly, a contextual layer (family support, school environment, and institutional governance) is a more driving factor than background noise. Unlike previous uses of TPB or SCCT in vocational contexts, where it was used as a moderator, in the ECI model of context, family, institutional, and technological antecedents are co-equal third domains, with digital platforms being an enabling channel that cuts across all three domains as a non-subcategory of practical learning.

This is a dynamic relationship that takes place in the design of the curriculum, the skill of the teacher and the practical simulation environment. There is a strong and direct relationship between structured entrepreneurial practice and income expectations as well as entrepreneurial interest, with income expectations as the pathway between hands-on training and enduring interest in entrepreneurship[33]. The broader vocational education landscape also calls for blending traditional pedagogy with digital tools. E-learning platforms, in this respect, play a transformative role in reinforcing core academic proficiency alongside 21st-century competencies[1]**.**

Integrating digital tools produces measurable benefits, including a 21.3% gain in comprehension of creative entrepreneurship and an 18.6% improvement in identifying market demand and devising business solutions, while also accelerating technological proficiency in content creation, promotion, and online marketing [31]. In

fact, digital tools appear to have a stronger impact on entrepreneurial intention than conventional in-person workshops, with self-assessment and entrepreneurial desire emerging as the strongest predictors of intention. Social media platforms such as Facebook reinforce this pattern, showing a positive effect on vocational students' entrepreneurial interest [32]. Collectively, these findings suggest that digital platforms serve as essential learning mechanisms which, when combined with family and institutional support, help close the gap between vocational theory and current market practice. This trend mirrors a broader shift documented in the international literature, where digital entrepreneurship education is increasingly treated as a distinct field with its own competencies, pedagogies, and outcome measures rather than a simple extension of conventional entrepreneurship education [34]— a distinction the vocational-education literature reviewed here has only begun to draw.

Methodological Considerations in the Reviewed Literature. Most studies in this review rely on Structural Equation Modeling (SEM)—specifically PLS-SEM—to map how educational programs influence entrepreneurial intention. Researchers favor PLS-SEM because it effectively handles complex vocational variables while measuring the role of cognitive mediators like mindset and self-efficacy [7], given its strength in maximizing explained variance for multi-layered vocational predictors.

Practical Learning Effectiveness. Pairing entrepreneurship theory with direct business practice has been shown to strengthen students' marketing, opportunity-recognition, resource-management, interpersonal, learning, and strategic skills, making it an effective way to build entrepreneurial attitudes, self-confidence, and innovation capacity. Subjects such as food service business management, together with industrial work placements, contribute to the entrepreneurial competence of Vocational Education and Training students — with both classroom-based instruction and internship experience playing a role in that development [35].

Across the reviewed studies, teacher quality and institutional support consistently emerged as key determinants of entrepreneurial motivation and vocational learning outcomes. Practical learning enhances students entrepreneurial interest by providing authentic learning experiences the encourage active engagement in entrepreneurial activities[36]**.** Entrepreneurship educations becomes more effective when curriculum components integrate experiential learning, teacher facilitation, and innovation-oriented pedagogical practices that foster entrepreneurial motivation[37]. Moreover, institutional quality strengthens vocational education outcomes by improving teacher quality and the learning process, demonstrating the importance of effective school management in creating supportive learning environments [38]. The combined results of these findings indicate that: 1) the learning experiences of students have an influence on entrepreneurial motivation and 2) institutional and pedagogical conditions that support vocational education also have an influence on entrepreneurial motivation.

4.5 Research Gaps and Future Directions

The present review identifies some interesting areas for future investigations. Theoretically, the results are still not consistent with regard to the effect of entrepreneurship education on the self-efficacy, mindset and eventual intention of entrepreneurship[7]. Methodologically, the field still lacks adequate empirical

measures of students' actual entrepreneurial skills, favoring subjective intent over objective skill acquisition [9]. In practice, entrepreneurship courses often fall short of shifting student mindsets. The main issue is that many programs stick to classroom theory instead of letting students run real business projects alongside their studies [7] These implementation gaps point to a common conclusion: instruction is substantially more effective when it departs from lecture-based models toward active, experiential approaches such as Teaching Factory (TEFA), which requires future work examining how curriculum management, instructor competence, and institutionalized experiential platforms operate together [39].

5 Conclusion

This study reconceptualizes entrepreneurial motivation among vocational high school students by synthesizing Social Cognitive Career Theory (SCCT), the Theory of Planned Behavior (TPB), and a multi-factor contextual analysis into a single Educational–Contextual Integration (ECI) framework. The synthesis shows that, although current academic discussion remains heavily focused on individual self-efficacy, the interrelated roles of family environment, practical learning, and institutional support constitute a comparably weighted, yet historically under-theorized, set of pillars.

Theoretical contribution. In vocational contexts, the role of family and institutional and digital factors is usually considered secondary, with most applications of TPB and SCCT focusing on these as moderators. The ECI framework shifts the focus of these contextual components to a major component, on par with instruction (TPB) and psychology (SCCT). This provides TPB with an external reason for the large differences in subjective norms and behavioral control over time and across studies. It also builds on SCCT by highlighting that self-efficacy and outcome expectations are not solely internal, but can be influenced by the family, school, and digital contexts. Finally, this integration proves that vocational motive is the result of teaching, psychology and environment.

Methodological contribution. By pairing PRISMA-guided systematic review with bibliometric mapping and structured thematic analysis, this study offers a replicable protocol for future reviews in this field — addressing the transparency gaps common in earlier narrative reviews of vocational entrepreneurship literature.

Practical contribution. Within the ECI framework, educators and policymakers should be able to apply a test to an entrepreneurship curriculum that considers not only its instructional content, but whether it engages family and community stakeholders and includes structured practice like Teaching Factory (TEFA) programs and industry involvement [7]. This provides a blueprint for how active-learning initiatives can be integrated into the curriculum and attract the interest of businesses while developing skills for the 21st century, such as taking risks, leadership, critical thinking, and working together to solve problems, among others[9].

This study has its drawbacks, though. The main constraint is that it only includes articles that have been indexed in Scopus and are in English and/or Indonesian language, excluding relevant articles that have been published in regional journals or journals that are not indexed in Scopus. Not to mention the fact that the proposed ECI framework remains theoretical, and it has yet to be tested with primary field data.

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