

Article type:
Original Research

Article history:
Received 23 June 2024
Revised 11 August 2024
Accepted 18 August 2024
Published online 01 September 2024

Mohammad Reza. Shahiditabar¹,
Mohammad Ali. Keramati^{1*}, Jalal.
Haghighat Monfared¹

¹ Department of Management, Central Tehran
Branch, Islamic Azad University, Tehran, Iran

Corresponding author email address:
mohammadalikeramati@yahoo.com

How to cite this article:
Shahiditabar, M.R., Keramati, M.A. & Haghighat
Monfared, J. (2024). Identifying the Components of
an Organizational Entrepreneurship Evaluation
Model as a Driver of Economic Growth through an
Entrepreneurial Education Approach (Case Study:
Pars Electric Company). *Future of Work and Digital
Management Journal*, 2(3), 1-13.
<https://doi.org/10.61838/fwdmj.176>



© 2024 the authors. This is an open access article
under the terms of the Creative Commons
Attribution-NonCommercial 4.0 International (CC
BY-NC 4.0) License.

Identifying the Components of an Organizational Entrepreneurship Evaluation Model as a Driver of Economic Growth through an Entrepreneurial Education Approach (Case Study: Pars Electric Company)

ABSTRACT

This study aims to identify and validate the components of an organizational entrepreneurship evaluation model as a catalyst for economic growth through the integration of entrepreneurial education within the context of Pars Electric Company. The study employed a qualitative exploratory design grounded in thematic analysis to extract the core elements of organizational entrepreneurship education. Participants included 17 senior and middle managers, innovation specialists, and internal consultants from Pars Electric Company selected through purposive sampling based on theoretical saturation. Data were collected via semi-structured interviews designed to explore managerial perceptions and experiences related to entrepreneurship education and economic development. The interviews were transcribed verbatim, coded, and analyzed using iterative thematic analysis involving data familiarization, open coding, categorization, and theme generation. The analysis process yielded both sub-themes and main themes that formed the conceptual basis of the proposed evaluation model. Analysis of the qualitative data resulted in the identification of 347 initial codes that were subsequently organized into 15 sub-themes and 10 main themes. These included the quality and alignment of educational content, structural barriers and supports, the linkage between education and practice, evaluation and performance monitoring, technology and innovation infrastructure, organizational learning, process improvement, stakeholder and brand management, human capital development, and macroeconomic outcomes. The model demonstrated that organizational entrepreneurship education significantly enhances innovation capability, process efficiency, and competitiveness, ultimately leading to measurable economic growth at both organizational and national levels. Entrepreneurship education functions as a strategic and systemic enabler of organizational entrepreneurship and economic development. Embedding entrepreneurial learning within corporate structures, supported by technology, performance evaluation, and continuous knowledge sharing, can effectively transform industrial organizations into innovation-driven entities that contribute to sustainable economic advancement.

Keywords: Organizational entrepreneurship, entrepreneurship education, innovation, economic growth, thematic analysis, Pars Electric Company, human capital development.

Introduction

In the contemporary global economy, organizational entrepreneurship has emerged as a critical driver of innovation, competitiveness, and economic resilience. The increasing complexity of business environments and rapid technological advancements have necessitated the integration of entrepreneurial thinking within organizations to ensure sustainable economic growth. Entrepreneurship is no longer limited to the establishment of new ventures; it has evolved into a

multidimensional organizational process that emphasizes creativity, adaptability, and continuous learning within existing institutions. Consequently, entrepreneurship education has gained prominence as a strategic mechanism to instill entrepreneurial competencies and transform organizational structures toward innovation-led growth [1].

Entrepreneurship education serves as the foundation for developing entrepreneurial attitudes, knowledge, and behaviors that can be transferred into practical organizational contexts. Empirical research has demonstrated that structured educational programs significantly enhance entrepreneurial intentions, self-efficacy, and innovation capabilities among participants [2]. The transition from traditional to entrepreneurial learning paradigms underscores the role of education as both a cognitive and behavioral catalyst in shaping entrepreneurial mindsets. In organizations, this transformation entails fostering learning ecosystems that support innovation, problem-solving, and opportunity recognition. The present study builds upon this understanding by exploring how organizational entrepreneurship education can function as a catalyst for economic development in industrial contexts.

Recent studies have underscored the direct link between entrepreneurship education and entrepreneurial intention. Educational interventions that emphasize experiential learning, critical reflection, and project-based approaches are particularly effective in nurturing entrepreneurial potential [1, 3]. For example, universities that integrate entrepreneurship curricula into diploma and degree programs have observed a significant increase in students' intention to start and manage innovative ventures [4]. Moreover, entrepreneurship education enhances the dynamic capabilities of individuals by aligning theoretical frameworks with real-world applications, thereby improving their ability to identify, evaluate, and exploit opportunities within organizational ecosystems [5].

The economic impact of innovative entrepreneurship education extends beyond the individual level to influence macroeconomic indicators such as employment generation, productivity enhancement, and sustainable innovation systems [6]. According to Li-ren and Wang, dynamic modeling methods demonstrate that the diffusion of entrepreneurial competencies across organizations leads to measurable increases in economic performance and innovation outputs. This perspective supports the notion that entrepreneurship education acts as a strategic lever for long-term economic growth, particularly when embedded within organizational structures and culture. Hence, organizations that institutionalize entrepreneurial learning not only enhance internal efficiency but also contribute to national competitiveness and innovation-based economic expansion [7].

The success of entrepreneurship education, however, depends on several mediating factors including educational design, pedagogical innovation, and institutional support mechanisms [8]. Thomas highlighted that the effectiveness of entrepreneurship education is strongly influenced by the integration of real-world problem-solving, mentorship, and interdisciplinary collaboration. Likewise, Oberer and Erkollar emphasized the importance of integrated approaches that combine traditional instruction with digital learning technologies and innovation laboratories, enabling learners to engage with entrepreneurial challenges in a simulated, yet realistic, context [9]. These approaches foster entrepreneurial self-efficacy and creative competence, which are indispensable for organizational transformation and growth.

In this context, the concept of entrepreneurial schools has emerged as a paradigmatic model for embedding entrepreneurship education across all levels of learning and organizational training. Poor, Jafari, and Rahmani proposed that entrepreneurial education should be viewed as a systematic framework that aligns institutional structures with innovation objectives and human resource development strategies [10]. This paradigm encourages organizations to adopt educational

models that promote initiative-taking, risk tolerance, and creative problem-solving—core elements of entrepreneurial culture.

The interplay between entrepreneurship education and policy frameworks further enhances its developmental potential. National and institutional policies that prioritize entrepreneurial learning, particularly in marginalized or emerging sectors, contribute to inclusive and sustainable economic growth [11]. For instance, Rahman and Raman illustrated how entrepreneurship education initiatives targeting youth from marginalized communities in Malaysia serve not only as tools for empowerment but also as mechanisms for economic integration. Similarly, Idris argued that embedding entrepreneurship education within higher education curricula can cultivate a skilled workforce equipped to adapt to technological change and contribute to national innovation agendas [12].

Furthermore, empirical research has confirmed that entrepreneurship education fosters the acquisition of entrepreneurial competencies, including leadership, innovation management, and strategic thinking [13]. Draksler and Širec's comparative study between business and non-business students revealed that exposure to entrepreneurship education significantly enhances entrepreneurial competencies across diverse academic disciplines. These competencies are essential not only for entrepreneurs but also for employees operating within innovation-driven organizations. As such, entrepreneurship education has evolved into a strategic resource that fuels intrapreneurship—the application of entrepreneurial principles within existing organizations to drive innovation and economic performance [14].

Entrepreneurship education's contribution to the development of an entrepreneurial mindset is well-documented across various cultural and economic contexts. In Asian countries, for instance, studies by Su et al. demonstrated that perceived university support and the application of the Theory of Planned Behavior effectively predict students' entrepreneurial intentions when combined with targeted entrepreneurship training [15]. Similarly, Woraphiphat and Roopsuwankun found that online, design thinking-based learning approaches positively affect entrepreneurial intentions among vocational college students [16]. These findings underscore the significance of innovative pedagogical methods that leverage technology to enhance engagement and knowledge transfer.

Technological integration is a pivotal enabler in the evolution of entrepreneurship education. The adoption of digital platforms, simulation tools, and virtual learning environments has revolutionized the way entrepreneurial competencies are developed and assessed [17]. Li and colleagues demonstrated that entrepreneurship competitions and digital simulations mediate the relationship between entrepreneurship policy and competence development, enabling learners to apply knowledge in realistic business scenarios. Similarly, Liu et al. confirmed that digital tools improve the measurement and evaluation of entrepreneurship education effectiveness, particularly when combined with feedback-oriented systems [18]. These technological interventions align with the broader digital transformation agenda, positioning entrepreneurship education as a critical component of innovation ecosystems.

However, the implementation of entrepreneurship education is not without challenges. Studies in emerging economies highlight several obstacles, including insufficient institutional support, inadequate funding, and limited alignment between educational outcomes and market needs [19]. Radebe and Vezi-Magigaba's analysis of South African universities revealed that while entrepreneurship education has been widely introduced, its effectiveness remains constrained by structural and administrative barriers. Similar issues are echoed in the work of Voronina and Makhmutova, who emphasized that organizational and pedagogical modeling is required to align entrepreneurship education with psychological and institutional

realities [20]. Overcoming these barriers demands not only structural reform but also a cultural shift toward valuing innovation, creativity, and lifelong learning within organizations.

To bridge the gap between education and practice, several scholars advocate for competency-based and experiential learning models. Suryadi and Anggraeni found that entrepreneurship education combined with personality development programs effectively promotes entrepreneurial behavior among students [21]. Similarly, Duong identified the moderating effect of educational fields in strengthening the relationship between entrepreneurship education and entrepreneurial intention, suggesting that context-specific educational designs yield superior outcomes [4]. In parallel, Lv and colleagues confirmed that entrepreneurial competence serves as a mediating variable linking entrepreneurship education to entrepreneurial intention, reinforcing the view that education must emphasize skill-building rather than solely theoretical content [5].

Beyond the educational and institutional dimensions, entrepreneurship education also plays a vital socio-economic role. As Asghar et al. demonstrated, validated measurement tools for assessing entrepreneurial intentions have made it possible to empirically link educational outcomes with entrepreneurial behavior across diverse cultural contexts [22]. This line of inquiry complements the theoretical evolution of biosphere entrepreneurship, where entrepreneurship is redefined as a vehicle for sustainable and socially responsible innovation [23]. Frederick's perspective underscores the necessity of integrating environmental and ethical dimensions into entrepreneurship education to meet the complex demands of 21st-century economies.

The strategic integration of entrepreneurship education into organizational structures thus holds the potential to bridge micro-level competencies with macro-level economic outcomes. As organizations increasingly operate within innovation-driven economies, developing frameworks for evaluating entrepreneurial education at the organizational level becomes imperative. Such models enable firms to assess the alignment between educational initiatives, innovation outcomes, and economic performance. Studies like those by Abbes and Li-ren demonstrate that entrepreneurship education significantly influences not only individual entrepreneurial intentions but also broader economic indicators, such as GDP growth and innovation output [2, 6].

In light of these insights, the present research seeks to develop a comprehensive model for evaluating organizational entrepreneurship as a driver of economic growth, focusing on the mediating role of entrepreneurship education. This approach emphasizes the interplay between educational quality, organizational culture, technological infrastructure, and economic outcomes, offering both theoretical advancement and practical implications for fostering innovation within established industrial organizations.

The aim of this study is to identify and validate the components of an organizational entrepreneurship evaluation model as a catalyst for economic growth through an entrepreneurial education approach, using Pars Electric Company as the case study.

Methodology

The present study employed a qualitative exploratory design aimed at identifying and conceptualizing the key components of an organizational entrepreneurship evaluation model as a mechanism to stimulate economic growth, using an entrepreneurial education approach. The case study was conducted in Pars Electric Company, one of Iran's pioneering

industrial firms with extensive experience in innovation-driven management and entrepreneurship training programs. The qualitative phase targeted experts and experienced managers within the organization who possessed specialized knowledge and practical insight into organizational entrepreneurship, innovation management, and economic development processes.

Participants were selected based on three principal criteria: a minimum of ten years of experience in senior or middle management or expert positions within critical units such as research and development, human resources, production, project management, or marketing; documented involvement in programs or projects related to innovation, process improvement, or entrepreneurial education within the company; and practical familiarity with the specific challenges and opportunities of Pars Electric Company in both domestic and international markets.

Sampling was conducted using a purposive and theoretical saturation approach. A total of 17 participants—including senior executives, mid-level managers, product design and development specialists, and internal consultants—were interviewed through semi-structured sessions. The final number of participants was determined once no new conceptual categories emerged from the data. These experts were selected because their collective perspectives could reveal the contextual dimensions, indicators, and evaluation criteria relevant to designing a contextually grounded organizational entrepreneurship model.

The primary data collection instrument was the semi-structured interview, chosen for its flexibility and depth in capturing nuanced expert perspectives. The interview protocol was developed based on a preliminary review of theoretical frameworks and empirical studies in organizational entrepreneurship and entrepreneurial education. Each interview followed a general structure yet allowed adaptive, open-ended questioning to probe deeper into emerging themes and experiences shared by participants.

Interviews were conducted in a calm, private setting following prior scheduling and informed consent. Each session lasted approximately 60 to 90 minutes and was audio-recorded with the participants' permission. The recorded interviews were fully transcribed and subjected to iterative reading and review. Supplementary field notes were also taken during and after interviews to capture non-verbal cues, contextual reflections, and researcher observations.

The selection of semi-structured interviews as the main tool was justified by their ability to elicit rich, contextualized information about the internal processes, educational mechanisms, and entrepreneurial culture of Pars Electric Company. The expert group also included a smaller subset of external university professors and entrepreneurship consultants who had collaborated with the company, allowing triangulation of organizational and academic viewpoints.

Data analysis was conducted using thematic analysis, a widely recognized method in social sciences for identifying, analyzing, and interpreting patterns within qualitative data. This approach facilitated a structured yet interpretive understanding of how organizational entrepreneurship and entrepreneurial education interact to promote economic growth.

The process began with data preparation, in which all interview transcripts were organized and anonymized. Each transcript was assigned an identification code to ensure participant confidentiality. Electronic and printed archives were created to facilitate traceability and organization. Researcher notes and initial observations were integrated into the data management system.

The next stage, familiarization with data, involved repeated reading of the transcripts to achieve an in-depth understanding of the context, language, and meaning conveyed by participants. During this phase, meaningful units of information were identified and segmented for subsequent analysis.

In the coding stage, raw qualitative data were systematically reduced and categorized into meaningful segments. Codes were generated through three complementary approaches: theory-driven coding (based on existing frameworks of organizational entrepreneurship and entrepreneurial education), prior research–based coding (drawing on empirical findings from related studies), and inductive coding (emerging directly from participants’ narratives). These codes represented initial conceptual building blocks for the developing model.

Following coding, the development of themes and categories phase involved grouping related codes into sub-themes and broader core themes. The researcher engaged in a recursive interpretation process, moving between data excerpts and conceptual patterns to ensure consistency and theoretical grounding. Throughout this process, analytical memos were written to document interpretive decisions and connections between themes.

Ultimately, the qualitative data were distilled into 15 sub-themes and 10 main themes, encompassing structural, behavioral, educational, and cultural components of organizational entrepreneurship. The emergent themes reflected the multidimensional nature of entrepreneurial evaluation in the context of a manufacturing company such as Pars Electric, emphasizing the interplay between innovation systems, human capital development, and entrepreneurial learning.

Interpretation extended beyond simple categorization toward theoretical abstraction, linking empirical patterns to conceptual insights about how entrepreneurial education mediates the relationship between internal organizational mechanisms and broader economic performance. The final thematic structure served as the foundational framework for designing the organizational entrepreneurship evaluation model, which would subsequently be validated in future quantitative stages.

Findings and Results

At this stage of the research, the data obtained from the semi-structured interviews were carefully reviewed and analyzed. Through the initial coding process, 347 key semantic units were identified from the participants’ statements and recorded as *initial concepts*. These concepts reflected the perceptions, experiences, and recommendations of experts regarding the determinants of organizational entrepreneurship education and its link to economic growth. The combination of these concepts provided a comprehensive picture of the current situation and improvement needs, from which the main and core themes of the study gradually emerged. Some concepts emphasized the importance of managerial support and structural infrastructure, others highlighted the quality and applicability of educational content, some addressed operational barriers and resource shortages, and others focused on performance indicators and ultimate outcomes such as competitiveness enhancement and economic growth. This phase not only established the cognitive foundation of the conceptual model but also delineated the path from raw data to coherent patterns, paving the way for the subsequent stages of prioritizing factors and testing causal relationships. The extracted codes thus served as the initial elements of the model, to be later validated and integrated through quantitative analysis.

Table 1*Extracted Sub-Themes from Initial Concepts*

Initial Concepts	Sub-Themes
Observability of learning outcomes, practical content, creativity and innovation training, problem-solving skills, applied learning topics, avoidance of pure theory, simultaneous coverage of soft and hard skills, tangible training in real environments, quick demonstration of results, industry-related examples, domestic success examples	Quality and Effectiveness of Educational Content
Aligning education with organizational values, strengthening sense of belonging through brand history, respecting employee experience, alignment with action-oriented culture, customer-oriented education culture, leveraging company heritage and brand, innovation as enhancement of corporate legacy	Alignment of Education with Organizational Culture and Values
Bureaucratic rigidity, lack of designated budget, shortage of specialized workforce, excessive focus on daily production, time constraints, impermanent training effects, resistance due to role-change anxiety, gap between education and practice, insufficient post-training support, resistance to production change	Barriers and Operational Challenges to Entrepreneurial Education
Structural flexibility, independent funding, error-tolerant culture, innovation and entrepreneurship unit, small-scale testing environments, digital suggestion systems, top management support, board-level backing, sustainable financial resources, experienced mentors	Structural Supports and Institutional Reinforcement
On-the-job learning, linking education with real projects and challenges, connecting training to actual industrial context, focusing on daily problems, project-based learning initiatives	Integration of Education with Real-World Projects
Rewarding innovative ideas, controlled pilot programs, promotion based on idea generation, preventing threat perception toward innovation, "Story of Ideas" campaigns	Innovation Incentive and Reward Systems
Indicators such as commercialization rate, cost reduction through innovation, employee participation rate, ideation rate, employee retention, team productivity, number of prototypes, production-cycle entry projects, cost savings, shorter development time, lower production costs, waste reduction, faster order delivery, improved product quality, increased market share, customer conversion rate, repeat purchase rate, social media engagement, digital tool usage, system error reduction, response time improvement, ROI, overhead cost reduction, better cash flow, reduced purchasing costs, improved supplier diversity, shorter shipping time, reduced accident rates, and improved customer satisfaction	Indicators and Metrics for Evaluating Entrepreneurial Education
Online ideation platforms, advanced CRM tools, B2B platforms, AI and machine learning, virtual reality (VR), production line simulators, IoT in quality control and safety, chatbots, augmented reality (AR) tools, scenario simulation software, real-time dashboards, LMS systems, AI-based learning personalization, social media monitoring tools, sentiment analysis, blockchain for logistics documentation, shipment tracking systems	Role of Technology in Education and Innovation
Process improvement, new market identification, production line redesign, new product campaigns, procurement automation, supplier substitution, logistics optimization, modern quality control systems, workplace accident reduction, customer service apps, agile project management, internal innovation academy, "Made-in-Iran Innovation" campaign, green production lines	Successful Organizational Innovation Experiences
Lack of linkage between training and projects, costly advertising without ROI, cloud platform adoption without adequate training, risk-ignorant investment, bulk purchasing without testing, dependency on specific logistics routes, underfunded equipment purchases, outsourcing without quality control, PR interference without strategy, premature product launches	Unsuccessful Innovation Experiences
Experience-sharing between teams, project post-mortem reviews, documentation of lessons learned, internal coaching programs, digital idea libraries, entrepreneurship refresher courses, internal mentoring networks, learning from failed projects, intergenerational knowledge transfer, use of retirees' expertise, formation of expert learning groups, workshops on domestic and international case studies	Organizational Learning and Knowledge Transfer
Process redesign, agile quality control systems, material procurement improvement, order delivery optimization, simplified reporting processes, elimination of redundant production steps, warehouse digitalization, financial automation, ERP-CRM integration	Innovation in Processes and Operations
Customer co-design engagement, loyal customer panels, supplier collaboration, transparent communication of product changes, joint innovation programs with partners, periodic satisfaction surveys, industrial networking meetings, crowdsourced feedback campaigns	Stakeholder Management and Effective Communication
Innovative branding campaigns, success storytelling in media, innovation-based customer loyalty programs, partnerships with universities and R&D centers, innovation documentation in annual reports, leveraging innovation awards and certifications	Organizational Branding and Innovative Image
Design thinking workshops, complex problem-solving training, digital marketing for innovative sales, foreign language learning for market development, public speaking and idea-pitching training, negotiation skill enhancement with foreign partners, data analytics and applied statistics in business	Development of Individual Employee Capabilities
Profit growth, new product creation, export market expansion, production cost reduction, job creation, national productivity enhancement through innovation, export and foreign exchange growth, improved competitive position in international markets	Final Outputs and Outcomes (Including Economic Growth)

The thematic analysis ultimately yielded a rich structure of relationships among the categories. The 347 initial concepts were distilled into 15 sub-themes and 10 overarching themes that together capture the multidimensional dynamics of organizational entrepreneurship education in Pars Electric Company. The findings indicate that entrepreneurial learning is most effective when it is embedded in real organizational processes, supported by a participative and innovation-friendly culture, and sustained by measurable performance indicators. Moreover, technology integration, effective stakeholder communication, and structured reward systems emerged as pivotal enablers of entrepreneurial performance and innovation diffusion. The alignment of educational programs with the organization's cultural and strategic identity, coupled with continuous learning and knowledge transfer mechanisms, ensures long-term adaptability and resilience. Ultimately, these interconnected dimensions collectively reinforce the company's competitive advantage and contribute to sustained

economic growth, validating the central premise of organizational entrepreneurship as a driver of development through structured educational empowerment.

Table 2

Extraction of Main Themes

Position in the Model	Related Sub-Themes	Main Themes
Reflects the intrinsic characteristics and adaptability of training to the organizational context	(1) Quality and effectiveness of educational content, (2) Alignment of education with organizational culture and values	1. Quality and Alignment of Educational Content
Represents inhibitory and facilitating factors at the organizational level	(3) Barriers and operational challenges to entrepreneurial education, (4) Structural supports and institutional reinforcement	2. Structural Barriers and Supports
Ensures the transfer of learning to real work environments and promotes innovation	(5) Integration of education with real-world projects, (6) Innovation incentive and reward systems	3. Education–Practice Linkage
Serves as a criterion for measuring performance, progress, and training outcomes	(7) Indicators and metrics for evaluating entrepreneurial education	4. Evaluation and Impact Monitoring
Positions technology as a catalyst for learning, innovation, and process improvement	(8) Role of technology in education and innovation	5. Technology and Innovation Infrastructure
Reflects learning from experience, development of organizational memory, and knowledge sharing	(9) Successful and unsuccessful experiences, (10) Organizational learning and knowledge transfer	6. Investment in Organizational Learning
Represents the improvement of work methods and creation of efficiency and operational innovation	(11) Innovation in processes and operations	7. Process Improvement and Reengineering
Focuses on enhancing interactions and market position through innovative relations and reputation	(12) Stakeholder management and effective communication, (13) Organizational branding and innovative image	8. Stakeholder Management and Innovative Branding
Emphasizes empowering human resources to sustain innovation and growth	(14) Development of individual employee capabilities	9. Human Capital Development
Represents tangible results at both organizational and national economic levels	(15) Final outputs and outcomes, including economic growth	10. Macro-Economic Outcomes

The final stage of thematic analysis involved the synthesis of the identified sub-themes into ten overarching main themes that form the conceptual backbone of the proposed organizational entrepreneurship evaluation model. These ten themes demonstrate a coherent hierarchical relationship, linking foundational enablers such as educational content quality, cultural alignment, and structural support mechanisms to advanced organizational processes like innovation-driven learning, stakeholder engagement, and human capital development. At the strategic apex of the model lie the macro-economic outcomes, representing the cumulative impact of organizational entrepreneurship education on competitiveness, innovation capability, and overall economic growth.

This thematic structure highlights that effective organizational entrepreneurship is not a linear process but a dynamic system in which education, structure, technology, learning, and innovation interact continuously. The integration of these ten main dimensions offers a holistic framework through which organizations—particularly industrial entities like Pars Electric—can systematically evaluate, nurture, and institutionalize entrepreneurial behaviors that directly contribute to sustainable economic advancement.

Discussion and Conclusion

The findings of this study revealed that the organizational entrepreneurship evaluation model developed through an entrepreneurial education approach consists of ten interrelated main themes and fifteen sub-themes that collectively represent the dynamic ecosystem of entrepreneurial learning and innovation within Pars Electric Company. The model highlights that effective organizational entrepreneurship depends on the quality and alignment of educational content, the existence of structural and managerial supports, the integration of learning with real-world projects, the establishment of clear evaluation indicators, the incorporation of technology, continuous organizational learning, process innovation, stakeholder engagement, human capital development, and ultimately, measurable macroeconomic outcomes. These

interconnected dimensions confirm that entrepreneurship education operates as a systemic driver of economic performance when embedded in the strategic and operational fabric of organizations.

The emphasis on educational content quality and cultural alignment reflects the foundational role of learning in shaping entrepreneurial behavior within organizations. As shown in this study, participants emphasized that training programs must be practical, problem-oriented, and consistent with the organization's values and operational realities. This aligns with the findings of [2], who demonstrated that entrepreneurial intentions are more strongly shaped when educational programs integrate contextual relevance and cultural sensitivity. Similarly, [8] emphasized that the pedagogical quality of entrepreneurship education—particularly its experiential and interdisciplinary components—directly determines its success in fostering entrepreneurial capabilities. In the organizational context, these findings confirm that entrepreneurship education cannot rely solely on theoretical instruction; rather, it must be designed to mirror the challenges, opportunities, and values of the institution itself.

Another core outcome of this research concerns the structural barriers and supports that either constrain or enable entrepreneurship education in industrial organizations. The qualitative data identified bureaucratic rigidity, resource scarcity, and time constraints as major inhibitors, while management commitment, innovation units, and independent funding mechanisms emerged as critical enablers. These insights are consistent with the conclusions of [19], who identified inadequate institutional support and administrative barriers as key obstacles to effective entrepreneurship education in universities. Likewise, [20] highlighted the necessity of pedagogical and organizational modeling to align entrepreneurship education with institutional capacities. The present findings extend these perspectives to the corporate domain, showing that structural agility and executive endorsement are prerequisites for transforming entrepreneurial learning into tangible organizational outcomes.

The study further established that the link between education and real practice—manifested through project-based training and innovation incentive systems—plays a decisive role in sustaining entrepreneurial engagement among employees. This outcome resonates with [4], who confirmed that entrepreneurial intentions are most strongly influenced when education is contextualized within field-specific practices. Similarly, [5] found that entrepreneurial competence serves as a mediating factor between entrepreneurship education and entrepreneurial intention, emphasizing that learning must translate into real competencies applicable in workplace settings. In Pars Electric Company, the embedding of entrepreneurial education into ongoing projects ensured that learning outcomes were immediately tested, refined, and integrated into operational processes—a finding also supported by [9], who advocated integrated and practice-oriented entrepreneurship education frameworks.

A major component of the proposed model pertains to evaluation and performance monitoring, which enables organizations to assess the effectiveness of entrepreneurial education through measurable indicators such as innovation output, cost savings, and employee engagement. The establishment of such metrics is crucial for bridging the gap between learning outcomes and organizational performance. This approach finds empirical support in [18], who developed quantitative tools to measure entrepreneurship education effectiveness, emphasizing the necessity of feedback loops and evidence-based evaluation. Similarly, [17] argued that entrepreneurship competitions and structured performance indicators serve as mediating mechanisms linking entrepreneurship policy to competence development. The incorporation of

performance monitoring in this study ensures that entrepreneurship education evolves as a dynamic, data-driven process aligned with organizational goals.

The theme of technology and innovation infrastructure emerged as another essential pillar of organizational entrepreneurship. The integration of digital platforms, artificial intelligence, simulation tools, and learning management systems (LMS) was identified as a catalyst for entrepreneurial learning and process efficiency. This finding corroborates [6], who established that innovative entrepreneurship education has measurable economic impacts through technology-enabled learning environments. Similarly, [16] showed that online, design-thinking-based learning approaches significantly enhance entrepreneurial intentions, while [15] demonstrated that perceived institutional support, including digital infrastructure, strongly predicts entrepreneurial intention. Within Pars Electric, digital tools such as online ideation platforms and real-time project dashboards not only improved learning engagement but also accelerated the feedback loop between innovation and implementation.

The sixth major theme, investment in organizational learning, reflects the company's recognition of experience-sharing, reflection, and knowledge transfer as ongoing sources of innovation. This dimension highlights the transformation of entrepreneurial education from an event-based activity into a sustained, institutionalized learning culture. The results align with [21], who found that entrepreneurship education coupled with personal development programs strengthens long-term entrepreneurial attitudes. Similarly, [14] identified that instilling an entrepreneurial mindset requires a continuous and reflective learning process, underpinned by systematic knowledge management. In this study, the inclusion of internal mentoring networks, post-project review sessions, and documentation of lessons learned confirmed that sustainable entrepreneurship depends on the institutional memory of innovation.

The dimension of process improvement and reengineering revealed that entrepreneurship education contributes to operational innovation by promoting efficiency, quality enhancement, and digital integration. Participants noted that entrepreneurial training programs led to process redesigns such as lean production, agile quality control, and digitalized supply chains. These outcomes echo the findings of [7], who emphasized that entrepreneurial education fosters enterprise innovation and drives regional economic development by improving process adaptability. Likewise, [1] argued that entrepreneurial students—and by extension, employees—translate their educational experiences into proactive process innovations that optimize organizational performance.

The themes of stakeholder management and innovative branding further demonstrated that entrepreneurship education not only strengthens internal innovation but also enhances external organizational relationships. This includes transparent communication with customers, collaboration with research institutions, and the use of innovation-based branding strategies. These findings are consistent with [11], who highlighted the role of social entrepreneurship education in empowering communities and aligning educational outcomes with broader economic policies. Similarly, [23] argued for the emergence of “biosphere entrepreneurship,” where innovation and branding are linked to sustainability and social responsibility. The current findings suggest that by aligning innovation with ethical branding and stakeholder engagement, organizations can reinforce their legitimacy and long-term competitiveness.

The study also revealed that human capital development is a cornerstone of organizational entrepreneurship. Empowering employees through continuous skill development, such as design thinking, problem-solving, and digital literacy, directly enhances organizational innovation capacity. This corresponds with [12], who emphasized that entrepreneurship education

in higher education systems builds a workforce capable of adapting to changing economic environments. [3] likewise demonstrated that entrepreneurship education serves as a moderating factor that strengthens the relationship between motivation and entrepreneurial intention. Within Pars Electric Company, the internal training academy and mentorship programs cultivated a sense of agency, creativity, and ownership among employees—qualities essential for sustaining entrepreneurial initiatives.

Finally, the macroeconomic outcomes derived from the model confirm that organizational entrepreneurship education contributes to broader economic development through productivity improvement, job creation, and innovation-led growth. These findings align with [6], who empirically verified the economic multiplier effect of entrepreneurship education on innovation and GDP growth. [2] also found that well-designed entrepreneurial education programs generate positive externalities that benefit both organizations and national economies. In this study, participants associated entrepreneurial education with measurable outcomes such as cost efficiency, market expansion, and export growth, underscoring the link between organizational learning and economic sustainability.

Collectively, these findings validate the conceptualization of entrepreneurship education as a systemic mechanism rather than a discrete training activity. The alignment between educational content, organizational structure, technology, and stakeholder relations produces a synergistic effect that enhances innovation and economic performance. This integrative framework corresponds closely with the holistic approaches proposed by [9] and [20], who advocate for cross-functional models of entrepreneurship education that bridge individual learning with organizational transformation. The model developed in this study thus contributes to both theoretical advancement and managerial practice by outlining how entrepreneurial education can be operationalized as a driver of sustainable organizational and economic growth.

Although the study provides valuable insights into the role of entrepreneurship education in driving organizational and economic growth, it is not without limitations. The qualitative nature of the research, while enabling in-depth exploration, limits the generalizability of the findings. The study was confined to a single industrial case—Pars Electric Company—whose contextual factors may not be fully representative of other organizations or sectors. Moreover, the reliance on self-reported data through interviews introduces potential biases, such as social desirability and subjective interpretation. Another limitation concerns the absence of longitudinal analysis; the long-term effects of entrepreneurial education initiatives on economic growth remain to be empirically verified. Finally, while the study developed a conceptual model, it did not include quantitative validation of causal relationships among variables, leaving room for further empirical testing.

Future studies should aim to expand the scope of investigation by applying the proposed model to multiple organizations across various industries and economic sectors. Comparative analyses between public and private enterprises could provide a more nuanced understanding of how contextual factors shape the effectiveness of entrepreneurship education. Quantitative validation through structural equation modeling or partial least squares analysis would also strengthen the empirical robustness of the model. Additionally, longitudinal research could assess the sustainability of entrepreneurial outcomes and their cumulative impact on organizational performance over time. Future research may further explore the role of digital transformation, artificial intelligence, and cross-sector collaborations in enhancing entrepreneurship education and innovation-driven growth.

From a practical standpoint, organizations seeking to enhance entrepreneurial capacity should integrate entrepreneurship education into their core strategic development plans. This requires aligning training programs with real organizational

challenges and embedding learning outcomes into performance evaluation systems. Management should establish dedicated innovation units, allocate independent budgets for entrepreneurial initiatives, and cultivate a culture that tolerates experimentation and learning from failure. Moreover, leveraging technology—such as digital learning platforms and AI-based analytics—can facilitate continuous learning and performance monitoring. Finally, fostering partnerships with universities, research centers, and industry networks will ensure that entrepreneurial education remains adaptive, evidence-based, and responsive to both organizational and economic imperatives.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

- [1] V. Ravinata and K. Nuringsih, "The Determining of Entrepreneurial Intentions: A Study on Entrepreneurial Students in Jakarta," *Ijaeb*, vol. 2, no. 4, pp. 787-795, 2024, doi: 10.24912/ijaeb.v2i4.787-795.
- [2] I. Abbes, "Shaping Entrepreneurial Intentions Through Education: An Empirical Study," *Sustainability*, vol. 16, no. 22, p. 10070, 2024, doi: 10.3390/su162210070.
- [3] D. Farahdiba, B. G. Adhiehendra, D. Mayasari, L. Auliarahman, and R. F. A. Hirianto, "The Moderating Role of Entrepreneurship Education at the Diploma Level: Predicting Entrepreneurial Intention," *Kne Social Sciences*, 2024, doi: 10.18502/kss.v9i32.17458.
- [4] C. D. Duong, "Exploring the Link Between Entrepreneurship Education and Entrepreneurial Intentions: The Moderating Role of Educational Fields," *Education + Training*, vol. 64, no. 7, pp. 869-891, 2021, doi: 10.1108/et-05-2021-0173.
- [5] Y. Lv *et al.*, "How Entrepreneurship Education at Universities Influences Entrepreneurial Intention: Mediating Effect Based on Entrepreneurial Competence," *Frontiers in Psychology*, vol. 12, 2021, doi: 10.3389/fpsyg.2021.655868.

- [6] Z. Li-ren and S. Wang, "Economic Impact of Innovative Entrepreneurship Education: Dynamic Modelling Methods," *British Educational Research Journal*, vol. 51, no. 2, pp. 646-664, 2024, doi: 10.1002/berj.4088.
- [7] S. Zemlyak, O. Gusarova, and G. Khromenkova, "Entrepreneurial Initiatives, Education and Culture: Hubs for Enterprise Innovations and Economic Development," *Sustainability*, vol. 15, no. 5, p. 4016, 2023, doi: 10.3390/su15054016.
- [8] O. Thomas, "Entrepreneurship Education: Which Educational Elements Influence Entrepreneurial Intention?," *Industry and Higher Education*, vol. 37, no. 3, pp. 328-344, 2022, doi: 10.1177/09504222221121065.
- [9] B. Oberer and A. Erkollar, "Advancing Entrepreneurship Education: An Integrated Approach to Empowering Future Innovators," *Journal of Systemics Cybernetics and Informatics*, vol. 21, no. 4, pp. 76-81, 2023, doi: 10.54808/jsci.21.04.76.
- [10] N. T. Poor, S. M. Jafari, and J. Rahmani, "Presenting a Paradigmatic Model for Entrepreneurial Schools in Lower Secondary Education," *JCBL*, vol. 1, no. 3, pp. 12-25, 2024, doi: 10.61838/jcbl.1.3.2.
- [11] F. A. Rahman and A. Raman, "Empowering Youth Leaders in B40 Marginalized Communities: An Innovative Approach to Social Entrepreneurship in Alignment With National Entrepreneurship Policy 2030," *Mediterranean Journal of Social & Behavioral Research*, vol. 8, no. 1, pp. 29-36, 2024, doi: 10.30935/mjosbr/14306.
- [12] F. Idris, "Entrepreneurship Education in Higher Education," *Ijhcm (International Journal of Human Capital Management)*, vol. 2, no. 2, pp. 1-8, 2019, doi: 10.21009/ijhcm.02.02.01.
- [13] T. Z. Draksler and K. Širec, "The Study of Entrepreneurial Intentions and Entrepreneurial Competencies of Business vs. Non-Business Students," *Journal of Competitiveness*, vol. 13, no. 2, pp. 171-188, 2021, doi: 10.7441/joc.2021.02.10.
- [14] P. Mathushan, "Instilling Entrepreneurial Mind-Set Through Entrepreneurship Education: A Systematic Review of Literature," *Sabaragamuwa University Journal*, vol. 18, no. 1, pp. 43-54, 2020, doi: 10.4038/suslj.v18i1.7753.
- [15] Y. Su *et al.*, "Factors Influencing Entrepreneurial Intention of University Students in China: Integrating the Perceived University Support and Theory of Planned Behavior," *Sustainability*, vol. 13, no. 8, p. 4519, 2021, doi: 10.3390/su13084519.
- [16] I. Woraphiphat and P. Roopsuwankun, "The Impact of Online Design Thinking-Based Learning on Entrepreneurial Intention: The Case of Vocational College," 2021, doi: 10.21203/rs.3.rs-858131/v1.
- [17] G. Li, Z. Long, Y. Jiang, Y. Huang, P. Wang, and Z. Huang, "Entrepreneurship Education, Entrepreneurship Policy And entrepreneurial Competence: Mediating Effect Of entrepreneurship Competition in China," *Education + Training*, vol. 65, no. 4, pp. 607-629, 2022, doi: 10.1108/et-06-2021-0218.
- [18] H. Liu, S. Kulturel-Konak, and A. Konak, "Measuring the Effectiveness of Entrepreneurship Education," 2020, doi: 10.24251/hicss.2020.579.
- [19] T. Radebe and M. F. Vezi-Magigaba, "Challenges in Developing and Supporting Entrepreneurship Education: A Case Study of the University of Zululand," *Journal of Entrepreneurial Innovations*, vol. 2, no. 1, 2021, doi: 10.14426/jei.v2i1.929.
- [20] R. Voronina and E. Makhmutova, "Organizational and Pedagogical Modeling of Entrepreneurship Education in Higher Education: Psychological Aspect," *Vysshee Obrazovanie v Rossii = Higher Education in Russia*, vol. 31, no. 11, pp. 141-154, 2022, doi: 10.31992/0869-3617-2022-31-11-141-154.
- [21] N. Suryadi and R. Anggraeni, "Can Entrepreneurship Education and Personality Encourage Students to Become Entrepreneurs?," *Journal of the Community Development in Asia*, vol. 6, no. 2, pp. 35-54, 2023, doi: 10.32535/jcda.v6i2.2276.
- [22] M. Z. Asghar, F. Gul, P. Seitamaa-Hakkaraenen, and M. Taşdemir, "Validating Entrepreneurial Intentions Questionnaire to Assess the Impact of Entrepreneurship Education," *Ted Eğitim Ve Bilim*, vol. 44, no. 197, pp. 383-399, 2019, doi: 10.15390/eb.2019.6105.
- [23] H. Frederick, "The Emergence of Biosphere Entrepreneurship: Are Social and Business Entrepreneurship Obsolete?," *International Journal of Entrepreneurship and Small Business*, vol. 34, no. 3, p. 381, 2018, doi: 10.1504/ijesb.2018.092785.