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Research Article

Sustainability of Micro-Businesses in the Digital Era: The Potential of Entrepreneurship Education

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ABSTRACT

Introduction: Global enterprises primarily function through micro-enterprises since they represent greater than 90 percent of worldwide business entities. The lack of resources together with the challenge of implementing digital solutions leads small businesses to fail repeatedly. Since the digital age entrepreneurial learning emerged as the essential sustainability force which strengthens businesses and gives them more market options.

Objectives: A comprehensive research evaluates how entrepreneurial learning generates sustainable conditions for micro-enterprises throughout the advancement of technology.

Methods: The research combines analysis of ten micro-entrepreneur interviews with PRISMA framework-guided systematic literature review to validate practical learning structures and mentorship networks along with digital literacy skills as sustainability core drivers though structural gaps and knowledge deficits persist.

Results: The research finds that learning through collaborative programs improves both business digital acceptance and operational speed.

Conclusions: The success of entrepreneurship learning depends on three main elements which are material relevance combined with practical delivery and mentor and networking support. The digital era requires entrepreneurship learning to promote digital technology adoption in micro businesses since some organizations face barriers from limited resources along with technical knowledge gaps.

Keywords: Sustainability, Entrepreneur, Education, Digital, Business

INTRODUCTION

The modern digital age depends on micro-businesses to propel economic development besides supporting entrepreneurial growth. A large number of employment opportunities and innovative solutions stem from small business ventures that function with just one or two employees (Autio et al., 2017). The sustainability of micro-businesses stands as a critical issue while the market trends evolve rapidly and technologies advance quickly. Entrepreneurial abilities coupled with expertise of owners and managers enable these enterprises to succeed in maintaining their digital position and market competitiveness (Secundo et al., 2016). The digital revolution transformed business operations by creating numerous benefits while producing both opportunities and problems which affect micro-businesses. Digital platforms together with e-commerce and online marketplaces have created new channels through which micro-businesses can access more customers and markets and access unattainable business possibilities (Giones & Brem, 2017). The widespread adoption of technology has removed barriers to competition since micro-businesses employ digital instruments together with entrepreneurial methods for competing against major enterprises (Olanrewaju et al., 2020). The combination of social media and online marketing serves micro-businesses as strong tools for establishing brand recognition and client interaction regardless of their reduced spending on promotional activities (Bocconcelli et al., 2016).

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Micro-business owners face considerable difficulties in utilizing digital economy potential because technological changes proceed quickly while digital tools become increasingly complex and because they lack digital literacy, technical skills, and necessary resources (Li et al., 2018). A majority of micro-business operators face difficulties to adapt their operations to the ongoing digital landscape transformation because they cannot control the overwhelming number of digital instruments and platforms accessible today (Nambisan, 2017). Micro-businesses find it difficult to use technology for growth and enhanced efficiency because they lack digital skills that would help them achieve better competitiveness (Deursen & Van Dijk, 2019).

The digital age provides micro-businesses with additional security issues regarding cybersecurity along with data privacy and online brand image needs (Osorio-Gallego et al., 2016). Micro-businesses lack sufficient resources and knowledge to protect themselves from cyber threats and data breaches as well as online fraud (Alonso Dos Santos et al., 2020). A company's inability to adequately protect its customer data poses enormous risk especially to a micro-business because such an act destroys customer trust and therefore brand image (Sousa & Rocha, 2019). Entrepreneurship education is increasingly seen as a way to teach micro-business owners the skills and attitudes required to manage the challenges of the digital era (Nabi et al., 2017). The educational practice for entrepreneurship includes full training solutions through workshop and mentorship-based educational courses that promote entrepreneurship skills while stimulating the creation of innovation and sustainable business (Rippa & Secundo, 2019). The provision of strategic educational resources and support to micro-business through entrepreneurship education leads to digital literacy opportunity thus allowing the micro-business to optimally leverage technology in order to achieve growth objectives (Sahut et al., 2021).

The impact of modern media on entrepreneurship education can be to make sure a sustainable operation is done (in small enterprises). Entrepreneurship education allows micro-business owners to learn the basic digital skills necessary for online advertising as well as e-commerce and social media management along with data processing skills (Zhang et al., 2014). A micro business owner learns these digital skills uses digital platforms effectively. Thus, they reach new clients and optimize their online presence. Additionally, they apply data-based choices to boost results (Rae, 2017). The provision of entrepreneurship education results toward building an entrepreneurial mindset that supports innovative behaviour along willingness to take risks, adaptability, and resilience (Priyono & Hidayat, 2024). In the digital age, micro-enterprises need crucial abilities to transform and condition their business operations against market changes since adaptability determines their business sustainability and development (Sutrisno et al., 2023). Training in entrepreneurship offers micro-business owners with courses and mentorship schemes which facilitate a strong networking opportunity and help in bringing about a sustainable growth (Belitski & Heron, 2017). Micro-business owners who attend entrepreneurship education programs develop new partnerships and seek funding assistance through their access to expert fellow entrepreneurs and potential investors. Through networking activities micro-business owners gain supplementary help through mentorship and motivational support that addresses their digital struggles and supports long-term success (Henry & Lewis, 2018).

OBJECTIVES

The research examines obstacles which stop micro-enterprises from using digital tools as a strategy for competitive development and sustainability maintenance. This study invests thorough research into entrepreneurship instruction because it serves as a fundamental tool which removes expertise gaps through education that inspires owners of small businesses to think innovatively. The analysis evaluates specific performance outcomes resulting from these educational programs to boost micro-enterprise sustainability and operational performance in current fast-moving digital market environments. The research investigates tested procedures which design training curricula that address resource limitations together with small business startup barriers. The research produces operational recommendations for conducting such training methods. The study serves as a foundation for policymakers to accompany educators and business support entities while implementing entrepreneurship instruction as a core solution to strengthen micro-enterprise sustainability within the developing digital economy.

METHODS

This study uses a mix method of research which combines a semi-structured qualitative interview method to explore the role of entrepreneurship learning in building sustainable micro enterprises in the digital era with quantitative

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systematic literature review (SLR) through the PRISMA approach This systematic literature review (SLR) used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework approach to ensure methodological rigor, transparency, and reproducibility. The PRISMA guideline encourages investigators to conduct systematic phase studies involving identification, screening, eligibility assessment and final inclusion. A broad database search began at Scopus using its platform. There were duplicate records which were removed through a system followed by the screening of titles and abstracts that complied with the entry criteria defined by the researchers. After carefully reading the entire text of relevant articles, they were evaluated with respect to the study aim using the themes of motivation, learning strategies, success factors, and technology. Screening debates were settled by consensus of reviewers. The final selection of 20 studies was visualized using a PRISMA flow diagram, which documented the attrition process and justified exclusions in a transparent manner. By adhering to the standard PRISMA protocol, this SLR minimized bias, enhanced replicability, and ensured systematic synthesis of evidence critical to understanding the dynamics of entrepreneurial learning in the microenterprise context with search queries (("entrepreneurial learning" OR "entrepreneurship education" OR "entrepreneurship training" OR "entrepreneurial competence*" OR "entrepreneurial skill*") AND ("micro business*" OR "micro enterprise*" OR "micro entrepreneur*" OR "micro firm*" OR "micro venture*" OR "micro company*") AND (sustainable* OR "long-term success" OR "business continuity" OR viability OR resilience) AND ("digital era" OR "digital age" OR digitalisation OR digitalization OR "digital technolog*" OR "digital transform*")). The blended research method was chosen because it allows for a deep understanding of the specific experiences, perspectives, and contexts of micro business owners and mapping of relevance to existing journals and research proceedings.

Structured interviews involved 10 micro business owners with diverse backgrounds. The criteria for selecting resource persons are as follows:

1. Have been running a business for at least 1 year, to ensure that the resource person has sufficient experience in managing micro businesses.
2. The business scale is still classified as a Micro Business with a maximum asset of Rp 50,000,000 and a maximum turnover of Rp 300,000,000 per year, in accordance with the definition of micro business according to Indonesia Law Number 20 of 2008 concerning Micro, Small, and Medium Enterprises.
3. There is no age limit, but you must be old enough to manage your business independently, which is at least 18 years old in accordance with the legal age of majority in Indonesia.
4. There are no restrictions on the selection of business fields.
5. Have a varied level of education and entrepreneurial learning background, ranging from formal education, courses/training, mentoring, to self-taught learning, to capture a diversity of perspectives and experiences.

Structured interviews are conducted individually with a duration of about 30-90 minutes per interviewee. The interview guide was developed based on literature review and discussion with an expert panel consisting of academics and practitioners in the field of entrepreneurship and MSMEs.

Table 1. List of Interview Questions.

Problem Formulation	Indicators	Sub-Indicators
What is your background and motivation in starting the micro business that you currently have?	Background, Motivation	Reasons for starting a business
What is your experience in running a micro business so far? What challenges do you often face?	Experience, Challenges	Business travel, obstacles faced
How important do you think entrepreneurship learning is in managing and developing micro businesses?	The role of entrepreneurship learning	Perception of the importance of learning
What forms of entrepreneurship learning have you participated in?	Forms of learning	Types of learning followed

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How has the entrepreneurial learning you gained impacted the development of your capabilities and competencies as a business owner?	Learning impact	Capability development, Competency improvement
In your experience, what factors determine the most successful implementation of entrepreneurship learning in the context of micro-enterprises?	Success factors	Increased turnover, efficiency, innovation
To what extent have your micro businesses leveraged digital technology in their operations and business development?	Adoption of digital technology	Determinants of successful implementation
What is the role of entrepreneurship learning in driving the adoption of digital technology in your micro business?	Entrepreneurial learning drives adoption	Obstacles faced, Strategies to overcome
What do you think is the ideal entrepreneurship learning for micro entrepreneurs?	Ideal learning	Utilization in operations & development
What advice or recommendations would you like to convey to other micro business actors regarding entrepreneurship learning?	Learning advice	Perception of the importance of digital adoption

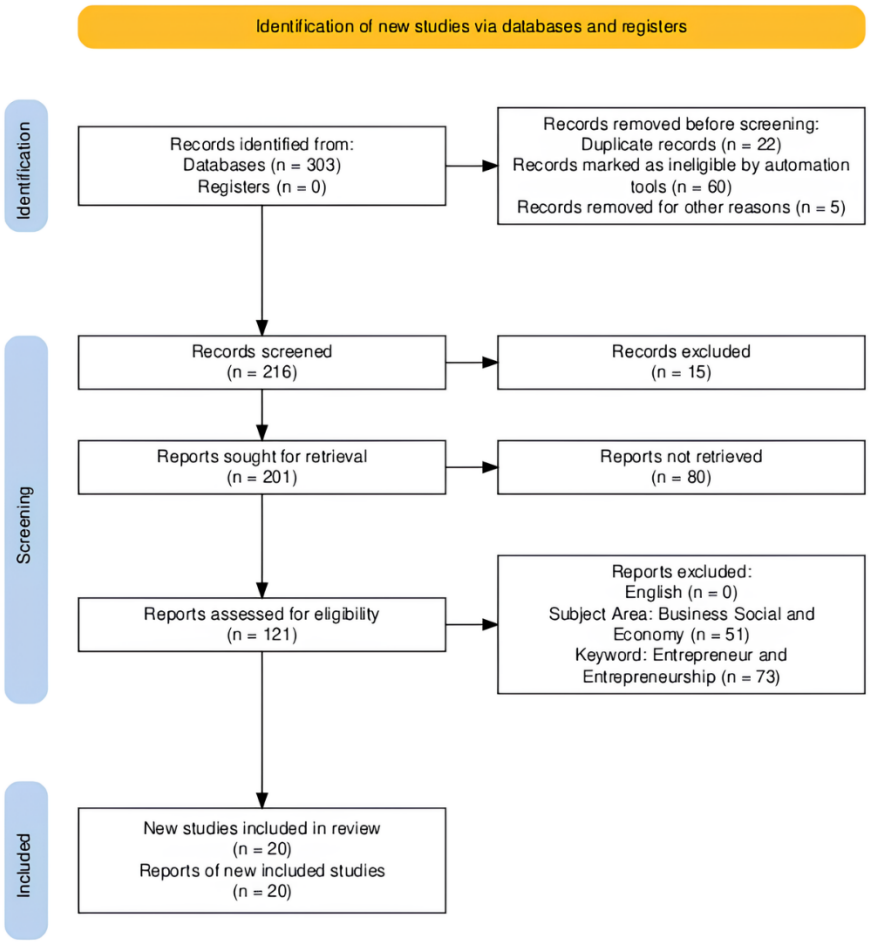

Figure 1. PRISMA Flow Diagram

This research is guided by several Research Questions (RQ) as follows:

1. What is the role of entrepreneurship learning in building micro business sustainability in the digital era?"

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2. What is the three-field plots of entrepreneurship education in building a sustainable business?
3. What is the tree maps of entrepreneurship education in building a sustainable business?

A Systematic Literature Review (SLR) presents itself as a step-by-step plan for understanding all essential research results that pertain to researcher interests regarding their questions and study subjects. SLR analysis helps merge research findings with the identification of research gaps and offers fundamental structures for new research work besides serving as proof for assumptions and guiding future research mapping activities.

RESULTS AND DISCUSSION

Motivation and Background of Entrepreneurship

Understanding the driving forces behind entrepreneurship is critical to appreciating how micro-businesses emerge and thrive. Many individuals are propelled into entrepreneurship not just by economic necessity but by a deeper desire to create meaningful impact. This aligns with global trends where passion and social responsibility increasingly influence business ventures.

Most of the participants revealed that the desire to realize their passion and create jobs for themselves and others is the main motivation in starting a micro business. As stated by Participant 1, *"I want to create something useful and can open up job opportunities for people around me."* In addition, family background and education also play a role in encouraging them to enter the world of entrepreneurship. Participant 3 revealed, *"I grew up in a family that had a small business, so the entrepreneurial spirit was embedded from an early age"*. The interview findings demonstrate that Participant 1 makes his business establishment a priority for creating favorable changes across society. Micro-entrepreneurs perform profit-oriented business activities together with projects that support social benefits.

From the interview data, it appears that micro-entrepreneurs target personal achievement and social betterment. The interviewee shows this emerging awareness by making job creation his business objective. According to participant 3, it grows business ideas as family background involved in business discussions from young age. The narratives reveal micro entrepreneurs utilising business activities to produce social good apart from monetary profit.

Forms and Impact of Entrepreneurship Learning

Business owners need crucial capabilities from entrepreneurial education to thrive in difficult market circumstances. Basic knowledge is provided to students through structured learning and workshops which help bridge the theoretical practice gap. Main business owners of micro enterprises accumulate entrepreneurial know-how through multiple educational formats that include training programs and educational curricula together with both business mentoring services and seminars.

Participant 5 shared her experience, *"I took some business and financial management training that was very helpful in managing a business."* Learning that provides relevant knowledge to business requirements produces useful advantages for the operations of micro business actors. Through business and financial management training, Participant 5 gained knowledge and skills that can be directly applied in managing their businesses more effectively and efficiently.

Entrepreneurship education produces meaningful improvements regarding entrepreneurial skills for both competences and capabilities of entrepreneurs. Participant 7 emphasized, *"After participating in business mentoring, I am more confident in making strategic decisions and facing challenges."* The quotation reveals that mentoring business ventures provides essential development of entrepreneurial self-assurance as well as useful strategic competencies. Business mentors helps Participant 7 essential guidance which makes them better equipped to manage various challenges during business operations.

The actual outcomes from learning programs are shown through the testimonials of participants. The participant's enhanced financial leadership abilities after practical training courses show that useful business information rapidly increases operational effectiveness. After receiving mentorship guidance Participant 7 became more confident which

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shows how directed learning provides strategic together with psychological advantages. Successful entrepreneurial education develops skills and strengthens resilience at the same time which helps micro-entrepreneurs maintain and expand their business operations.

Factors for the Success of the Implementation of Entrepreneurship Learning

An entrepreneur's learning success depends on both market-oriented problem applications and dependable support networks. Educational programs focused on practical matters lead to greater participant success and stronger outcome results. The resource persons examined three main aspects which influence the success rate of entrepreneurship learning implementation within micro-enterprises by emphasizing the material's business alignment and practical methodologies and supporting networks and mentors.

Participant 2 stated, *"The most effective learning program is the one whose material is in accordance with the problems we face every day in running a business."* The statement stresses that entrepreneurship learning material needs to correspond accurately with difficulties encountered by micro business operators. The participants become capable of converting studied information into practical solutions for their business challenges.

Participant 10 also added, *"Support from fellow business actors and experienced mentors is very helpful in applying the knowledge gained."* The statement demonstrates the critical role which networking activities with entrepreneurs together with mentorship play throughout entrepreneurial learning development. Microentrepreneurs successfully implement their new learning program knowledge through both peer interaction and mentorship guidance from competent sources.

Success outcomes rely on context-relevant education content combined with access to networking peers according to the interviews from Participants 2 and 10. The combination of addressing operational challenges and mentor relations in training helps micro-entrepreneurs successfully execute their solutions. Widespread success requires workshops that merge versatile curriculums with social network development to build their strongest effect.

Entrepreneurship Learning and Digital Technology Adoption

During the era of digital innovation, micro-businesses must remain entrepreneurial learners because it helps them learn how to adapt. The knowledge training on digital tools organizational effectiveness improvement, enhancing organizational competitiveness while extending to the markets. Importance of entrepreneurial learning to promote digital adoption at micro business an entrepreneur is a person through business learning.

Participant 4 shared his experience, *"After taking the digital marketing training, I started to utilize social media and e-commerce platforms to expand my market reach."* However, some speakers also revealed obstacles in adopting technology, such as lack of technical knowledge and limited resources. Resource person 8 stated, *"The biggest challenge in adopting technology is changing the mindset and getting used to the new way of working."*

The research demonstrates that learning approaches for entrepreneurship create essential aspects for sustaining digital micro enterprises. The development of competencies together with capability building and technologic adoption encouragement will help micro businesses improve their business competitiveness while becoming more resilient. The effectiveness of entrepreneurial learning requires appropriate material relevance together with an applicative approach and support from entrepreneurial ecosystems. Digital marketing brought success to Participant 4 but Participant 8 faced obstacles due to resistance to change in addition to demonstrating technological potential. Learning programs need to include methods to change mindsets during their technical training to break through existing obstacles. The combination of education about digital skills and ongoing help from entrepreneurial programs enables small businesses to use technology for growth while maintaining resilience against economic changes.

The Role of Entrepreneurship Learning in Building Micro Business Sustainability in the Digital Era

Entrepreneurs need to adopt to technological advancements alongside market volatility and changing consumer demands in a digitized global economy for sustaining their micro-business operations. Entrepreneurship learning functions as a fundamental capability that bestows micro-entrepreneurs with necessary skills to handle difficult

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business situations and develop their resilience through innovation. The combination of digital knowledge with adaptive business methods and sustainable practices through structured learning makes small businesses stronger in competitive markets. The section analyzes research findings from systematized studies to showcase how entrepreneurial education connects standard corporate processes with digital needs to secure sustainable growth of micro-businesses. After conducting the PRISMA approach, starting from identification, filtering, to obtaining the final search results, this study maps and summarizes previous research related to the topic of Entrepreneurship Learning which can be seen in **Table 2.** below.

Table 2. Key Findings Related to Entrepreneurial Learning.

Authors	Key Findings Related to Entrepreneurial Learning
(Cavallo et al., 2021)	Collaboration between SMEs and innovative startups is crucial for driving regional development and entrepreneurial ecosystems, particularly in countries with limited venture capital markets.
(Mulyani et al., 2024)	The entrepreneurial mindset and financial management skills of small and medium-sized enterprises can improve financial performance and business sustainability, with the support of appropriate government training and policies.
(Prayitno et al., 2022)	Financial, digital, and entrepreneurial literacy plays an important role in mediating the relationship between social capital and household welfare, and emphasizes the need for government intervention to increase literacy to support poverty alleviation
(Gaweł & Głodowska, 2021)	Women's entrepreneurship in Visegrad countries is affected differently by economic dynamics across trends and business cycles, with inertia being the most consistent factor, while reactions vary by country and type of entrepreneurship.
(Chenavaz et al., 2023)	The establishment of environmentally friendly businesses with resource-efficient operations and value-generating social effects becomes a top priority to establish businesses that support economic sustainability.
(Taleb et al., 2023)	The success of Malaysian MSME businesses enhances with entrepreneurial leadership education because it develops opportunities and innovation capabilities which perform as sequential mediators.
(Akther et al., 2024)	Business performance sustainability would benefit significantly from the development of management knowledge and capabilities because it leads to enhanced conceptual competence.
(Tunio et al., 2021)	Young entrepreneurs, both men and women, face challenges such as lack of trust from stakeholders, family problems, financial limitations, low literacy, and corruption and bureaucratic barriers that hinder the sustainability of their businesses. This is due to the lack of penetration of entrepreneurship education.
(Valle et al., 2022)	Entrepreneurial sustainability success together with poverty reduction gets accelerated through entrepreneurship education combined with budgeting and financial literacy and credit accessibility.
(Murad et al., 2024)	Science & technology parks, market segregation, and commercialization support significantly influence Pakistani female students' entrepreneurial intentions, which positively impact their entrepreneurial careers.
(Bouichou, 2024)	Male digital entrepreneur performance proved superior to female entrepreneurs because they used digital technologies and training more capably although females displayed stronger rural development preferences in agribusiness areas.

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(Alzamel, 2024)	Policy developers require a strong entrepreneurial system and economic equality alongside sustainable expansion to support digital businesses effectively after accounting for how economic levels and social positions affect digital entrepreneurship.
(Gao et al., 2023)	The implementation of deep learning algorithm models within entrepreneurial teaching creates new insights that produce innovative strategies to help future business creators reach digital power and sustainable country industry progress.
(Solórzano et al., 2024)	An individual's habit serves as a primary determinant for AI adoption intention because it directly influences their entrepreneurship intentions while showing steady relationships across both male and female students and different age groups.
(Syed et al., 2024)	Variety exists within the literature about age and entrepreneurship relationships but current research requires attention in modern technology sectors alongside a dominance of the Theory of Planned Behavior theoretical model.
(Kabuya et al., 2023)	The economic growth depends on entrepreneurs who place needs first because they launch new businesses while building relationships with stakeholders who value these companies.
(Ríos Manríquez et al., 2022)	Micro-entrepreneurs are aware of the importance of ICTs in their businesses, Celaya's micro-enterprises have a low level of technological expertise.
(Yadav et al., 2023)	The pandemic has pushed handicraft businesses to adopt digital platforms, spurring entrepreneurship and innovation despite digital infrastructure gaps, market challenges, and limited IT skills, underscoring the need for support during economic downturns.
(Harb & Shang, 2022)	IT for entrepreneurship research focuses on six key areas: initiative and innovation, strategy, business process and operation management, education, industry analysis, and business models.
(Y. Lee et al., 2023)	While crises can pose challenges for entrepreneurs, they can also create unique opportunities for innovative and resilient businesses to emerge if entrepreneurs can adapt, transform, and leverage available resources and support.

The Research has established that economic learning with sustainability needs collaborations from stakeholders together with organized support frameworks. Cavallo et al. (2021) establish that strategic alliances between Small and Medium Enterprises (SMEs) and innovative startups become vital elements for regional development throughout small venture capital market zones. Through collaboration, organizations create knowledge sharing platforms while such efforts also create resource sharing and innovation development environments. According to Mulyani et al. (2024), after SMEs have the training program from their government, there is a substantial increase in financial management competency. Through accessible financing loans and budgeting workshops, entrepreneurs fear less and overcome economic risk through budgeting and financing solutions. According to Prayitno et al. (2022) and Valle et al. (2022), the financial and digital capabilities of households determine their overall welfare status.

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Mobile financial education services offered by the government will help low-income families and rural area folks upgrade their literacy standards in order to utilize their social links for economic development. The present study's outcome infers that government and private sectors should partner with education sectors for developing inclusive systems which will close structural deficits and competence gaps.

The success rate of entrepreneurs is greatly impacted by factors like technological change and gender inequality. As demonstrated by Gaweł and Głodowska (2021), the economic cycle impacts female business entrepreneurship differently in the four Visegrad nations, with inertia being a common barrier between nations regardless of regional differences. Women face significant challenges when starting new businesses. They can't be explained fully by macroeconomic conditions. Institutional arrangements and prevailing cultural practices are the major obstacles. According to Bouichou (2024), male entrepreneurs appear to perform better than women due to superior technical capacities. Women, however, pay greater attention to the rural agricultural enterprise. Organizations are establishing digital training programs and funding support for women, as they are taking the established gender differences in rural provision capacity. Artificial intelligence technology with deep learning technique based on Gao et al. (2023) and Solórzano et al. (2024) had a transformative impact on entrepreneurial education. Students are encouraged to foster creativity in their academic development thereby testing virtual business models through AI simulation in the curriculum. Using digital tools creates barriers because these require equal access to modern tech that mainly exist in technology-lacking regions. To solve this, we need funding systems for STEM education plus programs to help with technical barriers that diverse population groups face.

Young adults are consistently confronted by an entrepreneurial environment under crisis conditions that have the potential to test weaknesses and produce possibilities of restoration. According to Tunio et al. (2021), bureaucratic hurdles as well as limited capital barriers combined with social skepticism confronting new entrepreneurs give rise to economic barriers. These problems have become more pronounced due to students from such places not having the capacity to manage complex administrative protocols. The solution for trust-based issues lies in business mentoring experiences. Paths between established industry figures and new professionals in business leadership mentorship programs demonstrate value creation through mentoring experiences that take place in actual business environments. Because of COVID-19 Pandemic, the handicraft businesses adapted to digital solutions for the digital platform requirements even though they were having limited IT capabilities and lack of infrastructure (Yadav et al., 2023). The reform was challenging but gave rise to new tools like social media marketing and crowdfunding to sustain businesses. According to Lee et al. (2023) resilient entrepreneurs can transform their resources through adaptation processes to convert traditional workshop methods into remote instruction. Business owners gain access to grants and virtual skill training programs that prove the necessity of organized support systems during emergency times. The combination of adaptable mindsets in educational institutions with anti-inequality policies will transform financial barriers into sustainable growth opportunities for inclusive commercial activities.

Three-Fields Plot Analysis

This Three-Field Plot demonstrates how authors connect with keywords which connect to specific fields of study in the entrepreneurship theme. From the visualization, it can be seen that the topics of entrepreneurship, business, technology adoption, and digital entrepreneurship are keywords that often appear and are studied by the authors. This data provides insight into research trends and study focuses currently used by researchers practicing entrepreneurship. The results serve researchers as a foundation to conduct additional research about comparable subjects or work with professionals studying entrepreneurship in this visualization.

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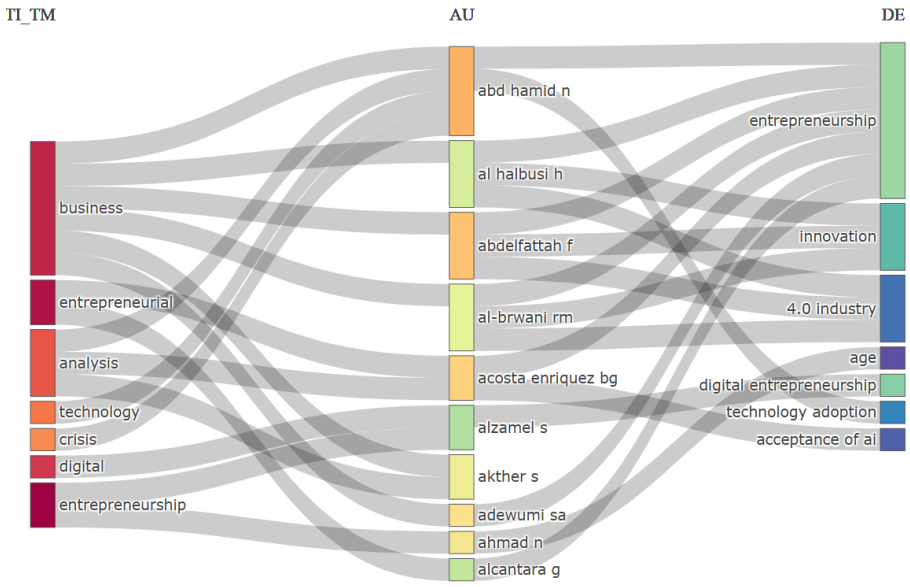

Figure 2. Three-Field Plot of The Power of Entrepreneurial Learning

Tree Map Analysis

The visualization shows a treemap design that displays different topics with their individual percentage distributions. The largest topic is "entrepreneur" at 15%, followed by "innovation" at 5%. Other significant topics include "covid-19" at 3%, "developing world" at 3%, "conceptual framework" at 3%, "business development" at 3%, and "sustainable development" at 4%. The treemap also covers a wide range of subtopics such as "digitization" at 3%, "economic growth" at 3%, "market system" at 3%, "Pakistan" at 3%, and "research work" at 3%. Additionally, there are numerous smaller topics with percentages ranging from 1-2%, including "accessibility", "agricultural economics", "artificial neural network", "Bangladesh", "building", "business process", "classifieds", "economic conditions", "economic diversification", "economic impact", "ecosystem resilience", "empowerment", "entrepreneurship", "environment", "gender", "gender role", "higher education", "india", "indonesia", "information", "labor market", "leadership", "literacy", "malaysia", "marketing", and "natural resource". The visualization under study includes statistical information spanning multiple areas of entrepreneurship together with innovation along with development and economics as well as geography and specific regions. The appearance of "covid-19" hints that the data supports research about these areas during the pandemic times. Through its presentation the treemap demonstrates how sustainable development and digitization and economic growth maintain their vital importance. The presence of Pakistan India Indonesia and Malaysia separately in the treemap implies that the analyzed data focuses on these particular regions. The smaller divisions of the treemap demonstrate the wide range of interlinked aspects which relate to the major subjects which include gender roles alongside ecosystem resilience and higher education and literacy. The treemap delivers an extensive perspective about the intricate entrepreneurial structures of development within the discussed areas and topics.

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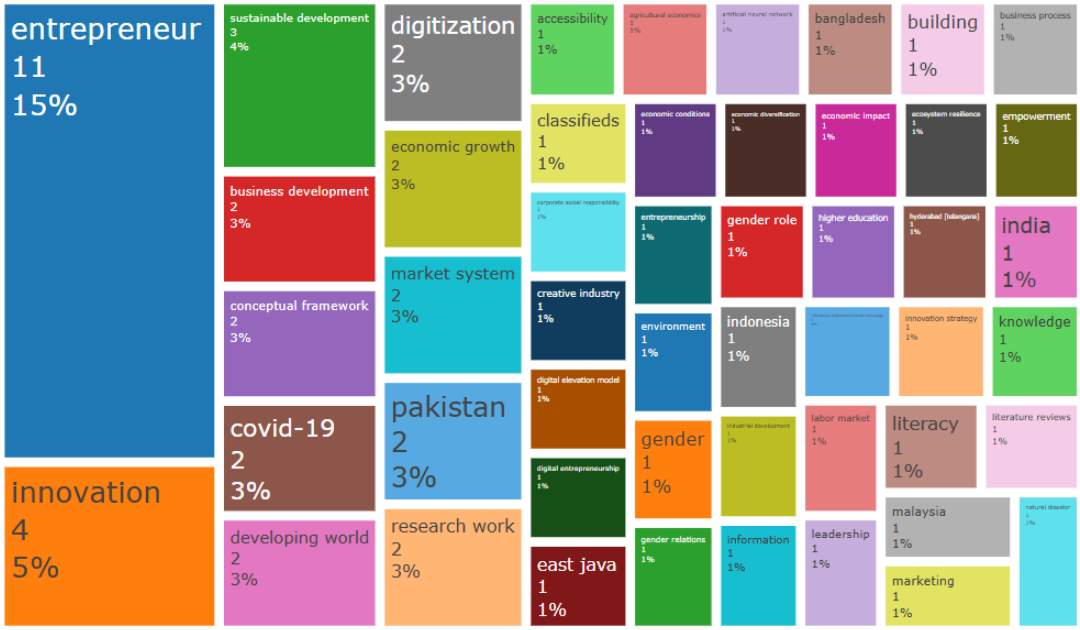

Figure 3. Tree Map of The Power of Entrepreneurial Learning

CONCLUSION

This study uses a mixed-methods approach to explore the role of entrepreneurship learning in building micro business sustainability in the digital era. The qualitative research using semi-structured interviews reveals that micro business actors drive primarily from their passion to pursue their dreams and generate employment opportunities because various types of entrepreneurial learning consistently boost their entrepreneurial capabilities. The success of entrepreneurship learning depends on three main elements which are material relevance combined with practical delivery and mentor and networking support. The digital era requires entrepreneurship learning to promote digital technology adoption in micro businesses since some organizations face barriers from limited resources along with technical knowledge gaps. The Systematic Literature Review produced quantitative research results showing that previous literature studies focused mainly on entrepreneurship, business, technology adoption and digital entrepreneurship though entrepreneurship alongside innovation received the most attention. The Three-Field Plot and Tree Map analyses represent an important research tool which helps identify patterns of previous work using published articles and suggests upcoming areas to investigate.

AUTHOR CONTRIBUTION

Kukuh Lukiyanto: Contributed to the conceptualization of the research, developed the methodology, and conducted the final review and editing of the study. The researcher built the framework until conduct research assessments and measured validity during various stages of research development.

Davin Danika Sasongko: Authored the initial draft of the manuscript and structured the content. The writer invested their time toward content organization to maintain academic standards throughout the complete document.

Maranatha Wijayaningtyas: Managed the data processing, conducted formal analysis, and validated the research findings. Formal verification offers researchers both sound and reliable results through their data collection methods.

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