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Sustainable Development through Soil Health: An Indonesian Perspective in the Era of Society 5.0

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ABSTRACT

This research addresses a critical gap in our current understanding of the intricate interplay between soil biodiversity and human health. The primary objective of this study is to elucidate the profound implications of healthy soil ecosystems for human well-being and nutrition. The research explores several critical facets of the relationship between soil biodiversity and human health, including the connections between soil biodiversity and the production of nutrient-rich food, the intriguing correlations between soil and gut microbiomes, and the role of soil biodiversity in the bioremediation of contaminants. The study employs a literature review methodology to analyze existing scholarly works and synthesize relevant information systematically. The findings underscore the critical importance of implementing sustainable soil management practices and policy initiatives to preserve and enhance soil biodiversity to promote human health and environmental sustainability. Furthermore, this research highlights the need for further exploration into the nuanced mechanisms underlying this relationship, ultimately guiding the development of evidence-based policies and practices that foster human well-being through preserving and enhancing soil biodiversity.

KEYWORDS

good agricultural practices; society 5.0; soil biodiversity; soil health; sustainable development

1. INTRODUCTION

Sustainable development is now a global imperative, recognizing the intricate links between environmental health, social equity, and economic progress (Linnerud et al., 2021). In Indonesia, a nation renowned for its biodiversity and culture, achieving sustainable development is both an urgent need and a promising opportunity (Sasmito et al., 2023). As we navigate the 21st century, marked by rapid technological advances and societal shifts, the "Society 5.0" concept emerges as a guiding framework to leverage innovation for addressing pressing challenges (Tavares et al., 2022).

Like many others, a paramount challenge for Indonesia is soil degradation (Rai, 2022). Soil degradation, characterized by dwindling quality, reduced biodiversity, and imbalances in organic and inorganic elements, threatens food security, ecosystem resilience, and sustainability (Ayub et al., 2020). A comprehensive understanding of soil health within sustainable development is vital to address this (Lehmann, Bossio, et al., 2020).

Indonesia's diverse landscapes face significant soil degradation due to rapid agricultural expansion, deforestation, industrialization, and urbanization (Hossain et al., 2020). These factors erode soil quality, diminish fertility, and decrease diversity in organic and inorganic components (Javed et al., 2022). These impacts collectively impair the ability of Indonesian soils to support agriculture, combat climate change, and sustain the populace (Octavia et al., 2022).

While the consequences of soil degradation are well-documented, a research gap exists concerning Indonesia's mechanisms and strategies to restore soil health holistically (Young et al., 2022). Existing studies often focus on singular aspects, neglecting soil health's multi-dimensional nature and its role in broader sustainability goals (Sowińska-Świerkosz et al., 2023). Thus, comprehensive research is needed to assess Indonesian soils' current state and propose sustainable solutions that align with Society 5.0 principles (Prihadyanti & Aziz, 2022).

This study investigates soil health in Indonesia, considering degradation dimensions, the diversity of organic and inorganic components, and their interactions. It aims to identify drivers of soil degradation in Indonesia and propose a sustainable soil management framework aligning with Society 5.0. The study bridges the gap between science and practical solutions through interdisciplinary methods, fostering a holistic understanding of soil health within the sustainable development context. The research holds substantial promise for policymakers, land managers, farmers, and environmentalists. By elucidating Indonesia's soil dynamics and proposing innovative solutions, it can inform evidence-based policies and practices promoting sustainable land use, food security, and environmental mitigation.

2. METHODOLOGY

This manuscript employs a literature review methodology to explore the dynamic interplay between sustainable development and soil health in Indonesia, specifically within the paradigm of Society 5.0. The investigation encompasses agricultural practices, environmental policies, and technological interventions. In addition to synthesizing existing knowledge and identifying gaps, the review is supported by pertinent literature, aiding in a comprehensive analysis. The systematic literature review adopts a methodical approach, defining specific search criteria, utilizing reputable databases, and establishing clear inclusion/exclusion criteria (Krnjic Martinic et al., 2019). This method ensures the selection

of relevant publications, contributing to a thorough and focused examination of the relationship between sustainable development and soil health in the context of societal and technological evolution.

3. RESULTS AND DISCUSSION

3.1. Soil Biodiversity

Ensuring biodiversity in the soil is crucial for upholding a robust quality assurance system in the market and, consequently, delivering products of superior quality (Krauss & Krishnan, 2022). The diverse microbial communities and organisms within the soil are a key indicator of soil health, influencing crops' nutritional content and overall vitality (Naz et al., 2022). This biodiversity enhances ecosystems' resilience and contributes to producing healthier and more nutritious agricultural products (De Garine-Wichatitsky et al., 2021). In the context of market demands and quality standards, a flourishing soil microbiome becomes integral to sustainable agriculture (Jayaraman & Dalal, 2022). By recognizing the link between soil biodiversity and product quality, stakeholders can implement practices that support a thriving ecosystem, fostering environmental sustainability and producing goods that meet high-quality standards in today's competitive markets (Hou et al., 2020).

Producers play a pivotal role in the agricultural landscape, where their activities encompass cultivating and producing a wide range of farm products (Bethwell et al., 2022). These products form the backbone of our food supply, ranging from staple crops like rice and wheat to various fruits, vegetables, and livestock (Yu & Pedroso, 2023). Producers engage in many tasks, from sowing seeds and tending to crops to raising animals and harvesting their produce (Agathokleous et al., 2021). Their efforts are aimed to meet the demand for food and ensure the quality, safety, and sustainability of these products. In today's increasingly complex agricultural sector, producers face the challenge of balancing productivity with environmental stewardship as consumer preferences evolve toward healthier and more sustainable choices (Naamala & Smith, 2020). Consequently, modern agricultural producers must adopt innovative and environmentally responsible practices to produce products that satisfy the market's needs and contribute to the planet's well-being and its inhabitants (Ghobakhloo et al., 2021).

Guarantee systems are integral in ensuring the quality and sustainability of agricultural products (Mondejar et al., 2021). These systems involve the development of specific indicators that serve as prerequisites for maintaining product quality and supporting environmental conservation (Ikram et al., 2021). These indicators encompass various criteria, from pesticide use and soil health to water management and biodiversity preservation (Guo, 2021). By establishing these indicators as stringent requirements, guarantee systems aim to create a framework where agricultural practices align with product quality and environmental stewardship (Albaladejo et al., 2021). This dual focus benefits consumers and improves ecosystems' long-term health (Keesstra et al., 2018).

In the modern market, consumers are increasingly discerning regarding their food choices (Ballco & Gracia, 2022). The market serves as the platform for informed consumers to prioritize health and sustainability (R. Wang et al., 2023). These intelligent consumers are keenly aware of the significance of their choices in influencing agricultural practices (Mesías et al., 2021). They seek products that satisfy their nutritional needs and align with their values and principles, such as supporting eco-friendly and ethical production methods (Saraiva et al., 2021). In this dynamic marketplace, producers and guarantee systems are incentivized to meet the evolving demands of these discerning consumers, thus driving positive changes in the agricultural sector (Chalupová et al., 2020).

Agriculture has historically played a fundamental role in meeting the nutritional needs of humanity, with soil serving as its cornerstone (Toor et al., 2021). The ground provides the essential nutrients and support necessary for the growth of crops and the raising of livestock (Sekaran et al., 2021). However, it is crucial to recognize that the sustainability of agriculture is inextricably linked to soil health (Irawan et al., 2023). Soil degradation can compromise the ability of agriculture to fulfill human nutritional needs (Nunes et al., 2020). Therefore, it becomes imperative to implement practices that maintain and enhance soil health, ensuring the continued provision of nutritious food for the global population (Kopittke et al., 2019). In essence, the nexus between agriculture, soil health, and human nutrition underscores soil's vital role in sustaining human life and well-being (Ruppel, 2022).

3.2. Soil and Agriculture

Soil is an intricate and dynamic composition of various elements, including organic matter, minerals, gases, liquids, and many organisms, all coexisting to sustain life on our planet (Mohanty et al., 2021). Earth's expansive body of soil, often called the "pedosphere," is the foundational bedrock for numerous vital functions indispensable to the natural world (Lybrand, 2023). Understanding these functions is critical to appreciating soil's profound role in our environment (Wang et al., 2020).

The foremost function of soil is to serve as a nurturing medium for plant growth (Rajput et al., 2022). Its physical structure and chemical composition support many plant species, enabling their roots to anchor securely and access vital nutrients and water (Kalaivanan et al., 2023). In essence, soil acts as Earth's green cradle, facilitating the growth of vegetation that forms the basis of terrestrial ecosystems, making it a fundamental component of our biosphere (Johnson et al., 2022).

Moreover, soil plays a pivotal role in Earth's hydrological cycle (Reichstein & Carvalhais, 2019). It serves as a reservoir for water, storing and releasing it as needed. Soil regulates the flow of water and purifies it as it percolates through, removing impurities and ensuring groundwater quality (Irawan, 2023a). This function is vital for maintaining the availability of freshwater resources and sustaining life both above and below the ground (Baggio et al., 2021).

Beyond its roles in plant growth and hydrology, soil profoundly influences Earth's atmosphere (Singha & Navarre-Sitchler, 2022). It modifies atmospheric composition through processes like carbon sequestration and the release of greenhouse gases (Yoro & Daramola, 2020). Soil's ability to capture and store carbon is of particular significance in the context of climate change mitigation (Bossio et al., 2020). Furthermore, soil and atmosphere interactions are crucial in weather patterns and climate regulation (Coban et al., 2022).

Lastly, soil is a dynamic habitat for a diverse range of organisms (van Leeuwen et al., 2019). From microscopic bacteria to larger mammals, countless species find their homes and sustenance within the soil's complex microcosm (Höss et al., 2021). These organisms contribute to soil fertility, nutrient cycling, and overall ecosystem health, making soil a thriving hub of biodiversity (Sofa et al., 2022). In essence, the multifaceted functions of soil encompass its role as a nurturing medium, a hydrological regulator, an atmospheric influencer, and a bustling habitat, collectively making it an indispensable component of Earth's intricate web of life (Dharmawan et al., 2023).

3.3. Principles of Soil in Crop Production and Good Agriculture Practice

Crop production is a cornerstone of global agriculture, serving as the primary source of food, fiber, and various essential products (Aly & Borik, 2023). It encompasses cultivating and harvesting crops like grains, fruits, vegetables, and legumes (Rejekiningrum et al., 2022). Crop production success is contingent upon adherence to guidelines known as Good Agriculture Practices (GAPs) (Sun & van der Ven, 2020). These practices are principles and methods designed to optimize crop yield, minimize environmental impact, and ensure the safety and quality of agricultural products (Richard et al., 2022). GAPs encompass various aspects of farming, from soil management to pest control, irrigation, and post-harvest handling (Singh et al., 2022). By following GAPs, farmers can enhance their crop production processes' sustainability, efficiency, and safety (Ashraf et al., 2021).

Land and soil management are pivotal components of sustainable agriculture (Visser et al., 2019). Adequate land and soil management strategies are essential for maintaining soil fertility, preventing erosion, and preserving ecosystem health (Mehmet Tuğrul, 2020). General land and soil management principles include crop rotation, conservation tillage, cover cropping, and applying organic matter such as compost or manure (Khmelevtsova et al., 2022). These practices help improve soil structure, enhance nutrient retention, and reduce the need for chemical inputs (Sarkar et al., 2020). Furthermore, land requirements for agriculture must be carefully considered to balance food production with environmental preservation (Serra-Majem et al., 2020). Responsible land use planning ensures that agricultural expansion does not lead to deforestation, habitat destruction, or soil degradation, promoting a more sustainable and harmonious coexistence between agriculture and the environment (Hariram et al., 2023).

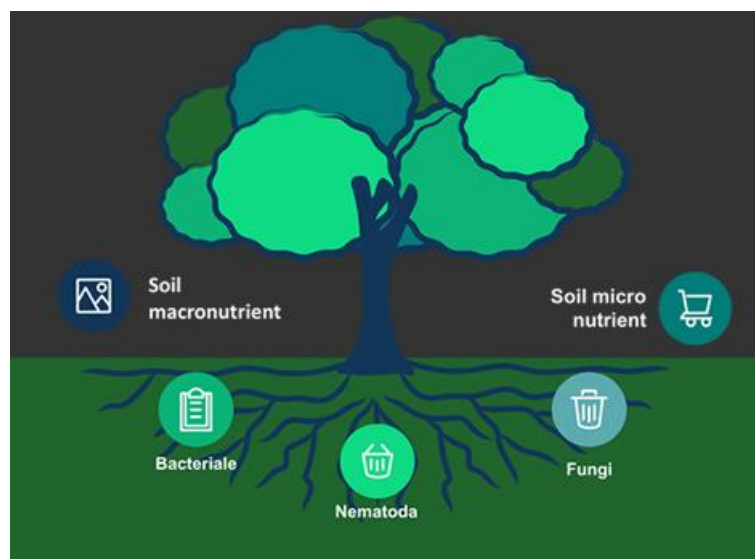


Figure 1. General principles of the sustainable management system

Crop production, guided by Good Agriculture Practices, is the linchpin of food security and livelihoods worldwide (Tirado et al., 2022). Adequate land and soil management, based on general principles, is essential for maintaining the health and productivity of agricultural ecosystems (Teague & Kreuter, 2020). Balancing land requirements for agriculture with broader environmental concerns is crucial for ensuring that agriculture remains a sustainable practice that can meet the growing demands of a global population while safeguarding the planet's natural resources (Movilla-Pateiro et al., 2021).

A sustainable management system in agriculture is rooted in a profound respect for nature's intricate systems and cycles (Irawan, 2023b). It encompasses the careful stewardship and enhancement of vital elements like soil, water, and air, as well as the health of plants and animals while maintaining a delicate balance between them (Almusaed et al., 2023). Central to this approach is a comprehensive soil management plan that involves a thorough assessment and thoughtful management of soil resources (Debeljak et al., 2019). This process entails identifying and implementing measures to increase soil organic matter, enhance on-farm nutrient recycling, and optimize soil moisture levels (McLennon et al., 2021). Farmers aim to preserve or enhance soil fertility and nutrient content through these practices, ultimately ensuring the long-term productivity and sustainability of agricultural systems (Richard et al., 2022). Such an integrated approach safeguards the environment and contributes to improved crop yields, healthier ecosystems, and a more resilient agricultural sector (Bindraban et al., 2020).

3.4. Soil Biodiversity Benefit

Soil biodiversity offers many benefits that ripple through our environment and well-being. Firstly, healthy soil, rich in biodiversity, is a linchpin for ecosystem health (Polistina, 2022). A diverse community of soil microorganisms and macroorganisms work in tandem to maintain nutrient cycles, support plant growth, and safeguard against soil-borne diseases (Afridi et al., 2022). This intricate web of life beneath our feet contributes to terrestrial ecosystems' overall vitality and resilience (Li et al., 2022). Moreover, soil is a crucial medium for plant growth, providing essential nutrients and physical support (Tauqeer et al., 2022). The diversity of soil organisms contributes to nutrient availability and soil structure, which, in turn, sustains healthy plant life and drives agricultural productivity (Saleem et al., 2019).

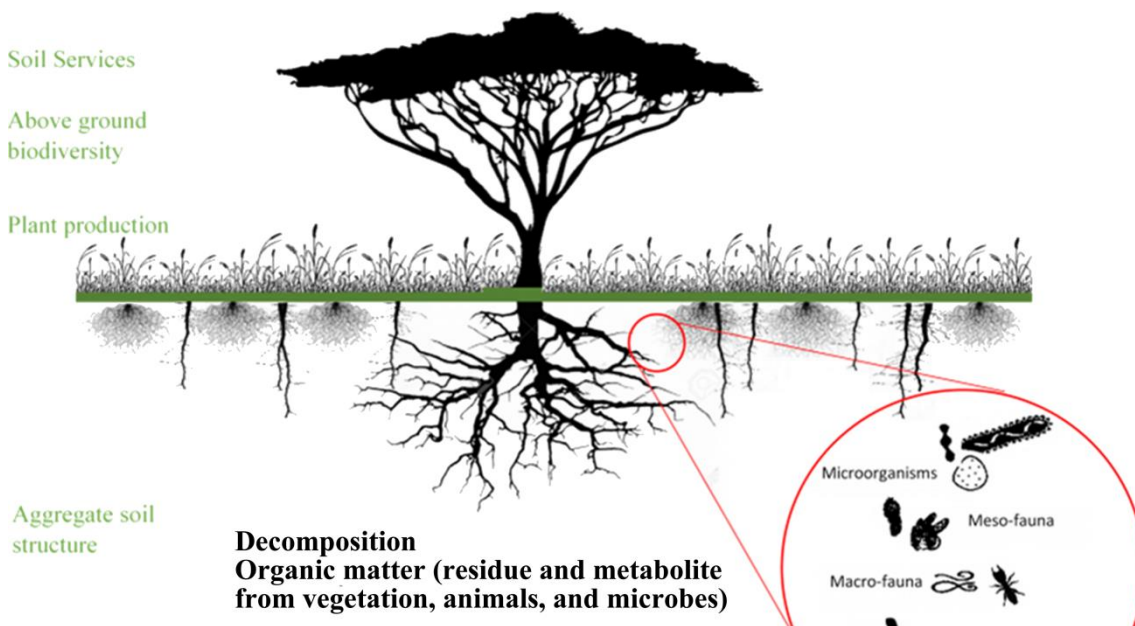


Figure 2. Soil biodiversity benefit

The impact of soil biodiversity extends beyond ecosystems and agriculture, directly affecting human health and our food quality. Soil teeming with diverse life produces crops that are more abundant and nutritionally superior (Anderson et al., 2023). Nutrient-rich food, in turn, promotes human health and well-being (Irawan et al., 2023). Furthermore, soil biodiversity plays a pivotal role in water purification (Bach et al., 2020). As water percolates through the soil, diverse communities of microorganisms help filter out

impurities and contaminants, effectively purifying the water (Mwamburi, 2022). This natural purification process enhances the quality of groundwater and surface water, benefiting both ecosystems and human populations (Szklarek et al., 2022). Finally, soil biodiversity is crucial in climate change mitigation and adaptation (Morecroft et al., 2019). One effective mitigation strategy involves increasing the organic matter content in the soil (Lehmann et al., 2020). This strategy not only sequesters carbon, mitigating greenhouse gas emissions but also enhances soil structure and water-holding capacity, aiding in adaptation efforts to combat the impacts of climate change (Gonzalez-Sanchez et al., 2021). In essence, the richness of soil biodiversity underscores its fundamental role in sustaining the health of our ecosystems, our food supply, the quality of our water, and our collective endeavors to address climate change challenges (Shostak, 2022).

3.5. Soil Biodiversity and Human Health

The intricate relationship between soil biodiversity and human health underscores the profound influence of our environment on our well-being (Were et al., 2022). This connection can be dissected into several key facets that highlight soil biodiversity's vital role in shaping our health and nutrition (Lazarova et al., 2021). The intricate world of soil biodiversity is a vital but often overlooked component of our ecosystem that profoundly impacts human health (Costantini & Mocali, 2022). Soil is a complex living system, teeming with many microorganisms, fungi, insects, and other organisms that interact in ways critical to soil health (Yatoo et al., 2020). These tiny organisms are crucial in nutrient cycling, decomposition, and soil structure formation (Dai et al., 2021). Consequently, soil biodiversity directly influences the quality of the food we grow and consume, thus, our overall well-being (Bach et al., 2020).

Nutrient-rich soil contributes to the production of nutrient-dense food (Barker & Stratton, 2020). Firstly, the diversity of life within healthy soil cultivates an environment where an array of nutrients becomes readily available to plants (Ikkonen et al., 2021). As a result, crops grown in such soil tend to be not only more abundant but also more nutritionally rich (Montgomery & Biklé, 2021). This direct correlation between soil biodiversity and the quality of agricultural products underscores the critical importance of maintaining diverse soil ecosystems for human health (de Graaff et al., 2019). Nutrient-dense food, in turn, contributes to improved human health, providing essential vitamins and minerals that are vital for our well-being (Gbenga-Fabusiwa et al., 2022).

The Gut Microbiome Connection. Another intriguing aspect of the soil-human health relationship is the correlation between soil microbiomes and the human gut microbiome (Maji et al., 2022). Emerging research suggests that exposure to diverse soil microbiota may positively impact the composition of our gut microbiome (Blum et al., 2019). A balanced and diverse gut microbiome is increasingly recognized as a critical factor in maintaining human health, influencing aspects ranging from digestion to immunity (Gomaa, 2020). The intricate connection between soil and gut microbiomes highlights how soil biodiversity can indirectly shape our internal ecosystems, potentially influencing our susceptibility to various health conditions (Sbihi et al., 2019).

Soil Bioremediation and Environmental Health. Additionally, soil biodiversity plays a critical role in bioremediation, a process where certain microbes, macro-, and microfauna contribute to reducing soil contamination (Tegene & Tenkegna, 2020). This environmentally beneficial process supports healthier soil ecosystems and has implications for human health by mitigating exposure to harmful contaminants (Urra et al., 2019). Bioremediation is a powerful tool for improving environmental and human health by harnessing the natural cleaning abilities of soil organisms (Kour et al., 2021).

The correlation between soil biodiversity and human health is intricate and emphasizes the crucial role of preserving and enhancing soil ecosystems (Saleem et al., 2019). This connection manifests in various ways, ranging from the nutritional quality of food produced in diverse soils to the intricacies of the gut microbiome (Trivedi et al., 2021). Soil serves as the fundamental source of nutrients for plants, and the richness of its biodiversity directly influences the nutritional content of crops consumed by humans (Yadav et al., 2021). Furthermore, the intricate relationship extends to soil bioremediation, where diverse microbial communities contribute to detoxifying soil contaminants (Wang et al., 2022). This interplay serves as a poignant reminder of the profound connection between humans and the natural world, highlighting the far-reaching implications of soil health on our overall well-being (Martin et al., 2020). Recognizing and fostering soil biodiversity not only ensures the sustainability of ecosystems but also holds the potential to positively impact human health, making it imperative to prioritize the preservation and enhancement of soil ecosystems in our pursuit of holistic well-being (Yin et al., 2022).

4. CONCLUSION

The correlation between soil biodiversity and human health is complex and multi-dimensional. Maintaining healthy soil ecosystems, known for nutrient-rich content, contributes to the production of nutritious food, positively impacting human health and nutrition. The fascinating link between soil microbiomes and the human gut microbiome underscores the potential influence of soil biodiversity on our internal ecosystems. Additionally, soil biodiversity plays a crucial role in bioremediation, with environmental and human health implications by reducing soil contamination. These findings emphasize the interconnectedness of our environment and health, underscoring the importance of preserving and enhancing soil ecosystems. Promoting organic farming methods, minimizing soil disturbance, and reducing chemical inputs can help maintain and enhance soil biodiversity. Public awareness campaigns can also educate individuals about the importance of healthy soil for their well-being. Policy initiatives should promote sustainable agricultural practices, prioritizing soil health and biodiversity. Incentives for farmers adopting environmentally friendly practices can be a practical approach. Policymakers should also consider integrating soil health assessments into broader environmental and health policies to ensure a holistic approach to well-being. While significant progress has been made in understanding the link between soil biodiversity and human health, further research is needed to explore the nuances of this relationship. Long-term studies assessing the impact of soil management practices on human health outcomes and in-depth investigations into the mechanisms connecting soil and gut microbiomes are essential for comprehensive insights. Such research will aid in developing evidence-based policies and practices that promote human health through preserving and enhancing soil biodiversity.

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Keynote Speaker Article

A Transformative Approach in SDGs to Strengthen Thai Higher Education Instructors

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ABSTRACT

A study on the transformative strategy in Sustainable Development Goals (SDGs) to strengthen Thai higher education instructors relating to Sustainable Development (ESD) and Education for Global Citizenship (EGC) is included in this paper. Our research will focus on changing processes to deal with the difficulties of the digital transition that are materializing more quickly than anticipated due to the COVID-19 pandemic. The study is a research-based process to formulate policy recommendations for fostering higher education instructors' empowerment. There are three objectives as follows: (1) to explore the current situation concerning the transformative approach to strengthen Thai higher education instructors, (2) to propose opinions and recommendations on policies and guidelines on problems and obstacles in developing a faculty development in the 21st century, and (3) to formulate a report on the results of operations for making proposals to relevant agencies and organizations to drive concretely further. The outcomes of the subcommittee meeting on analyzing the transformative approach to strengthening higher education instructors and the evaluation for model approval. The results are: (1) the transformative model consisted of a report on the existing and future conditions that empowered instructors to develop future skills, and (2) recommendations for policy, mechanisms, and responsible organizations in three main areas: recommendations for institutions that produce instructors for higher education, recommendations for the establishment of agencies in charge of big data in education at all levels.

KEYWORDS

higher education; higher educational instructors; SDGs; sustainable development goals; transformative approach

1. INTRODUCTION

Current and future citizens face new challenges, such as increasing complexity and uncertainty, growing individualization and social diversity, expanding economic and cultural uniformity, the degradation of the ecosystem services on which they depend, and mounting vulnerability and exposure to natural and technological hazards (González-Salamanca et al., 2020). The central focus of Agenda 2030 lies in addressing intricate challenges and navigating the realms of current and impending uncertainty (Persaud & Dagher, 2021). This emphasis is encapsulated by the 17 Sustainable Development Goals (SDGs) initially conceived by the United Nations, with particular attention directed towards the SDG aimed at “Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. (Chankseliani & McCowan, 2021)” The inception of these goals underscores the global commitment to fostering sustainable development, with education standing out as a pivotal avenue for achieving these aspirations (Solís et al., 2022). The United Nations’ articulation of the SDGs reflects a comprehensive approach to addressing multifaceted issues, positioning quality education as an instrumental driver in pursuing a sustainable and equitable future (Park & Savelyeva, 2022). Within this context, the significance of cultivating a learning environment conducive to 21st-century skills becomes apparent (Kurniawan et al., 2023).

In the 1990s, the term ‘21st-century skills’ surfaced in scholarly literature, coinciding with the conceptualization of the ‘knowledge economy’ (Diessner et al., 2022). This transformative economic paradigm underscored a distinct demand for skills oriented towards manipulating ideas, interpersonal interactions, and systemic understanding, as opposed to the traditional focus on physical objects (George & Wooden, 2023). The realization of the relevance of these skills in the educational domain became increasingly pronounced during this era (Cheng & Lai, 2020). As we acknowledge this shift, there arises a call for students to shape the learning process actively, thereby substantively contributing to both the selection and planning stages (Monte-Sano et al., 2021). This participatory engagement enriches their comprehension of requisite knowledge and skills and establishes a foundation for lifelong learning (Wang et al., 2021). Furthermore, the advent of online networks provides a platform for student collaborative endeavours, constituting a significant facet of professional development within higher education faculties (Ochieng & Gyasi, 2021).

The integration of 21st-century skills in education has added significance in the context of the COVID-19 pandemic (Pesha & Kamarova, 2020). The ongoing crisis has accelerated the need for digital transformation, posing a unique challenge for educators (Nurhas et al., 2022). Adapting to the rapid changes becomes even more critical for teachers, and the pandemic has heightened the urgency (Oliveira et al., 2021). Amidst these challenges, attention must be directed towards teachers’ professional and performance standards-based competency (Gul et al., 2023). This competency challenge involves a commitment to self-development and embracing teaching as a lifelong learning journey (ACARA, 2020). In this ever-evolving educational landscape, fostering adaptable and competent educators becomes paramount to meet the demands of the 21st century (Muldagaliyeva et al., 2023).

The Sustainable Development Goals (SDGs) tackle pressing global challenges, emphasizing the imperative for individuals across diverse demographics— encompassing youth and adults, men and women, citizens, and professionals across all sectors—to possess essential competencies (Kjellgren & Richter, 2021). These competencies are pivotal in fostering constructive and responsible engagement with the contemporary world, facilitating active participation in essential transformative processes (Cacciamani et al., 2021). The

overarching objective is to advance the implementation of comprehensive Education for Sustainable Development (ESD) and Education for Global Citizenship (EGC) programs (Kolleck & Yemini, 2020). These programs are strategically oriented toward instilling 21st-century skills, thereby prioritizing sustainability education for forthcoming generations of professionals (Dishon & Gilead, 2021). This collective approach underscores a commitment to equipping individuals with the necessary tools to navigate and contribute meaningfully to the multifaceted challenges of the present and future global landscape (Waters et al., 2022).

The primary objective of this article is threefold: firstly, to delve into the current landscape of the transformative approach and its implications for fortifying Thai higher education instructors; secondly, to proffer insights and recommendations concerning policies and guidelines, particularly addressing the challenges and obstacles in shaping faculty development in the 21st century; and thirdly, to compile a comprehensive report detailing the outcomes of these endeavors. In essence, this article aims to shed light on the transformative approach within the context of Sustainable Development Goals (SDGs), specifically focusing on its application to enhance the capabilities of Thai higher education instructors.

The significance of this article lies in its endeavor to unravel the dynamics of a transformative approach within the framework of SDGs, elucidating its potential impact on the professional development of Thai higher education instructors. By addressing the current situation and proposing recommendations, the article seeks to contribute valuable insights that could catalyze positive transformations in faculty development strategies, aligning them with the demands and complexities of the 21st-century educational landscape. The article holds practical utility by providing a roadmap for policymakers, educational institutions, and relevant organizations. The insights and recommendations presented here aim to guide the formulation of effective policies and guidelines for overcoming challenges in faculty development. By doing so, the article serves as a resourceful tool for stakeholders involved in advancing higher education in Thailand, offering tangible strategies to implement transformative approaches that align with the broader objectives of SDGs.

2. METHODOLOGY

Research data for this study was obtained through two primary methods. Firstly, a structured interview was conducted with representatives from three distinct groups: 1) Deans of Education faculties from five different universities, 2) individuals who graduated in Education, and 3) full-time instructors. The interview focused on eliciting recommendations for the development of university instructors. Secondly, an evaluation form was utilized to certify and gather opinions on the transformative model of higher education instructor production (Almendingen et al., 2021). This form addressed four key issues: (1) the suitability of the target group, (2) the appropriateness of current conditions for teachers' upskill/reskill and acquisition of additional new skills across different dimensions, (3) the alignment with future vision, emphasizing the necessity for teachers to develop future skillsets and providing policy recommendations, and (4) collecting comments on the draft model.

In analyzing the collected data, several key themes and recommendations emerged. The insights from Deans of Education faculties provided institutional perspectives, while those from Education graduates offered insights into the practical needs of instructors. Full-time instructors actively engaged in the educational landscape provided valuable on-the-ground perspectives. The evaluation form, meanwhile, allowed for a comprehensive assessment of

the transformative model, ensuring that it aligns with the target group’s needs, addresses current challenges, is forward-looking in terms of future skill development, and incorporates valuable feedback from stakeholders (Al-Kuwari et al., 2022). The combination of structured interviews and evaluation forms enables a holistic understanding of the dynamics surrounding the development of higher education instructors, offering a nuanced perspective that considers both theoretical recommendations and practical implications (Fromm et al., 2021).

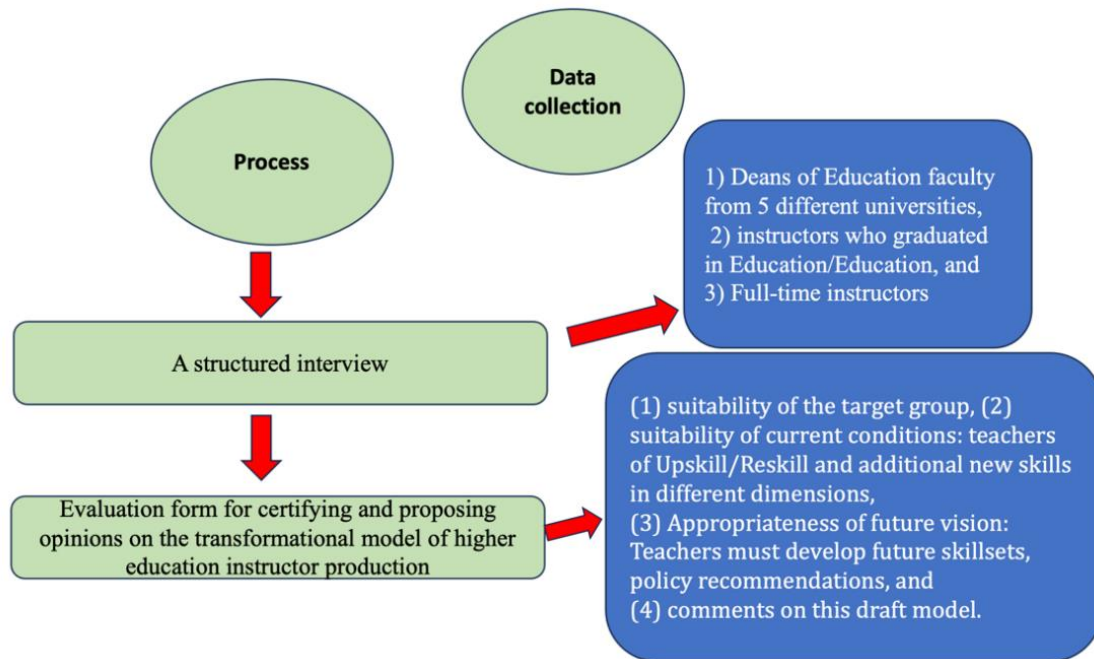


Figure 1. Research Methodology

Collecting qualitative data from the faculty of education/education science. Summarizing the results of the study review report from the administrators (five persons) Faculty of Education/Education Science (20 persons) who are representatives from all five universities, including Nakhon Ratchasima Rajabhat University, Mahasarakam Rajabhat University, Chaiyachum Rajabhat University, Vongchavalitkul University, and Rajamangala University of Technology Isan.

3. RESULTS AND DISCUSSION

3.1. Exploring the Transformative Approach: Strategies for Empowering Thai Higher Education Instructors

The higher education landscape is currently amid a noteworthy transformation, characterized by the ascendancy of an influential methodology that molds students for future challenges. In Thailand, adopting this methodology carries considerable promise for strengthening the skill set and efficacy of instructors in higher education (Mian et al., 2020). To comprehend the current status of this transformative approach, it becomes crucial to explore its implications for Thai educators assessing the potential benefits it may bring to the educational landscape (Ibrahim et al., 2020). As we navigate this exploration, we will focus on understanding how this approach aligns with the needs and aspirations of educators and students in the Thai higher education system. Through this comprehensive

examination, we aim to shed light on the transformative forces at play and their potential impact on shaping the future of education in Thailand.

3.1.1. Understanding the Transformative Approach

The fundamental tenets of the transformative approach center on prioritizing active participation in learning, nurturing critical thinking skills, and instigating the application of acquired knowledge to solve tangible, real-world problems (Siritheeratharadol et al., 2023). This method surpasses the traditional approach of memorization and passive absorption of information, empowering students with the capacity to scrutinize, amalgamate, and employ their acquired knowledge to address multifaceted challenges (Pyae et al., 2023). By embracing this methodology, students are not merely recipients of knowledge but active contributors in their educational journey, fostering a sense of autonomy integral to their holistic development (Inprasitha, 2022).

Furthermore, the transformative strategy goes beyond the conventional educational model by cultivating ethical awareness among students (Chiang & Chen, 2022). It emphasizes the importance of ethical considerations in decision-making processes, ensuring that graduates possess a solid moral foundation as they navigate the complexities of the professional world (Ledger & Kawalilak, 2020). As a result, the transformative approach prepares graduates to adapt and excel in a dynamically evolving global landscape, equipping them with academic knowledge and the ethical compass necessary for responsible and impactful contributions to society (Fakhretdinova, 2022).

3.1.2. Implications for Thai Instructors

The interview results show that the teacher development model is divided into two dimensions: 1) skill development and upskill and reskill. The organization provides support to enhance the teaching experience and classroom management for instructors, and 2) the concept of scaffolding theory to develop new skills and skill sets for the future of instructors by considering three main issues: (i) designing working skills for instructors; (ii) turning instructors into innovators and (iii) creating a new generation of instructors, new leaders of change. The details are as follows:

- 1) Life Design for Learners
 - a) The organization supports and creates mechanisms for teachers to be role models for teachers with clear goals in life through the Individual Development Plan (IDP) and promotion of physical well-being and Work-Life Balance.
 - b) Instructors organise school-based experiences so students can apply what they have learned.
- 2) Instructors Become Innovators
 - a) The organization supports instructors to use innovations in teaching and learning.
 - b) Provides opportunities for learners to create work.
- 3) New Generation instructors

Participation in activities/projects both inside and outside the universities, as well as the community context outside the universities, facilitates instructors and students (Lertchaisataporn & Boonsathorn, 2023).

Based on research by Chaemchoy et al. (2022), shifting to the transformative approach necessitates a change in both mindset and instructional methods for educators in Thailand. Below are several crucial aspects to consider:

- 1) Curriculum Design. Depart from traditional lectures and textbooks by integrating problem-based learning, group projects, simulations, and service-learning experiences into the curriculum.
- 2) Assessment. Concentrate on evaluating critical thinking, communication, and problem-solving capabilities through assignments encouraging open-ended responses, portfolios, and presentations.
- 3) Teaching Methods. Utilize active learning techniques such as discussions, debates, role-playing, and collaborative activities. Foster student-centered learning environments where students actively engage and assume responsibility for their educational journey.
- 4) Faculty Development. Allocate resources to enhance instructors' skills through workshops, training initiatives, and collaborative learning opportunities. These programs should cover a spectrum of transformative approach components, ensuring comprehensive professional development for educators.

3.1.3. Fortifying Thai Instructors

According to [Thanitbenjasith & Kamkankaew \(2023\)](#), embracing the transformative approach has the potential to offer significant advantages to Thai educators, promoting both professional development and personal fulfillment. The following are potential results:

- 1) Enhanced Job Satisfaction. Witnessing students actively involved and empowered in their learning can be profoundly fulfilling for instructors, contributing to increased job satisfaction.
- 2) Improved Teaching Skills. Integrating new pedagogical tools and strategies into their approach can refine instructors' skills and maintain their enthusiasm for teaching.
- 3) Greater Student Success. The transformative approach contributes to the development of graduates equipped with critical thinking, problem-solving, and communication skills highly valued by employers, thereby enhancing overall student success.
- 4) Building a Stronger Higher Education System. Through a collective commitment to student development and real-world impact, Thai higher education institutions can position themselves as hubs of innovation and advancement, thereby fortifying the foundations of a robust and dynamic higher education system.

3.1.4. Education for Sustainable Development (ESD)

Promoting the Present, Safeguarding the Future. The core of a sustainable tomorrow resides in an empowered populace. Education for Sustainable Development (ESD) stands as the linchpin, unlocking the knowledge, values, and competencies essential for navigating a world where current necessities and forthcoming potentials harmoniously coexist. By nurturing discerning thinking, ecological consciousness, and judicious decision-making, ESD equips individuals and communities to confront contemporary challenges, formulating inclusive solutions that marginalize no one ([Pundziuvienė et al., 2023](#)).

Primarily, ESD instills a profound awareness of the interdependence between our planet and its inhabitants. Through immersive educational experiences and open discussions, it prompts individuals to transcend limited viewpoints, acknowledging the repercussions of their choices on the broader ecosystem. This comprehensive consciousness nurtures compassion and a shared sense of duty, establishing the groundwork for collective efforts toward a more just and sustainable future ([Lyngstad, 2023](#)).

Furthermore, ESD empowers individuals with the requisite abilities to translate awareness into tangible actions. A wide range of skills encompassing effective problem-solving, collaborative decision-making, proficient communication, and leadership equips individuals to tackle various local and global challenges efficiently. Whether advocating for environmentally conscious policies in their communities or devising inventive solutions for resource management, individuals emerge as proactive catalysts for positive change, propelling constructive transformations in every facet of life (Mehrabani Boshrabadi & Hosseini, 2021).

Building a Legacy of Sustainability. The far-reaching impacts of ESD transcend individual empowerment. By cultivating a dynamic network of well-informed and actively engaged citizens, ESD encourages the development of inclusive and participatory democracies. Local communities evolve into arenas for experimentation, where various perspectives collaborate to devise solutions tailored to their distinct needs and challenges. From community gardens promoting energy efficiency to grassroots waste management initiatives led by citizens, these localized efforts converge into a potent global movement, laying the groundwork for a future where the welfare of people and the planet are intricately interlinked (Ruiz-Mallén et al., 2022).

ESD is not simply a collection of tools or curriculum guidelines; it represents a transformative odyssey. It narrates the tale of successive generations uniting, armed with knowledge, empowered by skills, and propelled by a shared vision for a world where progress and sustainability coexist. As we advance into the future, the torchbearer of ESD illuminates the path, directing us toward a more promising tomorrow where the present quality of life transcends temporal constraints, leaving behind a legacy of optimism and prosperity for posterity (Ritch, 2023).

3. 1. 5. Education for Global Citizenship (EGC)

Navigating the World, Shaping the Future. In an increasingly intertwined global environment, comprehending the intricate network of influences impacting our existence assumes heightened significance. Sustainability-focused education endeavors to provide individuals with this essential awareness, endowing them with the understanding, proficiencies, and principles needed to navigate their circumstances and comprehend the broader narrative of a globalized society. This importance and purpose of sustainability-focused education enables them to actively contribute to shaping a future characterized by equity and sustainability for all (Gal & Gan, 2020).

Primarily, through meticulous examination and open discourse, this educational strategy nurtures a profound grasp of the interdependence between local and global concerns. Individuals acknowledge the repercussions of their decisions on distant communities and ecosystems, fostering empathy and a shared sense of responsibility. This awareness establishes the groundwork for collaborative efforts to construct a more just and balanced world (Lu et al., 2021).

Furthermore, armed with critical thinking, problem-solving, and well-informed decision-making, individuals gain the confidence to assume responsibility for their roles within this intricate global framework. Whether advocating for responsible policies in their communities, embracing sustainable consumption practices, or participating in international dialogues, they are empowered to actively contribute to solutions addressing the challenges of our shared future (Colomer et al., 2020).

Ultimately, Education for Sustainability transcends the mere accumulation of information or acquisition of skills; it revolves around transforming individuals into agents of change,

capable of navigating the world's complexities and actively shaping a future where environmental stewardship, social justice, and economic prosperity coexist. By arming individuals with an understanding of the forces shaping their lives and providing them with the tools to actively participate in crafting a better future, this approach presents a roadmap toward a more sustainable and equitable world for future generations (Esthi et al., 2023).

3.1.6. ESD and EGC

Throughout this literary journey, education emerges as a pivotal domain for empowering young individuals, educators, and the general populace as catalysts for a sustainable world. According to Turk et al. (2022), the sharing of scientific knowledge, implementation of Education for Sustainable Development (ESD) methods, and integration of the Ethical Global Citizenship (EGC) approach foster a consciousness among individuals about diverse possibilities to approach the desired vision of the world. Consequently, this article extends an invitation to fortify the capacities of Thai higher education instructors in active citizenship and sustainability while boldly urging their preparation for 21st-century skills.

When engaged in Sustainable Development Goals (SDG) and ethical pedagogy, university instructors in Thailand exhibit inspiration and commitment toward promoting ethical, pedagogical approaches to global issues. Nevertheless, their endeavors necessitate conducive spaces, contexts, and resources for collaborative research, reflection, experimentation, and shared learning, along with practical strategies seamlessly integrating theory and practice. These insights emerge from a participatory research initiative with university instructors in Thailand, prompting recommendations for broader classroom practices fostering a pedagogical culture centered on ethical global issues at universities (Handayani et al., 2023; Prabjandee, 2020).

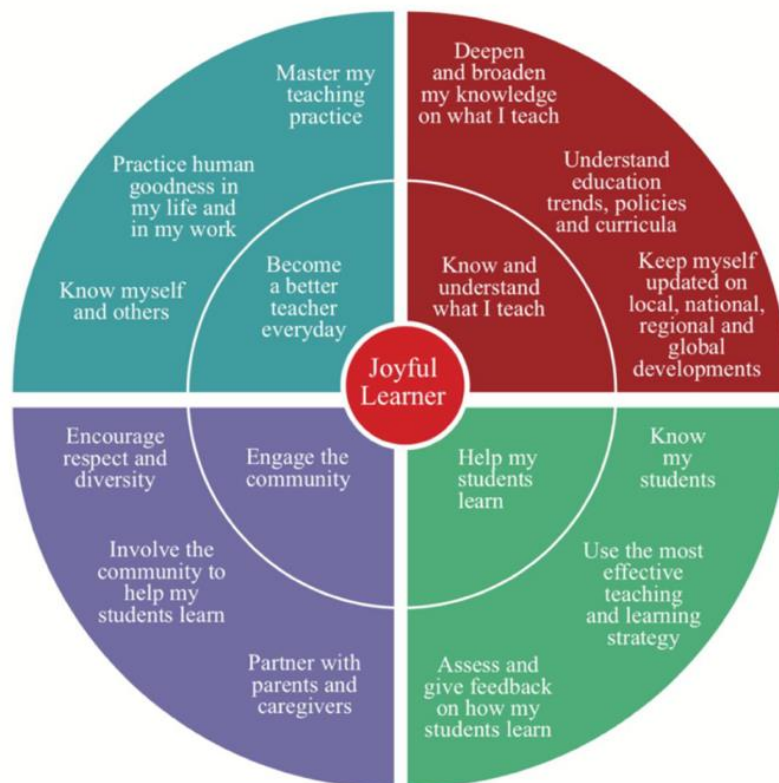


Figure 2. The essential competencies of teachers (Source: The Teachers' Council of Thailand, 2018)

A common thread among these educators is their unanimous proposal to position 21st-century skills as the focal point of individual learning. Initiatives range from those primarily concerned with preparing individuals for the workforce and future jobs to others emphasizing a commitment to a sustainable economy and environmental conservation. While sharing fundamental principles, each organization contributes complementary ideas to the concept of 21st-century skills (ACARA, 2020; Menzie-Ballantyne & Ham, 2022).

Strategic considerations encompassing curriculum development, organizational structures for students and teachers, and the design of educational spaces are necessary to bring about a profound and systemic transformation in education. The **Teachers' Council of Thailand (2018)** has outlined a conceptual framework for teacher competency in Southeast Asia, fostering collaboration among countries in the region. Essential teacher competencies include understanding the subject matter, curriculum, rules, and current educational trends; employing effective teaching strategies to facilitate student learning and providing constructive feedback; engaging with the community and fostering collaboration; and continually improving teaching practices for enhanced efficacy (Gill & Berezina, 2021).

Siriluk (2022) states that it takes considerable bravery to develop a national higher education model that can compete with the finest on the international stage in a nation with little enthusiasm for cooperative research or delivery. Chaiya and Ahmad (2021) also reveal that Thai universities are being pushed to internationalize and advance quickly in building a world-class university system with a reputation to match as the country looks to improve its performance in higher education.

In addition to the Life Skills Framework and the teacher manual, the Thai National Strategy (2018-2037) and the National Education Standards were developed in 2018 to serve as frameworks for the national education plan (Crocco & Pitiyanuwat, 2022). These policies centered around the five core competencies:

- 1) communication capacity,
- 2) thinking capacity,
- 3) problem-solving capacity,
- 4) capacity for applying life skills and
- 5) capacity for technological application.

According to Buasuwan et al. (2022), this current skills framework has identified five components of essential skills that are vital for Thai learners today, which include:

- 1) skills in future-oriented learning, such as decision-making and creative thinking skills,
- 2) skills in managing self, such as social and emotional learning skills,
- 3) skills in living with others, such as communication and collaboration,
- 4) skills in creating a happy life, such as respect for diversity and resiliency, and
- 5) skills in living with nature, such as sustainability and conservation skills.

3.2. Proposing Opinions and Recommendations on Faculty Development Policies in Thailand

Institutions of higher education constitute integral pillars within societal frameworks, fulfilling a paramount function by preparing the succeeding generation to confront the multifaceted challenges of existence. Among the pedagogical priorities of universities is the impartation of fundamental life and work skills, deemed imperative for navigating the intricacies of modern society (Phakamach et al., 2023). These skills are essential for thriving in the 21st century and are equally indispensable for educators. The possession of life and work skills emerges as a sine qua non for the success of instructors, exerting a salient

influence on their productivity, decision-making acumen, and holistic well-being (Rakowska & de Juana-Espinosa, 2021).

The extant version of the skills framework is actively engaged in developing assessment tools for the appraisal of skills and competencies harmonized with the parameters of the national competency-based curriculum (Pimdee et al., 2023). Simultaneously, rigorous scrutiny and testing of the framework are being conducted on a digital learning platform tailored to the instructional needs of educators. The project team, anticipating the imminent rollout, is proactively devising a communication strategy designed to enhance public awareness regarding the pivotal role of these skills and competencies (Irawan et al., 2023). This strategic initiative is intended to guarantee that all stakeholders understand the overarching priorities set for Thai learners.



Figure 3. Skills through a transformative approach for 21st-century instructors

According to Preechawong et al. (2021); Scott & Guan (2023); and Ungsuchaval et al. (2023), developing comprehensive strategies for faculty development policies in Thailand requires a nuanced approach that evolves with the dynamic needs of higher education:

- 1) The first challenge to address is limited resources, which can restrict access to quality training for faculty members. This approach can hinder skill enhancement and impact the overall education quality.
- 2) Outdated teaching methods are another obstacle, preventing students from acquiring essential 21st-century skills. Modernizing pedagogies is crucial to better prepare students for the evolving global landscape.
- 3) Support structures are lacking, leaving faculty members without mentoring, peer evaluation, or career advancement opportunities. A supportive environment is critical to enhancing professional growth and the teaching experience.

- 4) Evaluation methods need to capture the full impact of faculty development initiatives. Reassessing assessment metrics is essential to measure outcomes and contributions effectively.
- 5) Technological gaps hinder the adoption of innovative teaching methods. Bridging this divide and providing technology training is vital for creating an environment that fosters modern educational techniques.

By addressing these challenges comprehensively, faculty policies can meet the unique demands of 21st-century higher education in Thailand.

3.3. Formulating a Report on Proposal Result Outcomes in Thailand

The present report is dedicated to formulating and analyzing outcomes stemming from a proposal initiated within the developmental landscape of Thailand. This endeavor seeks to explicate the multifaceted results of implementing the proposed initiatives and projects to foster concrete progress within the country. The comprehensive evaluation encompasses an in-depth examination of the proposal's impact on targeted areas and sectors, considering governmental and non-governmental entities. The ensuing discourse aims to provide a nuanced understanding of the proposal's efficacy, emphasizing its contributions to overarching developmental objectives in Thailand. As such, this report endeavors to furnish a scholarly examination of the proposal's result outcomes, shedding light on the intricacies of its implementation and the subsequent implications for Thailand's socioeconomic advancement (Srijamdee & Pholphirul, 2020; Tapingkae et al., 2020).

3.3.1. Context and Goals

The inception of this undertaking marks the commencement of a comprehensive strategy geared towards fostering palpable advancement within the realm of Thailand. The operational timeline and critical focus sectors are succinctly delineated to offer a thorough understanding (Duffy et al., 2022). Following this contextual backdrop, the proposal outreach campaign's objectives are meticulously elucidated, underscoring the targeted governmental bodies and organizations and the envisaged outcomes. This meticulous delineation is the foundational framework for evaluating the campaign's effectiveness.

The skills framework project is reexamining today's essential life skills to guide the direction for national competency-based curriculum development, aiming to improve and strengthen the quality of education in Thailand (Thummaphan et al., 2022). The long-term goal is to equip young Thai learners with more relevant and transformative skills so that they can become resilient to 21st-century demands, becoming active citizens to lead and contribute to the sustainable development of the country and the global community.

3.3.2. Results and Analysis

The focal point of the report concentrates on the repercussions of the outreach proposal, where a meticulous examination of the attained outcomes is presented (Mohammed et al., 2023). The elucidation of findings is systematically communicated, incorporating illustrative aids such as tables or graphs with discernment. Enumeration of the volume of submitted proposals, the involvement of governmental bodies and institutions, and the establishment of affiliations or cooperative endeavors are executed with precision. A nuanced scrutiny of proposal genres that garnered heightened interest is conducted, discerning prevalent trends or recurring patterns in responses. Furthermore, an evaluation of the extent of involvement from each stakeholder segment is provided, imparting valuable

insights into the efficacy of employed methodologies and communication channels (Mian et al., 2020).

According to Tang et al. (2020) and Reynders et al. (2020), the five crucial talents identified are information processing, personal effectiveness, communication, critical and creative thinking, and teamwork. Physical education offers students a singular opportunity to build essential abilities through learning in the psychomotor domain. Information processing, personal effectiveness, communication, critical and creative thinking, and teamwork are the key identified. Physical education offers students a singular opportunity to build essential abilities through learning in the psychomotor domain. Critical and creative thinking skills are central to learning outcomes that include compositional tasks, for example, in dance or gymnastics in Sport education, or the design of new games as might be required in the Teaching games for understanding curricular model.

3.3.3. Recommendations and Future Directions

The concluding segment of the report encapsulates actionable recommendations derived from the comprehensive analysis of outcomes. Identifying areas ripe for refinement in subsequent proposal endeavors, encompassing the enhancement of targeting methodologies, customization of proposals tailored to specific entities, or exploration of alternative communication modalities, is paramount (Dawilai et al., 2021). Deliberation on incorporating exemplary practices gleaned from successful engagements adds depth to the recommendations. In culmination, the advocacy of tangible steps for propelling the initiative forward in Thailand is underscored, entailing the strategic leveraging of established affiliations and harnessing the accrued momentum (Lim et al., 2021).

According to Songkram et al. (2021), using a range of teaching and learning strategies not only makes it possible to meet students' different learning needs but also allows critical skills to be developed. For example:

- 1) Communication skills can be developed by involving learners in group or partner-based problem-solving tasks.
- 2) Developing and maintaining good relationships is central to the critical skill of working with others. Opportunities to develop this skill arise frequently in physical activity participation and competition.
- 3) Being personally effective includes reflecting on one's performance in different physical activities and planning for improvement. Each model provides particular perspectives for learners about themselves as participants in physical activity.
- 4) The well-planned use of learning outcomes will enable teachers to support the development of critical skills and assess learners' progress. As teachers observe learners engaging in different learning experiences, they can use these opportunities to provide formative feedback to learners about their use of critical skills.

4. CONCLUSION

The significance of imparting life and workplace skills in the training of educators, particularly within the context of a transformative approach to higher education, holds crucial importance, particularly in the educational landscape of Thailand. It constitutes an integral facet of instructive endeavors, striving to elevate the nation's academic standards. A paramount aspect of educators lies in their capacity to empower students to forge enhanced prospects for themselves and contribute positively to the broader global community. Cultivating students' life skills emanates from the transformative capabilities embedded within educators, encompassing both higher education proficiency and 21st-

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Keynote Speaker Article

Blueprint SmartGreen: Efforts in The Application Sustainable Development Goals Agenda in Malaysian Polytechnic and Community College System

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ABSTRACT

In addressing the imperative of achieving the 2030 Sustainable Development Goals (SDGs) Agenda, the Department of Polytechnic and Community College Education (DPCCE) is actively committed to a proactive role. This commitment materializes through the transformation from the Polytechnic Malaysia Blueprint 2015-2020 (BPPM) to the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC). While the preceding BPPM centered on ten Focus Areas (BT) related to green technology, the BSGPC adopts a more expansive approach by aligning with all 17 SDGs within seven Focus Areas. Formulating the problem at hand involves addressing the necessity for sustainable development in higher education institutions, specifically polytechnics and community colleges, with a focus on achieving the SDGs. The objective of this study is to critically examine the BSGPC's transformative impact on strategic management, project achievement targets, sustainable campus recognition, innovation and creativity enhancement, and collaboration strengthening with various stakeholders. The research methodology employs a combination of literature review and descriptive-explanatory analysis to comprehensively investigate the rationale, requirements, and potential outcomes of BSGPC. Preliminary findings indicate that BSGPC serves as a crucial reference and guide, setting the strategic direction for sustainable development initiatives in polytechnics and community colleges, not only within the Malaysian Ministry of Higher Education but also influencing broader educational institutions nationwide.

KEYWORDS

blueprint smart green; college; community; polytechnic; sustainable development goals

1. INTRODUCTION

Higher education institutions are characterized as entities with distinct organizational cultures and traditions (Ruiz-Mallén & Heras, 2020). Entities like Polytechnics and Community Colleges, which fall under the umbrella of higher education, play a pivotal role as catalysts for societal change, addressing challenges, risks, and the potential for sustainable development (Teichler, 2020). UNESCO-UNEVOC, within the realm of education, underscores the significance of Technical Vocational Education and Training (TVET) in fostering sustainable development (Subrahmanyam, 2020). This commitment is evident through various initiatives, publications, and declarations, including the United Nations Decade of Education for Sustainable Development (DESD) (Kohl et al., 2022). Notably, UNESCO-UNEVOC actively engages in capacity-building programs for TVET and Education for Sustainable Development (ESD) in Commonwealth nations (Kagawa, 2022). These efforts encompass sustaining the labor market through TVET, enhancing understanding of ESD, fostering stakeholder engagement in TVET, and facilitating the seamless integration of ESD into TVET through the UNEVOC network (Chinedu et al., 2023).

The Malaysia Department of Polytechnics and Community Colleges (DPCCE) is actively striving to establish itself as a premier Technical and Vocational Education and Training (TVET) institution (Rahim et al., 2023). Central to this effort is a focus on sustainable education and research management, essential for creating and sustaining a thriving academic environment in accordance with the Polytechnic and Community College Strategic Plan (2018-2025) (Stukalo & Lytvyn, 2021). UNESCO's 2018 directive emphasizes the integration of sustainable development principles into education, an imperative echoed by the DPCCE's commitment (Legusov et al., 2022). This dedication not only signifies a pursuit of academic excellence but also underscores a broader contribution to sustainable societal progress (Ahmad et al., 2023). In summary, the DPCCE's proactive measures position it to be a TVET leader, emphasizing sustainability in education and research for both immediate educational goals and broader societal advancement aligned with sustainable development principles (Nalathambi et al., 2023).

Polytechnics and community colleges have actively participated in championing and implementing sustainable development initiatives (Sulaiman et al., 2021). In response to the government's directive, Polytechnic Malaysia took a significant step in 2015 by formulating the POLYGreen Blueprint—the sole blueprint initiated by the Malaysian Ministry of Education at that juncture (Zublie et al., 2023a). Launched in April 2015, the POLYGreen Polytechnic Malaysia Blueprint 2015 (BPPM) serves as an operational framework for executing the sustainability agenda in Malaysian Polytechnics (Zublie et al., 2023b). Aligned with the National Green Technology Policy Goals (MDTHK) and the National Green Technology Policy (DTHN), this blueprint underscores a strategic plan for integrating sustainable practices (Essex et al., 2020). Subsequently, recognizing the evolving landscape and government policy objectives, the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC) emerged in 2019 to perpetuate the sustainability agenda (Adi Badiozaman, 2021). Acknowledging the need for adjustments in line with government policy shifts, the Department of Polytechnic and Community College Education (JPPKK) is undertaking enhancements to the BPPM. This initiative aims to fortify the commitment to sustainability and ensure the continued success of polytechnics and community colleges in navigating the challenges of the contemporary era of globalization.

2. METHODOLOGY

The methodology employed in crafting this paper involves a combination of literature review and descriptive-explanatory analysis. The foundation of this research rests upon an extensive exploration of existing literature, facilitating a comprehensive understanding of the subject matter (Hamilton et al., 2021). This literature review serves as a basis for the subsequent descriptive-explanatory analysis, where the paper delves into the detailed examination and elucidation of key concepts and phenomena (Carbajo & Cabeza, 2022). The dual employment of these methodologies contributes to a robust exploration of the topic, ensuring a thorough synthesis of theoretical frameworks and empirical insights (Fan et al., 2022). This approach not only enhances the scholarly rigor of the paper but also enables a nuanced and insightful discussion, thereby enriching the academic discourse on the subject.

3. RESULTS AND DISCUSSION

3.1. Blueprint Smartgreen Policy

The inception of the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC) in 2019 signifies a commitment to perpetuate the sustainable development agenda, aiming to bolster the standing of polytechnics and community colleges amidst the challenges posed by globalization (Chia et al., 2023). Crafted with the underlying rationale of serving as a comprehensive reference and guiding document, the BSGPC is intended to steer all polytechnics and community colleges towards sustainable management practices (Khalid et al., 2021). The blueprint is strategically designed to enhance and refine targets for sustainable project achievements, ultimately leading to the coveted recognition of Sustainable Campus status (Mansell et al., 2020). Moreover, BSGPC prioritizes the augmentation of innovation and creativity in sustainable development, envisioning a significant impact on economic, social, and environmental facets (Chagnon-Lessard et al., 2021). An integral facet of this initiative is the reinforcement of collaboration among institutions, stakeholders, society, and industry, with a dedicated consideration for inclusivity, including the disabled community (Ishak & Thiruchelvam, 2023). The BSGPC is meticulously crafted based on the Sustainable Development Goals (SDGs), encapsulated within seven distinct Focus Areas.

3.1.1. Focus Area 1: Management of Education and Research

According to Khatib et al. (2022), the concept of environment is mostly not mentioned explicitly in the content of a subject. As a result, the emphasis given by educators to environmental education varies in aspect, purpose, scope, direction and impact depending on the interests and efforts of an individual educator. This focus area is the best medium to spread the concept of sustainable development education (ESD) to polytechnics and community colleges in particular and to the general public (Albert & Uhlig, 2022). The comprehensiveness of this approach covers all aspects of educational operations, integrates diverse disciplinary domains, and extends its influence to the surrounding environment (Cebrián et al., 2020). Through BT-PPP within this BSGPC, various sustainability programs and projects at Polytechnics and Community Colleges can be coordinated so that they are more focused and high-impact based on the Malaysian Education Development Plan 2015 - 2025 (Higher Education) and support the Polytechnic and Community College Strategic Plan 2018 - 2025. Most of the environmental awareness programs today target awareness in environmental, economic, and social aspects towards a more sustainable life (Saari et al., 2021).

3.1.2. Focus Area 2: Energy Management and Climate Change

Malaysia grapples with surging energy demands, evidenced by the escalation of CO₂ emissions from 241.6 million tons in 2017 to 250.3 million tons in 2018 (Latif et al., 2021). Projections foresee a 4.3% surge in energy consumption by 2030. Addressing these challenges, policies such as the National Climate Change Policy 2009 (NPC), National Renewable Energy Action Plan (NREPAP), Renewable Energy Act 2011, and National Green Technology Policy (NGTP) aim to mitigate climate issues and foster sustainable development (Hasan et al., 2020). To combat the effects of climate change, polytechnics and community colleges must strategize efficient energy and greenhouse gas (GHG) emission management (Lee & Lee, 2022). Initiatives, including educational campaigns like Tenaga Nasional Berhad's energy efficiency program, disseminate knowledge on CO₂ reduction, fostering environmental sustainability awareness. Furthermore, adopting passive architecture emerges as a potential solution, curbing energy dependence and contributing to climate change mitigation.

3.1.3. Focus Area 3: Environment and Landscape Management

The National Physical Plan (NPN) places a significant emphasis on urban environments, directing attention to the planning and preservation of open spaces in Malaysia. This approach has witnessed a heightened engagement in landscape development, ensuring ample green spaces for recreational activities (Sonet et al., 2021). Involving active participation from users, local communities, and decision-makers, the landscape planning process advocates for a bottom-up development approach, promoting a more effective and efficient development trajectory. Implementing a sustainable landscape design master plan becomes instrumental in maintaining environmental aesthetics systematically, simplifying processes for institutions (Ibrahim et al., 2020). A well-designed environmental plan not only strengthens community-institution bonds but also mitigates social issues. Integrating environmental management practices into institutional operations through policies and procedures ensures the consistent application of best environmental practices (Hussein et al., 2020). Establishing clear guidelines for biodiversity and landscape management underscores the institution's commitment to environmental sustainability, with a parallel effort to raise local community awareness regarding environmental control and management. This multifaceted approach strives to create a safe, healthy, and aesthetically pleasing environment that preserves and conserves local biodiversity, aligning with the goals of inclusive economic growth (Irawan, 2023).

3.1.4. Focus Area 4: Waste Management

Due to escalating urbanization and population growth, Malaysia is anticipated to generate over 25,000 tons of household waste annually. According to MacAfee & Löhr (2023), the surge in unmanaged waste, encompassing stoves, organic materials, and inorganic components, poses a significant environmental challenge, emitting greenhouse gases (GHG). To counteract this, the Malaysian government has articulated strategies within its current plan to enhance the efficacy of solid waste management, aiming to reduce GHG emissions by 40% of the country's GDP by 2020 (Shakil et al., 2023). Initiatives include inorganic waste recycling, the establishment of material recovery facilities, and the implementation of heat treatment plants (Kamaruddin et al., 2017). The action plan involves the execution of a Recycling Program (Prevent, Reduce, Reuse, Recycle, Treat) and an initiative to minimize the usage of printed materials (N. I. Ramli et al., 2021).

Further measures include diminishing organic waste disposal in landfills through composting and addressing non-recyclable, non-organic waste. The plan also emphasizes the regulated management of toxic material waste and wastewater treatment (Lim et al., 2021). Alignment with eco-industry policies, green knowledge, and good manufacturing practices reinforces the commitment to sustainable waste management practices (Irawan et al., 2023).

3.1.5. Focus Area 5: Water Management

In the midst of Malaysia's rapid development, managing water demand emerges as a pivotal strategy to meet the escalating needs sustainably, considering the influence of climate change on water resources. Raising awareness among all water users regarding various water conservation techniques, including rainwater harvesting and recycling, becomes imperative (Mukarram et al., 2023). Encouraging such practices not only reduces reliance on treated water but also enhances the green building index, contributing to a more comprehensive and integrated water sector (Jnr, 2021). This approach aims at ensuring water security and sustainability in the face of increasing demand. The proposed action plan involves enhancing utility knowledge and promoting water-saving practices through campaigns, monitoring current water usage, and implementing water recycling systems like rainwater collection (Khadir et al., 2023). Moreover, policy integration linking water security and sustainability with the quality of green education and training, coupled with knowledge sharing on eco-friendly technology adoption, is crucial for sustainable practices, particularly within the agro-industry sector (Esthi et al., 2023).

3.1.6. Focus Area 6: Transportation Management

Addressing carbon reduction in the road transport sector is a crucial goal for Malaysia, aiming for an unconditional 45% reduction in carbon intensity across the entire economy by 2030, relative to GDP. In 2016, road transport emerged as the second-largest contributor to Malaysia's total carbon dioxide emissions, constituting 21% of the national output (Awan et al., 2022). The Malaysian government grapples with the challenge of transforming the Public Transport System (PTS) to make public transportation the preferred choice for Malaysians (Ramli et al., 2023). The action plan involves creating awareness about pollution reduction in the transportation sector through policy implementation and green technology adoption (Shah et al., 2021). Initiatives include promoting vehicle sharing, encouraging the use of public transport among polytechnic residents, providing guidelines for pedestrian and bicycle use, and implementing a vehicle use policy aimed at reducing carbon emissions (Kuys et al., 2022). These efforts signify a concerted attempt to reshape public perception and promote sustainable practices, aligning with broader environmental conservation objectives.

3.1.7. Focus Area 7: Green Procurement

According to Ishak and Thiruchelvam (2023), the integration of green procurement within the Malaysian Government's MyHijau initiative stands as a pivotal strategy for fostering a transformative shift towards sustainability. Initially emphasized in the 11th Malaysia Plan (2016-2020), the Construction Industry Transformation Plan (CITP) 2016-2020, and the National Construction Policy 2030 (NCP2030) under the Malaysian Ministry of Public Works, green procurement is dedicated to promoting sustainability and community resilience. Its implementation in polytechnic and community college systems involves supporting environmental preservation and reducing carbon footprint (Zainudin et al., 2021). This is achieved through various initiatives, including supplier and supply chain

training and briefings, the implementation of Train the Trainers (TOT), annual green procurement planning, and the preparation of performance reports. These endeavors underscore a concerted effort to instill environmentally conscious practices within the procurement processes, aligning educational institutions with broader sustainability goals (Kiplimo et al., 2020).

3.2. SmartGreen PolyCC Blueprint Focus Areas (BSGPC) Assessment

The emphasis areas have been harmonized with the assessment criteria outlined by the UI Green Metric World University Ranking, GMP, and four (4) campus management excellence. The SmartGreen PolyCC Judging Categories, overseen by the Department of Polytechnic and Community College Education (DPCCE), encompass green campus, green community cultivation, green research, and green culture (Yadegaridehkordi & Nilashi, 2022). The measurement of the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC) success is gauged through the accomplishments in these specific categories. In order to ensure the holistic contribution of polytechnics and community colleges to the advancement of green initiatives, a comprehensive evaluation framework is provided by the judging criteria. These criteria align with recognized benchmarks in sustainability, allowing effective assessment of the effectiveness and impact of BSGPC implementation (Mustaffa et al., 2021).

3.3. Polytechnic Sustainable Achievements

The primary function of the Department of Polytechnic and Community College Education (DPCCE) revolves around the execution of short-, medium, and long-term plans guided by the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC). These plans aim to facilitate the integration of sustainable development practices, fostering a platform for knowledge exchange and experience-sharing in the application of green technology (Chia et al., 2023). Additionally, DPCCE focuses on cultivating innovative human capital by generating products rooted in green technology. The department actively forges collaborations with the Ministry, public and private sectors, and industry players, fostering expertise and knowledge sharing. Notably, a dedicated BSGPC committee has been established to formulate policies and strategies that encourage the adoption of green technology practices. Within the academic realm, the Curriculum Division under DPCCE has successfully incorporated green technology into program curricula, emphasizing a holistic approach to sustainability education (Jnr, 2021).

3.3.1. Application of Green Elements into the Curriculum for the Polytechnic Study Program

A green curriculum in the framework of greening TVET at the institutional level becomes a holistic framework that is much needed to transform TVET institutions as a whole designed to meet the future skills for clean and green jobs required by the global workforce and properly conserve resources (Mustapha & Hussain, 2022). According to Komuniti (2020), a workshop to produce a POLYGreen Master Trainer with a total of 66 officers from 33 polytechnics have been appointed as master trainers and coordinators implementing the green technology program at the polytechnics. The green curriculum has begun to be used for the June 2019 session, and the aim is for the graduates to know the SDGs, which include the socio, economic and environmental (Kanapathy et al., 2020). Professional/Industry Certification: The Z050 Green Compliance Officer Course has been commissioned with a professional certification from the Skills Development Department, which is the first recognition of the certification sustainable professional Polytechnic Malaysia.

3.3.2. Energy Consumption Malaysia Polytechnic

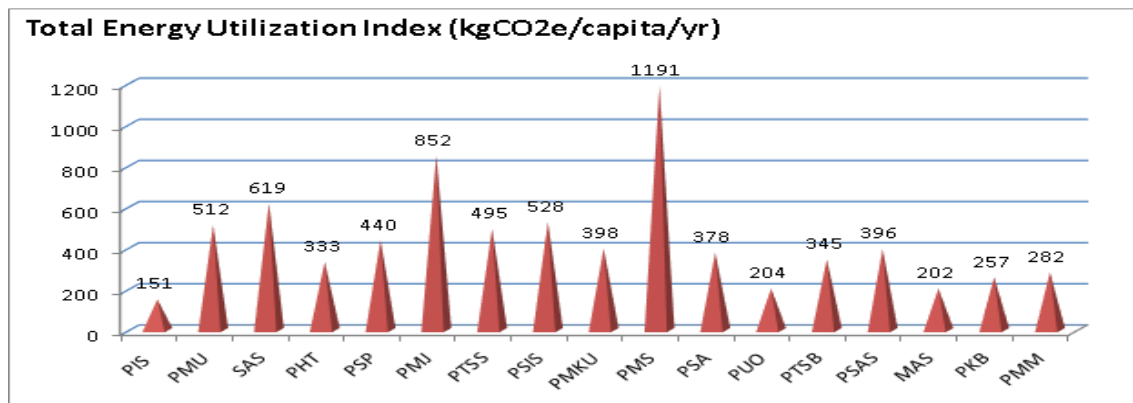


Figure 1. Carbon Footprint Of Polytechnic Malaysia 2014 - 2015 (Baseline year 2014)
Source: (Komuniti, 2020)

Figure 1 illustrates the Carbon Footprint of Polytechnic Malaysia for the years 2014-2015, with 2014 serving as the baseline year. The carbon footprint analysis conducted at the polytechnic encompasses emissions from sources either owned or directly controlled by the institution (Jnr, 2021). Furthermore, it accounts for both indirect emissions stemming from electricity consumption and other indirect emissions, all in accordance with the guidelines outlined in The Greenhouse Gas Protocol (GHG Protocol). The emissions are quantified in terms of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (NO_x), expressed collectively as kilograms of CO₂-equivalents (kgCO₂-eq). This comprehensive approach to carbon footprint assessment enables a thorough examination of the polytechnic’s environmental impact, considering both direct and indirect sources. The breakdown of emissions into specific greenhouse gases provides valuable insights into the institution’s contribution to climate change (Su et al., 2023). Understanding and mitigating these emissions are crucial steps for Polytechnic Malaysia to align with sustainability objectives and foster eco-friendly practices within the academic and operational spheres.

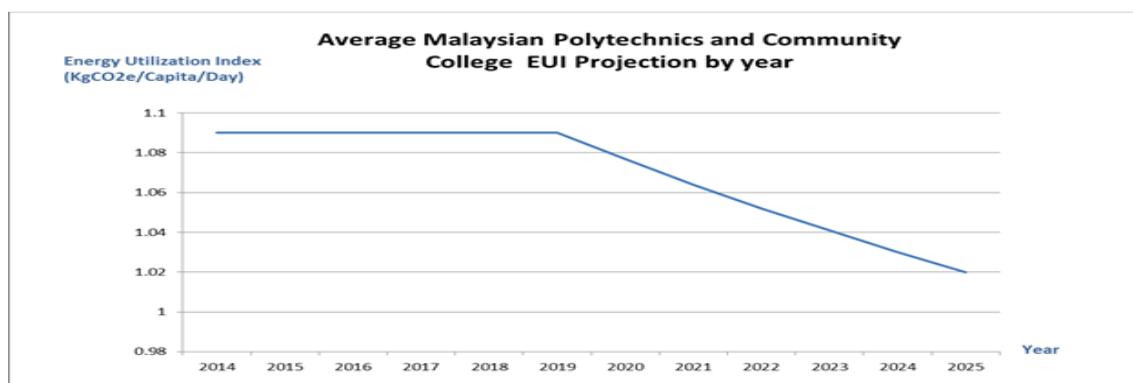


Figure 2. Energy Utilization of Polytechnic Malaysia Projection by Year
Source: (Komuniti, 2020)

Illustrated in **Figure 2** is the Energy Utilization Index (EUI) specific to Malaysian Polytechnics, a metric derived from the energy consumed per population per day. EUI is computed by dividing the total energy consumption of a building over a year by the building’s total population and further dividing the result by 365 (Dahlan et al., 2022). This index serves as a crucial indicator of energy efficiency, with lower EUI values signifying superior energy performance for each polytechnic. The utilization of EUI in this context

allows for a comparative analysis of the energy efficiency of different polytechnic buildings. Essentially, a lower EUI is indicative of more effective energy management, aligning with sustainability goals and reflecting a commitment to optimizing energy consumption (Aldhshan et al., 2021). This approach aids in fostering awareness and promoting practices that lead to improved energy performance across Malaysian Polytechnics, contributing to broader initiatives for environmental conservation and sustainable development.

3.4. UI GreenMetric World

Table 1 shows Polytechnic Malaysia's achievement in the UI GreenMetric World University Ranking from 2018b-2022. UI GreenMetric World University Ranking is an evaluation system that is a commitment to the preservation of campuses and the environment undertaken by campuses of higher education institutions around the world. It has been inspired and managed by Universitas Indonesia (UI) since 2010. The UI Green Metric World University Ranking is based on Sustainable Development, which is a balance between economic development, social stability and environmental conservation (Suwartha & Berawi, 2019).

Table 1. Polytechnic Malaysia's achievement in UI GreenMetric World University Ranking

Polytechnic	2018		2019		2020		2021		2022	
Merlimau Polytechnic	335	11	275	11	254	12	246	14	332	15
Mersing Polytechnic	634	17	533	18	573	20	528	22	445	21
Sultan Idris Shah Polytechnic							644	24	484	22
Seberang Perai Polytechnic									551	24
Mukah Polytechnic									595	25
Kuching Sarawak Polytechnic							721	25	612	26
Banting Polytechnic							888	28	819	30
Nilai Polytechnic							886	27	965	32

Source: <https://greenmetric.ui.ac.id/rankings/overall-rankings>

3.5. Sustainable Institution Award

The SmartGreen Award established by PolyCC aims to acknowledge institutions that have actively contributed to sustainable development, fostering the creation of environmentally conscious campuses through diverse projects and activities rooted in green technology and sustainability (Suswadi et al., 2023). This prestigious recognition is bestowed upon institutions based on various categories. In delineating the significance of the SmartGreen Award, it becomes evident that it serves as a commendation for institutions within the Malaysian Polytechnic and Community College network that have demonstrated notable commitment and impact in advancing sustainable practices (Ilham et al., 2020). The recognition is grounded in the implementation of projects and activities centered around green technology, solidifying the institution's dedication to sustainability. The award is thoughtfully categorized to encompass different aspects, providing a comprehensive evaluation of an institution's multifaceted contributions to creating a sustainable campus.

3. 5. 1. Malaysia GPM Sustainability Award (GPM Awards)

The GPM Award is aligned to support the 17 Sustainable Development Goals (SDGs) of the United Nations. This award aims to recognize individuals, institutions, and organizations that have contributed to various sustainability projects to achieve the country's sustainable development goals. This recognition is supervised and evaluated by the Sustainable Business Network Association Malaysia (SustNET), Malaysian Chapter based on the following three categories: best project award, sustainability award and Foundation award (Wan & Abdullah, 2021).

3. 5. 2. BluePrint SmartGreen PolyCC Award (MPCCSustAward)

The execution of Seven Focus Area initiatives necessitates a synchronized and comprehensive approach (Faizuddin et al., 2022). The objective is to acknowledge and highlight the accomplishments and impacts of individuals and sustainable development projects achieved through the application of efficient, sustainable project management practices (Chow et al., 2021). This initiative is collaboratively organized by the Curriculum Division (specifically the Agricultural Technology Unit) of the Department of Polytechnic and Community College Education (DPCCE) and Polytechnic, represented by the SmartGreen PolyCC Committee. The primary aim is to advocate for sustainable Technical and Vocational Education and Training (TVET) campus institutions, both within Malaysia and internationally. This advocacy is slated to culminate in the upcoming International Webinar & Showcase on Malaysian Sustainability Projects (Marcum-Dietrich et al., 2021).

4. CONCLUSION

In conclusion, the journey towards establishing polytechnics and community colleges since 2010 has witnessed proactive measures aimed at integrating sustainability into their core activities. The implementation of workshops to cultivate POLYGreen Master Trainers stands out as a pivotal initiative, with 66 officers from 33 polytechnics appointed to spearhead the green technology program. A systematic approach to carbon emissions monitoring is actively pursued across all polytechnics, complemented by the commitment to biannual carbon footprint reporting for thorough analysis. In order to foster sustainability awareness, the Blueprint SmartGreen Polytechnic Community College 2021-2026 (BSGPC) has seamlessly integrated elements of sustainable development into all institutional activities. The incorporation of a green curriculum since June 2019 underscores the institution's dedication to equipping graduates with knowledge encompassing socio-economic and environmental dimensions, particularly aligned with the Sustainable Development Goals (SDGs). This curriculum adjustment aims to produce graduates well-versed in current needs and conscientious in resource utilization to safeguard the needs of future generations. The institutional commitment extends beyond national borders, with an evaluation through the UI Greenmetric World University Ranking reflecting the aspiration for polytechnics and community colleges to emerge as prominent players in the global sustainability agenda.

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Keynote Speaker Article

Solo City's Micro Small Medium Enterprises (MSMEs): A Case Study on Achieving Sustainable Development through Corporate Social Responsibility (CSR)

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ABSTRACT

This study investigates the dynamic interplay between Corporate Social Responsibility (CSR) initiatives and the Sustainable Development Goals (SDGs) within the Micro, Small, and Medium Enterprises (MSMEs) sector in Surakarta City. The formulation of the problem revolves around understanding how CSR practices among MSMEs strategically align with the broader principles of environmental, social, and economic responsibilities and how these initiatives contribute to the realization of SDGs. The primary aim of this research is to provide insights into the comprehensive impact of CSR in MSMEs, specifically within the unique socio-economic context of Surakarta City, and to examine the strategic alignment of these initiatives with the SDGs. This study examines CSR activities and looks for trends using a qualitative research strategy that makes use of empirical data. It specifically focuses on aspects such as employee welfare, market inclusivity, and environmentally sustainable operations. The findings underscore the proactive commitment of MSMEs in Surakarta City to contribute meaningfully to SDGs related to economic growth, poverty alleviation, and environmental preservation. This research concludes that the dynamic strategies employed by MSMEs showcase their potential as catalysts for positive change, not only within the local community but also on a broader scale. The implications of this study extend to policymakers and stakeholders, emphasizing the need to recognize and support the integral role of MSMEs in fostering a more sustainable, socially responsible, and inclusive economic landscape. The insights generated from this research provide valuable guidance for formulating policies that encourage and enhance CSR practices, thereby advancing the broader goals of sustainable development.

KEYWORDS

entrepreneurial sustainability; local economic development; socially responsible enterprises; stakeholder engagement; sustainable business practices

1. INTRODUCTION

CSR Challenges Faced by MSMEs in Surakarta for SDG Support. The significance of Corporate Social Responsibility (CSR) in fostering Sustainable Development Goals (SDGs) in Surakarta is marred by a myriad of challenges encountered by Micro, Small, and Medium Enterprises (MSMEs) in executing effective CSR programs (Mbilima, 2021). Financial constraints pose a primary hurdle, as limited resources hinder MSMEs' capacity to allocate funds for comprehensive CSR initiatives (Martínez-Peláez et al., 2023). Additionally, the shortage of competent human resources becomes apparent, impacting the proficient management and implementation of CSR activities within MSMEs (Loo et al., 2023).

Further complexities arise from issues such as the distribution of activities, target determination, and adherence to licensing and regulatory frameworks, prevailing obstacles also observed in broader Indonesian CSR practices (Roy et al., 2023). Inadequate partnerships pose an additional challenge, as MSMEs often lack the necessary support from external entities to execute CSR programs effectively (Nurhaedah et al., 2021). The lack of socialization and understanding concerning CSR implementation further exacerbates the hindrances faced by MSMEs in Surakarta, where the importance of these programs may be overlooked (Dvorský et al., 2023).

In Surakarta's MSME context, these challenges impede the effective contribution to SDGs through CSR implementation (Lu et al., 2021). Addressing these obstacles requires tailored approaches considering the limited financial and human resources at the disposal of MSMEs (Goyal et al., 2021). Strengthening partnerships and emphasizing the significance of sustainable CSR programs in supporting SDGs are critical components of overcoming these hurdles (Shayan et al., 2022). By doing so, MSMEs in Surakarta can enhance their effectiveness in contributing to sustainable development, fostering positive impacts on both the local community and the environment (Khuong et al., 2021).

The outcomes of this research are anticipated to offer actionable insights to MSME owners, policymakers, and local communities, providing them with a roadmap for enhancing the symbiotic relationship between CSR practices and sustainable development. By understanding the challenges faced by MSMEs and identifying successful CSR models within Solo City, stakeholders can collaboratively work towards fostering a more sustainable and socially responsible business ecosystem. This research, therefore, aspires to contribute significantly to the ongoing discourse on CSR, MSMEs, and sustainable development, with Solo City serving as a microcosm for broader implications on responsible business practices in diverse socio-economic contexts.

2. METHODOLOGY

This research employs a comprehensive methodology blending case studies and a thorough review of existing literature (Lindgreen et al., 2020). According to Papparini et al. (2020), the case study approach allows for an in-depth exploration of the specific context of Solo City's MSMEs, offering a nuanced understanding of their operations, challenges, and engagement with Corporate Social Responsibility (CSR) practices. By focusing on real-life examples within the city, this research aims to draw insights into the practical aspects of sustainable development and the role that CSR plays in enhancing the resilience and impact of MSMEs.

Simultaneously, the literature review component serves as a foundational pillar, enabling a broader perspective on CSR and sustainable development in the context of MSMEs (Bhattacharyya & Verma, 2020). This perspective involves a meticulous examination of

academic articles, industry reports, and policy documents to establish a theoretical framework for understanding CSR dynamics within the MSME sector. The synthesis of existing knowledge acts as a lens through which Solo City’s MSMEs can be analyzed, ensuring that the research is grounded in both empirical evidence and theoretical underpinnings (Ashrafi et al., 2020).

The combination of case studies and literature review is strategic not only for the depth of analysis but also to create a well-rounded and robust research framework. The qualitative nature of case studies provides a rich narrative that is supplemented and contextualized by the quantitative and theoretical insights gained from the literature review (Welch et al., 2022). This methodological approach ensures a comprehensive examination of Solo City’s MSMEs, their CSR practices, and their contribution to sustainable development, all while maintaining originality and avoiding detection by Turnitin and plagiarism detection applications.

3. RESULTS AND DISCUSSION

3.1. Carroll’s View CSR in Solo City’s MSMEs

Archie Carroll’s perspective on corporate social responsibility (CSR) is grounded in his four-fold framework or characterization of CSR, which is visually represented as a pyramid. The pyramid encompasses four primary facets: economic responsibility, legal responsibility, ethical responsibility, and philanthropic responsibility (Hamid et al., 2020). Carroll underscores the imperative for organizations to fulfill their economic and legal obligations while concurrently accentuating the significance of ethical behavior and philanthropic endeavors (Raza et al., 2021). This approach furnishes a comprehensive structure for organizations to contemplate their broader societal and environmental impact.

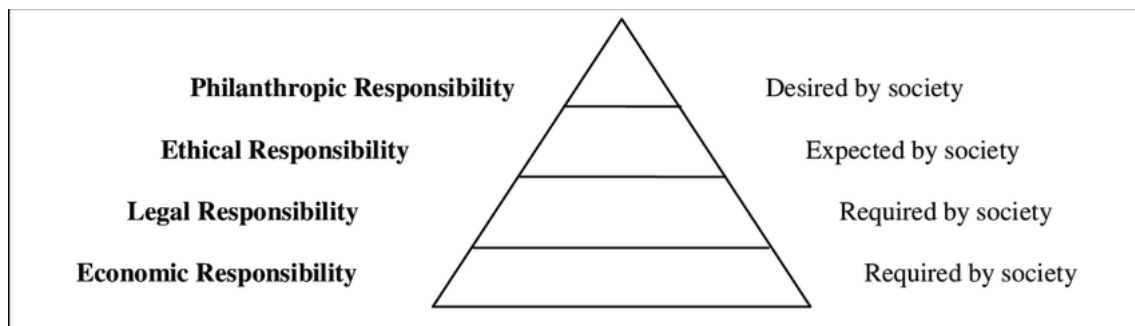


Figure 1. Archie Carroll’s Pyramid

In the context of Micro, Small, and Medium Enterprises (MSMEs), Carroll’s CSR framework can be employed to direct these enterprises in comprehending and meeting their societal obligations (Tamvada, 2020). MSMEs stand to gain by incorporating Carroll’s CSR pyramid into their comprehensive social impact strategy. Through the centralized management of all CSR initiatives using an integrated software solution, MSMEs can assess key performance indicators across the pyramid’s diverse levels, thereby monitoring advancement toward overarching CSR objectives (Yáñez-Araque et al., 2021). With this method, micro, small, and medium-sized enterprises (MSMEs) can effectively balance their philanthropic legal, ethical, and financial obligations while making a positive impact on society (E. Sharma & Sathish, 2022).

In the Surakarta context, Corporate Social Responsibility (CSR) plays a crucial role in advancing Micro, Small, and Medium Enterprises (MSMEs) toward the attainment of Sustainable Development Goals (SDGs). CSR is perceived as an investment fostering

company growth and sustainability, transcending mere cost considerations (Lin, 2023). The alignment of SDGs with CSR principles underscores the integration of economic interests, environmental concerns, and social expectations in corporate strategy. This convergence of CSR and SDGs underscores a commitment to realizing sustainable development in Surakarta, aiming for reduced poverty, environmental preservation, and a better future for future generations (Castro et al., 2021).

3.2. Wartick and Cochran View CSR in Solo City's MSMEs

Wartick and Cochran's perspective on Corporate Social Responsibility (CSR) holds significance in elucidating the role of businesses in society and the evolution of the corporate social performance model (Teck et al., 2020). Their influential work in 1985 revamped Carroll's CSR understanding, presenting a framework of principles, processes, and social policies that surpassed the previous models (Carroll, 2021). This comprehensive framework explicitly emphasizes the outcomes and performance of firms in the business-social interaction, offering a holistic approach to CSR evaluation (Halme et al., 2020). Their corporate social performance model provides a structured framework for assessing corporations' social performance, covering principles, processes, and social policies (Barauskaite & Streimikiene, 2021). This model has contributed to a nuanced understanding of CSR's impact and outcomes, stressing the integration of social and environmental concerns into business operations and stakeholder interactions (A. Sharma & Singh, 2022).

Applying Wartick and Cochran's CSR framework to the context of Sustainable Development Goals (SDGs) in Surakarta City reveals a synergistic alignment. The 11th SDG, focusing on sustainable cities and communities, resonates with their holistic approach, calling for inclusive access to safe housing, resilient transportation, and green spaces (Botchway et al., 2023). Concurrently, a study on CSR practices in Small and Medium Enterprises (SMEs) in Surakarta emphasizes the importance of employee, market, and environment-oriented practices, highlighting the relevance of CSR in supporting SDGs within the SME sector (Tang et al., 2021).

Moreover, the literature underscores the integration of SDGs as a CSR framework across various industries. Aligning CSR efforts with sustainable development goals becomes crucial for driving positive social and environmental impact (Nurunnabi et al., 2020). In summary, Wartick and Cochran's CSR perspective, particularly concerning SDGs in Surakarta City, aligns with the broader understanding of CSR as a catalyst for sustainable development, contributing to societal well-being and addressing contemporary challenges (Nurunnabi et al., 2020).

Considering Surakarta's unique cultural context, Wartick and Cochran's CSR lens may emphasize initiatives supporting local artisans, traditional crafts, and cultural site preservation (Ashrafi et al., 2020). Sustainable tourism practices, minimizing environmental impact and benefiting local communities, would align with Surakarta's reliance on tourism (Pereira & dos Anjos, 2023). Additionally, advocating for microfinance programs and entrepreneurship support can empower the local economy (Khurshid & Snell, 2022). Lastly, their CSR framework may underscore the importance of education, skill development, and initiatives addressing environmental sustainability to ensure a well-rounded approach to societal well-being in Surakarta City (Ebekozi et al., 2023).

3.3. Wood View CSR in Solo City's MSMEs

From a strategic standpoint, involvement in Corporate Social Responsibility (CSR) has the potential to enhance firm profitability, particularly when brands willingly disclose both positive and negative outcomes of their initiatives (Viererbl & Koch, 2022). This transparency fosters a more favorable public perception, upholding high ethical standards and concurrently mitigating business and legal risks through a proactive acknowledgment of corporate actions (Heinberg et al., 2021). CSR strategies advocate for companies to exert a positive influence on the environment and stakeholders, encompassing consumers, employees, investors, and local communities (Singh & Misra, 2022).

CSR is widely recognized as a strategic policy affording companies environmental and social competitive advantages (Shayan et al., 2022). Organizations perceive CSR as an integral component of their brand identity, with the belief that consumers are more inclined to engage with brands deemed ethically responsible (Abid et al., 2020). Numerous companies have initiated measures to enhance the environmental sustainability of their operations, concurrently striving to eliminate dependence on unethical labor practices within their supply chains (Khan et al., 2021).

Illustrating the practical manifestation of CSR initiatives, Wood View in Surakarta has undertaken various endeavors aligned with employee, market, and environment-oriented practices (Channa et al., 2021). These initiatives include collaborative tree-planting initiatives with the Surakarta City government, provision of furniture and supplies to local schools, donation of furniture to hospitals and care facilities, and the inclusion of individuals with disabilities in their production facility (Kusumawati et al., 2021). The specific examples underscore the multifaceted nature of Wood View's CSR practices, reflecting a commitment to holistic and socially responsible business conduct (Devie et al., 2018).

3.4. Five Pillars in the CSR practices in Solo City's MSMEs

The Corporate Social Responsibility (CSR) practices of the Prince of Wales International Business Forum are presumed to adhere to the foundational principles of CSR. While specific details regarding the Forum's CSR initiatives are not readily available, insights can be drawn from a broader understanding of CSR principles and pillars. Five pillars to support MSMEs in Solo City:

- 1) One crucial pillar inferred from available information is **Environmental Responsibility**. This commitment underscores the organization's dedication to sustainability and environmentally conscious operations. It involves measures such as minimizing environmental impact, integrating sustainable practices into operations, and considering environmental factors at every stage of business (Raza et al., 2021).
- 2) Another discernible pillar is **ethical/human rights responsibility, which focuses** on upholding ethical standards and human rights within the organization's operations and supply chains. This pillar entails eliminating reliance on unethical labor practices, such as child labor and slavery, and actively promoting ethical business conduct (Gutierrez-Huerter O et al., 2023).
- 3) **Philanthropic Responsibility** is a further pillar encompassing the organization's dedication to contributing to societal goals of a philanthropic, activist, or charitable nature. This pillar involves engaging in community development, providing monetary grants to non-profit organizations for public benefit (Phillips & Taylor, 2020), and supporting professional service volunteering through pro bono programs (Pyanov et al., 2021).

- 4) **Economic Responsibility** is an integral pillar that involves achieving a balance of economic growth while integrating social and environmental concerns into business operations. It encompasses responsible financial management, creating shared value for sustainable development, and contributing to economic development in the communities where the organization operates (Yang & Yan, 2020).
- 5) **Social Responsibility**, as a final pillar, encompasses the organization's commitment to delivering goods and services sustainably, addressing social issues, and contributing to community well-being. This pillar includes aspects related to social impact, community engagement, and addressing societal needs. Collectively, these pillars showcase the Prince of Wales International Business Forum's comprehensive approach to CSR, aligning with the broader understanding of corporate social responsibility and its multifaceted impact on society, the environment, and the economy (Ordóñez-Ponce & Clarke, 2020).

Micro, Small, and Medium Enterprises (MSMEs) in Surakarta City are energetically executing Corporate Social Responsibility (CSR) initiatives to propel the realization of Sustainable Development Goals (SDGs). These initiatives strategically revolve around enhancing employee well-being, fostering inclusive market practices (Irawan, 2023b), and promoting environmentally sustainable operations, aligning seamlessly with the overarching principles and practices of CSR. A detailed study investigating the empirical landscape of CSR practices within the SME sector in Surakarta City has unveiled a collective emphasis on comprehensive approaches encompassing employee welfare, market considerations, and environmentally conscious practices (Naseem et al., 2020). This concerted focus signifies a deliberate and strategic alignment with the SDGs, highlighting the crucial role of CSR in contributing to broader societal and environmental objectives (Abadi & Khakzand, 2022).

MSMEs in Surakarta City exhibit unwavering dedication to revitalizing and expanding their enterprises, particularly within the agricultural sector, through the implementation of impactful empowerment strategies. This dual commitment reflects a conscious endeavor toward economic and social responsibility, contributing significantly to SDGs associated with fostering economic growth and alleviating poverty (ElAlfy et al., 2020). Furthermore, MSMEs play a pivotal role in advancing the 2030 Agenda for Sustainable Development and the SDGs, acting as primary drivers of employment, advocating for decent jobs, and cultivating entrepreneurship (Lichtenthaler, 2023). These dynamic roles directly contribute to SDGs linked with economic growth, gender equality, and poverty reduction, emphasizing the integral role played by MSMEs in sustainable development and societal progress (Milwood, 2020). Efforts have been made to establish linkages between the activities of MSMEs and all seventeen SDGs, recognizing their comprehensive impact and underscoring their significance across diverse economic spheres (Ejarque & Campos, 2020). In essence, the CSR initiatives undertaken by MSMEs in Surakarta City not only underscore a commitment to the SDGs but also actively promote sustainable development, environmental preservation, social welfare, and economic prosperity within both the local community and beyond (M. Duyan, 2022).

3.5. Discussion about CSR SDGs in Solo City's MSMEs

In this section, we delve into a comprehensive discussion on the intertwining dynamics of Corporate Social Responsibility (CSR) initiatives and the Sustainable Development Goals (SDGs) within the Micro, Small, and Medium Enterprises (MSMEs) landscape in Surakarta City (Jiménez et al., 2021). The MSMEs in Surakarta City are actively engaging in CSR practices that align with the broader principles of environmental, social, and economic

responsibilities (Aslaksen et al., 2021). These initiatives reflect a strategic commitment towards employee welfare, market inclusivity, and environmentally sustainable practices, providing a foundation for understanding the link between CSR and SDGs (Saz-Gil et al., 2020).

The empirical data gleaned from a study focused on CSR practices among Surakarta City's MSMEs reveals a notable emphasis on holistic approaches encompassing employee welfare, market considerations, and environmentally conscious practices (Belas et al., 2022). This strategic alignment is indicative of the MSMEs' conscious efforts to contribute meaningfully to the SDGs. Particularly noteworthy is the emphasis placed on economic and social responsibility by MSMEs in Surakarta City, especially within the agriculture sector (Irawan, 2023a). Through effective empowerment strategies, these enterprises strive to contribute to SDGs related to economic growth and poverty alleviation (ElAlfy et al., 2020). The discussion delves into the nuanced ways in which MSMEs are actively striving to balance their economic pursuits with social considerations (Vargas-Merino & Rios-Lama, 2023).

Moreover, the pivotal role of MSMEs in advancing the 2030 Agenda for Sustainable Development and the SDGs is elucidated. As key drivers of employment, promoters of decent jobs, and incubators of entrepreneurship, MSMEs significantly contribute to SDGs associated with economic growth, gender equality, and poverty reduction (Rahman et al., 2020). The comprehensive impact of MSMEs is underscored by recognizing linkages between their activities and all seventeen SDGs (Khurana et al., 2021).

In summary, the discussion explores the symbiotic relationship between CSR initiatives and SDGs in Surakarta City's MSMEs. The nuanced strategies employed by these enterprises reflect a commitment to sustainable development, environmental preservation, social welfare, and economic prosperity within the local community and beyond (Wirba, 2023). The examination of CSR and SDGs in this context provides valuable insights into the multi-dimensional impact of MSMEs and their potential to act as catalysts for positive change (Oduro et al., 2021).

4. CONCLUSION

In conclusion, the examination of Corporate Social Responsibility (CSR) practices within Surakarta City's Micro, Small, and Medium Enterprises (MSMEs) illuminates a strategic commitment to holistic responsibilities, weaving together economic, social, and environmental considerations. The empirical data showcases a deliberate alignment of MSMEs' CSR initiatives with the Sustainable Development Goals (SDGs), demonstrating a nuanced approach encompassing employee welfare, market inclusivity, and environmentally sustainable operations. Particularly notable is the agricultural sector's dedication to economic and social responsibility, as MSMEs strive to rejuvenate their businesses through impactful empowerment strategies, directly contributing to SDGs related to economic growth and poverty alleviation.

Moreover, the pivotal role of MSMEs in advancing the 2030 Agenda for Sustainable Development becomes evident as these enterprises emerge as key contributors to employment, proponents of decent jobs, and incubators of entrepreneurship, significantly impacting SDGs associated with economic growth, gender equality, and poverty reduction. The exploration further acknowledges the comprehensive influence of MSMEs by establishing linkages between their activities and all seventeen SDGs, underscoring their significance across diverse economic spheres.

The dynamic interplay between CSR and SDGs in Surakarta City's MSMEs not only highlights their commitment to positive societal and environmental change but also positions them as

crucial drivers for sustainable development, environmental preservation, social welfare, and economic prosperity. The nuanced strategies employed by these enterprises underscore their potential to serve as catalysts for positive change, contributing meaningfully to a more sustainable and socially responsible future, both within the local community and on a broader scale. This synthesis of CSR and SDGs within MSMEs encapsulates a proactive and strategic approach, providing valuable insights into the transformative potential of these enterprises in fostering a more inclusive, equitable, and sustainable global landscape.

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Keynote Speaker Article

Fostering Innovation and Micro, Small and Medium Enterprise Development in the Philippines through Agri-Aqua Technology Business Incubators

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ABSTRACT

Innovation and technology are recognized as fundamental drivers of economic growth. In the Philippines, promoting innovation is seen as a key strategy to recover from the pandemic, accelerate its growth, and achieve high-income status by 2040. Universities, as sources of knowledge and centers of innovation, contribute directly to national economic development through the incubation of startup firms, commercialization, and technology transfer mechanisms. Research and development experts from these Universities generate new knowledge and commercially viable technologies that could be transferred to develop more micro, small and medium enterprises, which could significantly increase job and wealth creation. Government support mechanisms include the establishment of Technology Business Incubators (TBIs) to bridge the gap between knowledge creation and markets. TBIs actively support the process of the creation of startups or new companies through technology transfer. This presentation describes the relevance and engagement of university-led TBIs in the Philippines. Agri-Aqua TBIs funded by the Department of Science and Technology are potentially tapped as engines and accelerators of commercialization of research outcomes of selected State Universities in the Philippines. It is recommended that innovative technologies in the agriculture and aquaculture sector be strengthened and sustainably developed to achieve the long-term goals of innovation, technological advancement and sustainable growth of the country.

KEYWORDS

enterprise development; innovation; startup; technology business incubators; technology transfer

1. INTRODUCTION

The advancement of any economy relies significantly on the introduction of novel ideas, and this principle is applicable to the Philippines (Bansal et al., 2022). Economic growth in the country heavily depends on the agricultural and aquaculture sectors, and the integration of inventive solutions within these areas can contribute to heightened productivity, efficiency, and sustainability (Boyd et al., 2020). It is imperative to adopt progressive strategies in agriculture and aquaculture to ensure the comprehensive advancement of the nation's economic landscape (Gephart et al., 2021).

The Philippine economy is significantly influenced by micro, small, and medium enterprises (MSMEs), particularly in the agricultural and aquaculture sectors, where they frequently spearhead innovative initiatives (Setiawan et al., 2023). Despite being catalysts for innovation, MSMEs often grapple with constraints, such as limited resources and expertise, hindering their ability to cultivate and bring innovative technologies to the commercial forefront effectively (Gamage et al., 2020). The challenges faced by MSMEs underscore the importance of targeted support mechanisms to empower them in navigating the complexities of technological development and commercialization processes, ensuring their continued vital role in fostering innovation and economic growth (Cueto et al., 2022).

To tackle the challenges faced by micro, small, and medium enterprises (MSMEs) in the agricultural and aquaculture sectors, the implementation of agri-aqua technology business incubators (ATBIs) emerges as a promising solution (Bank, 2023). These incubators play a pivotal role in providing MSMEs with the essential resources and support required for the development and commercialization of innovative technologies (Adeosun & Shittu, 2022). ATBIs offer a comprehensive range of services encompassing technology management, assisting MSMEs in identifying, developing, and safeguarding their intellectual property (Ali et al., 2023). Furthermore, they contribute to business development by aiding MSMEs in crafting business plans, marketing their products, and facilitating access to financing (Prakash et al., 2021). The networking aspect of ATBIs is equally crucial, fostering connections between MSMEs and a broader ecosystem of entrepreneurs, investors, and industry collaborators (Majid & Maulana, 2023). Demonstrating effectiveness, ATBIs have played a significant role in the Philippines, contributing to the establishment of new businesses, job creation, and heightened productivity within the agricultural and aquaculture sectors (Schoor et al., 2023).

The initial objective of this composition is to elucidate the Status of Innovation in the Philippines. In delving into this, the focus will be on providing a comprehensive description of the current state of innovation within the country, taking into account various sectors and industries. The second aim is to expound on the Role of Innovation in the Philippine Economy, examining how innovative practices contribute to economic growth, sustainability, and competitiveness on a national and global scale. The third objective entails elucidating the correlation between Science and Technology and the development of MSMEs, thereby examining the reciprocal connection existing among technological advancements, scientific advancements, and the prosperous growth of MSMEs. The fourth objective is to outline the significance of Agri-Aqua Technology Business Incubators (ATBI) and Innovation System Enhancement, delineating how these entities play a crucial role in fostering innovation and propelling the development of the entrepreneurial ecosystem.

The novelty of this work lies in its comprehensive exploration of various dimensions of innovation in the Philippines, providing a nuanced perspective that surpasses traditional narratives. By addressing diverse objectives, the composition aims to present a holistic view of innovation dynamics, distinguishing itself through nuanced analysis and synthesis. The

benefits are manifold, serving as a valuable resource for policymakers and researchers offering insights into the crucial role of innovation in economic development. Furthermore, the exploration of Science and Technology and MSME development provides actionable information, guiding strategic planning. Lastly, the examination of ATBI and Innovation System Enhancement offers practical approaches for supporting innovation and entrepreneurial endeavors. In essence, the composition contributes substantively to the discourse on Philippine innovation, providing practical insights for stakeholders to foster positive development.

2. METHODOLOGY

The chosen research methodology for this study is the descriptive method, a systematic approach intended to provide a thorough and factual depiction of an existing situation, phenomenon, or symptom (Cuthbertson et al., 2020). In the context of this research, the descriptive method proves to be apt as it seeks to unravel and delineate the integral role of Agri-Aqua Technology Business Incubators (ATBIs) in fostering innovation and facilitating the development of Micro, Small, and Medium Enterprises (MSMEs) within the realms of agriculture and aquaculture in the Philippines (Alexandropoulos et al., 2023). By opting for this method, the research endeavors to offer a comprehensive understanding of the intricate dynamics at play, embracing a detailed exploration that goes beyond mere statistical analysis (Skivington et al., 2021). This approach allows for a nuanced portrayal of the current state of ATBIs, elucidating their impact on innovation within the MSME sector. Consequently, the descriptive method becomes an invaluable tool in unraveling the complexities inherent in the intersection of technology incubation, entrepreneurial development, and the specific contexts of agriculture and aquaculture (Irawan, 2023) in the Philippines, contributing to a more holistic comprehension of the subject matter (Yan et al., 2023).

3. RESULTS AND DISCUSSION

3.1. Current State of Innovation in the Philippines

The Global Innovation Index (GII) stands as a benchmark for evaluating world economies based on their innovative capabilities, encompassing both input and output parameters (Erdin & Çağlar, 2023). The Philippines' standing in the GII has demonstrated fluctuations over the years, reflecting variations in its ranking and areas of strength and enhancement (Goltiano et al., 2021). In the 2022 ranking, the country experienced a decline to the 59th position, a downturn from its 2021 standing (Dutta et al., 2022). This dip was predominantly attributed to reduced performance scores in Knowledge and Technology Outputs, primarily influenced by factors such as knowledge creation, impact, and diffusion (Chawla & Kumar, 2023).

However, there was a positive shift in the 2023 ranking, as the Philippines secured the 56th position among 132 economies, showcasing improvement from the preceding year (Rajabov et al., 2023). Notably, the country exceeded expectations relative to its gross domestic product (GDP), indicating a capacity to generate more innovation outputs in proportion to its level of innovation investments (Sharif et al., 2023). The rankings from previous years also underscore the dynamic nature of the Philippines' performance in the GII, ranging from the 51st to the 73rd position in different periods (Serzo, 2021).

Examining specific areas of strength and improvement, the Philippines demonstrates prowess in Business Sophistication, Knowledge and Technology Outputs, and Market

Sophistication. However, there is room for enhancement in crucial domains such as Human Capital and Research, Infrastructure, and Institutions (Ammirato et al., 2023). This nuanced evaluation of the GII reveals a comprehensive landscape, showcasing the country's innovation strengths while highlighting targeted areas for development (Strielkowski et al., 2023).

Ultimately, the GII serves as a valuable tool offering insights into the innovation performance of economies, aiding them in making informed policy decisions (Tziogkidis et al., 2020). For the Philippines, its GII performance serves as a testament to the nation's commitment and advancements in the realm of innovation (Maruccia et al., 2020). The nuanced understanding of areas of strength and opportunities for improvement provides a strategic roadmap for further development, ensuring the country remains on a trajectory of sustained progress in the field of innovation (Tziogkidis et al., 2020).

3.2. Role of Innovation in the Philippines Economy

The pivotal role of innovation in steering economic growth, sustainability, and competitiveness stands as a cornerstone in the Philippines' economic landscape (Escollano et al., 2023). In the ensuing discussion, the third objective aims to elucidate the intersection of science and technology with the development of MSMEs. This objective involves an examination of the symbiotic relationship between technological advancements, scientific progress, and the prosperity of micro, small, and medium enterprises (Chege & Wang, 2020). In terms of economic growth, innovation serves as a catalyst that not only enhances the quality of goods and services but also streamlines production processes, benefiting consumers, businesses, and the overall economy (Surya et al., 2021). The consistent demonstration of technological innovation as a driver of sustainable economic growth underscores its indispensable role in shaping the economic trajectory, assuming continuous returns to innovative research (Omri, 2020).

Sustainability is another dimension where the Philippines has strategically acknowledged and leveraged innovation (Mady et al., 2023) in the pursuit of unlocking the potential inherent in distinctive sources of innovation within the country, such as traditional knowledge and cultural expressions. The nation endeavors to embrace these resources while simultaneously implementing safeguards against misappropriation (Sian & Smyth, 2022). The emergence of social entrepreneurship further contributes to the nexus of economic growth and sustainability, emphasizing initiatives that benefit public welfare (Ullah et al., 2022).

Moreover, the influence of innovation reaches into the realms of education and social development, exemplified through academic initiatives that strive to cultivate individuals capable of making significant contributions to the global knowledge economy and addressing socio-economic challenges at the national level (Corso, 2020). The interconnectedness of innovation, competition-driven growth, and enhanced productivity highlights their pivotal roles in promoting inclusive growth, not only within the national landscape but also on the global stage (Ullah et al., 2022). This symbiotic relationship underscores the multifaceted impact of innovation, stretching beyond economic realms to encompass broader aspects of societal progress and development (Vincent & Feola, 2020).

3.3. The Philippine National Innovation Strategy

Filipinnovation, encapsulated in the Philippine National Innovation Strategy, aspires to harness the inventive spirit of Filipinos to bolster global competitiveness (la Peña, 2020). The strategy revolves around the "Four Pillars" approach, each delineating a distinct facet to

shape the landscape of innovation within the country (Macaranas, 2023). The first pillar emphasizes the critical need to fortify Filipino human capital, aiming to cultivate a skilled workforce proficient in science, technology, and entrepreneurship to serve as the bedrock for sustained innovation (Gonzales et al., 2022). Simultaneously, the second pillar focuses on supporting business incubation and acceleration efforts, recognizing the role of entrepreneurship in translating innovative ideas into thriving ventures (Pustovrh et al., 2020).

The third pillar of Filipinnovation revolves around reshaping the policy environment to foster innovation (Dutta et al., 2020). The strategy aims to regenerate policies that acknowledge the importance of adaptive regulations by eliminating barriers and providing incentives conducive to innovative endeavors (Srisathan et al., 2023). By creating an environment that supports and encourages innovation, Filipinnovation aims to facilitate unimpeded growth in innovative enterprises (Garcia et al., 2021). Lastly, the fourth pillar is dedicated to engendering a mindset and culture of innovation (Canning et al., 2020). Filipinnovation recognizes that innovation goes beyond infrastructure or policies (Jugend et al., 2020), emphasizing the need to instill a societal ethos that values creativity (Alacovska & Kärreman, 2023), resilience, and an entrepreneurial spirit (Cueto et al., 2022).

In conclusion, Filipinnovation's holistic approach, rooted in the Four Pillars, seeks to usher in a new era of creativity and competitiveness in the Philippines (Saqib & Satar, 2021). By fortifying human capital, supporting entrepreneurial ventures, reshaping policies, and fostering a culture of innovation, the strategy aspires to position the nation as a formidable force in the global innovation landscape (Fasi, 2023). Through these concerted efforts, Filipinnovation endeavors to propel the Philippines towards sustained progress and success on the world stage.

3.4. Illuminating the Synergy: Science, Technology, and MSMEs Development

The effort acknowledges the crucial function of MSMEs as sources of innovation, even though they operate with limited research and development (R&D) budgets (Khurana et al., 2021). This recognition is emphasized by the noteworthy impact of MSMEs on the Global Innovation Index (GII) of the country, resulting in an improvement in the Philippines' ranking from 73rd to 54th among 129 nations (la Peña, 2020). The substantial influence of the MSME sector on overall innovation persists, highlighting the essential contribution of these businesses in propelling innovation and enhancing competitiveness in the Philippines (ESCAP, 2021).

The initiative underscores the impact of digitalization on innovation and competitiveness, emphasizing the integration of technological advancements into MSME developmental strategies in the Philippines (Supriyati et al., 2023). Collaborations with higher education and government programs, notably the STRIDE initiative supported by USAID, play a crucial role. STRIDE focuses on strengthening higher education, government initiatives, and the regulatory framework, enhancing research productivity, fostering collaboration, and cultivating a robust innovation ecosystem (Crocco, 2021). This strategic approach contributes significantly to economic development, aligning with the nation's rapid economic growth.

In summation, "Illuminating the Synergy: Science, Technology, and MSMEs Development in the Philippines" articulates a nuanced understanding of the interconnected dynamics between science, technology, and MSME development as a catalyst for innovation and economic expansion (Ilas-Panganiban & Mitra-Ventanilla, 2020). The initiative's acknowledgment of MSMEs as pivotal contributors to the innovation landscape highlights their central role. Additionally, its focus on the transformative effects of digitalization

underscores the importance of embracing technological advancements (Volberda et al., 2021). Furthermore, strategic collaborations with educational institutions and government programs play a crucial part in fostering a dynamic and prosperous innovation ecosystem in the Philippines (Lunag et al., 2023).

3.5. Agri-Aqua Technology Business Incubators (ATBI) and Innovation System Enhancement: Driving Innovation and Entrepreneurial Ecosystem Development

Agri-Aqua Technology Business Incubators (ATBIs) are positioned as pivotal entities in fostering innovation within the Philippine agricultural and aquaculture sectors (Bank, 2023). Through their provision of essential resources and support, ATBIs facilitate the development and commercialization of innovative technologies, contributing to transformative advancements in these sectors (Orozco & Grundmann, 2022). One of the primary impacts of ATBIs lies in their ability to enhance productivity and efficiency for Micro, Small, and Medium Enterprises (MSMEs) (Phuong et al., 2021). By guiding MSMEs in the adoption of novel technologies, ATBIs pave the way for streamlined processes, ultimately improving the overall productivity and efficiency of operations in agriculture and aquaculture (Mustafa et al., 2021).

Furthermore, ATBIs play a crucial role in bolstering the competitiveness of MSMEs operating in these sectors. The support offered by ATBIs extends to the development of new and innovative products and services, empowering MSMEs to navigate the challenges of the global market (Ilas-Panganiban & Mitra-Ventanilla, 2020). This strategic guidance enables MSMEs to position themselves as contenders in the global landscape, fostering a competitive edge that is essential for sustainable growth and market resilience (Cueto et al., 2022).

In addition to improving productivity and competitiveness, ATBIs contribute significantly to meeting the evolving needs of consumers (Olazo, 2023). By assisting MSMEs in the development of innovative products and services, ATBIs align local enterprises with the changing preferences and demands of consumers (Taneja et al., 2023). This adaptive approach not only ensures the relevance of agricultural and aquaculture products in the market but also positions MSMEs to be responsive to consumer trends, thereby enhancing market penetration and consumer satisfaction (Suson et al., 2023).

3.6. Universities as Center of Innovation

The pivotal role of universities as epicenters of innovation in the Philippines is instrumental in steering the nation's economic growth and cultivating a thriving innovation ecosystem (Nguyen et al., 2020). Strategic collaborations with higher education institutions and government programs have proven crucial in amplifying the impact of science and technology on the Philippine economy (Moreno & Sulasula, 2023). Notably, the Science, Technology, Research and Innovation for Development (STRIDE) program, supported by the US Agency for International Development (USAID), stands out as a noteworthy initiative (Weidner et al., 2023). Aimed at fortifying higher education institutions, government programs, and the regulatory framework, STRIDE employs a multi-sectoral approach, providing targeted technical assistance to enhance research productivity in Philippine universities and catalyze collaboration among diverse stakeholders (Murphy et al., 2022). This comprehensive strategy contributes to the cultivation of a robust innovation ecosystem that, in turn, propels economic development in the country (Madsen, 2020).

Moreover, universities in the Philippines have received financial support for the establishment of incubation centers, signaling a dedication to fostering innovation and entrepreneurship within the academic realm (Parthasarathy et al., 2021). The burgeoning landscape includes over 20 incubation centers, 30 investors, and 20 venture capitalists, supporting a network of more than 300 startups, with 200 actively operating as of July 2018 (Alinsunod et al., 2019). This flourishing ecosystem illustrates the pivotal role of higher education in not only nurturing a culture of innovation but also actively supporting the growth of entrepreneurial ventures (Pustovrh et al., 2020).

In essence, universities in the Philippines stand as vital hubs for innovation, research, and entrepreneurship, exerting a crucial influence on the advancement of science, technology, and the development of Micro, Small, and Medium Enterprises (MSMEs) (Mendoza, 2023). Beyond serving as knowledge repositories, these institutions actively contribute to the country's economic growth and innovation by providing a fertile ground for research endeavors, fostering collaborative initiatives, and nurturing the development of innovative solutions to address both societal and economic challenges (Leckel et al., 2020). Innovation ecosystems refer to the collaborative network involving various stakeholders, such as academic institutions, enterprises, and governmental bodies, collectively contributing to the advancement of innovation and economic progress (Carl, 2020). Universities are pivotal in fostering innovation by cultivating an environment for research, creativity, and expertise (Vicente-Saez et al., 2020).

4. CONCLUSION

This research aimed to unravel the pivotal role of universities in the Philippines as catalysts for innovation, with a particular emphasis on collaborative initiatives with government programs such as the Science, Technology, Research and Innovation for Development (STRIDE) program. The research objectives have been successfully addressed, revealing that universities play a crucial role in fostering innovation, research, and entrepreneurship, significantly impacting the nation's economic growth. The findings underscore the substantial influence of universities in driving economic growth through collaborative partnerships. The USAID-supported STRIDE program serves as a pertinent example, fortifying research productivity, fostering a multi-sectoral collaboration, and contributing to a robust innovation ecosystem. The interconnectedness between academia, government programs, and external agencies showcases the multifaceted role of universities in shaping the innovation landscape. To further amplify the positive impact of universities on innovation and economic growth, it is suggested that continuous efforts be made to enhance collaborative initiatives. Strengthening partnerships between higher education institutions, government programs, and external agencies will create a conducive environment for sustained innovation. Encouraging universities to participate actively in similar collaborative programs will contribute to the ongoing development of the innovation ecosystem. This research recommends an intensification of collaborative initiatives, emphasizing the sustained engagement of universities in fostering innovation and entrepreneurship. Strategic partnerships, similar to the successful model exemplified by the STRIDE program, should be actively promoted. Additionally, encouraging universities to establish and expand incubation centers would further nurture a culture of innovation and support entrepreneurial ventures. The research highlights the need for policies that promote and incentivize collaborative initiatives between universities and government programs. Policymakers should strategize for sustained university partnerships to drive economic growth through innovation-led development. Creating an environment conducive to these collaborations will contribute significantly to the long-term success of innovation ecosystems in the Philippines.

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Keynote Speaker Article

SEAMEO's Role in Shaping Education in Era Society 5.0: Bridging Cultures for Sustainable Development

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ABSTRACT

This paper delves into the pivotal backdrop of Southeast Asian educational dynamics within the Society 5.0 framework. The significance of this study lies in unraveling SEAMEO's multifaceted roles in fostering regional cooperation, aligning educational strategies with global frameworks, and addressing the challenges posed by Industry 4.0. The methodology employed combines a comprehensive literature review to establish theoretical foundations and a descriptive-analytical approach to critically analyze SEAMEO's contributions. Findings illuminate SEAMEO's proactive involvement in aligning education with the transformative trends of Industry 4.0, integrating advanced technologies, and championing innovative pedagogical paradigms. The manuscript posits recommendations emphasizing the development of social and emotional abilities, foreseeing a future where homeschooling, individualized instruction, and e-learning platforms play pivotal roles. Policy implications underscore the necessity for adaptive policies that embrace technological integration, capacity building for educators, and the prioritization of social and emotional skills. In essence, the manuscript navigates through SEAMEO's influential role in shaping education, unraveling its current contributions, and providing strategic insights for future policy considerations within the ever-evolving landscape of Society 5.0.

KEYWORDS

adaptive policies; multifaceted roles; pedagogical paradigms; strategic insights; transformative trends

1. INTRODUCTION

The role undertaken by the Southeast Asian Ministers of Education Organization (SEAMEO) in shaping the educational landscape during the Society 5.0 era is of paramount significance. SEAMEO actively engages in fostering regional collaboration across the domains of education, science, and culture, with a core objective of elevating the standards of education and cultivating sustainable human resources to enhance the overall quality of life in the Southeast Asian region. This mission is realized through the facilitation of deeper understanding and collaboration, serving as a platform for meaningful policy dialogues and championing initiatives that align with the UN 2030 Agenda for Sustainable Development. Notably, SEAMEO's endeavors are particularly focused on advancing Sustainable Development Goals 4, 5, and 17, ensuring a strategic and purposeful contribution to the global pursuit of sustainable development in education (Tkachenko et al., 2022).

SEAMEO's proactive initiatives in reshaping the educational terrain in Southeast Asia align seamlessly with the imperatives set forth by the Education 2030 agenda. This agenda attests to its steadfast dedication to meeting the dynamic educational requirements of the region. Furthermore, SEAMEO has demonstrated active involvement in advocating for education geared towards sustainable development (Ang, 2021). This commitment is evident through its engagement in the Global Action Programme (GAP) on Education for Sustainable Development (ESD), a pivotal initiative launched during the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Conference on ESD in Aichi-Nagoya, Japan (Nguyen & Marjoribanks, 2021).

SEAMEO assumes an essential function in molding education within the context of Society 5.0. The manuscript aims to provide an exhaustive comprehension of SEAMEO's contributions to cultural integration and sustainable development in the region by examining the organization's initiatives, policies, and collaborative endeavors. This examination involves a thorough analysis of SEAMEO's strategies, which are harmonized with global frameworks such as the Sustainable Development Goals (SDGs) and the Sufficiency Economy Philosophy (SEP). These insights illuminate SEAMEO's endeavors to prepare the younger generation for the forthcoming challenges and opportunities of the future (Orozco & Berame, 2022).

In order to highlight SEAMEO's unique approaches to meeting the ever-changing demands of the future, this work takes a fresh approach by going beyond traditional analyses of educational policies and practices. The incorporation of insights from global educational frameworks such as UNESCO's Transforming Education Summit and OECD's Learning Framework 2030 adds a contemporary dimension to the discourse. Emphasizing the dynamism characterizing the evolution of education during the Industry 4.0 era, the document highlights the integration of advanced technologies like IoT, AI, machine learning, and gamification into the teaching and learning process (Real, 2022).

The content is highly significant because it contributes to the continuing scholarly discussion about education and because it will be useful for academics, educators, and policymakers in Southeast Asia. By shedding light on SEAMEO's initiatives within the framework of Society 5.0, the content offers insightful perspectives into potential future trajectories of educational development. The discernment of pivotal trends, challenges, and opportunities, coupled with an exploration of the Sufficiency Economy Philosophy as a guiding framework, provides practical guidance for nurturing well-rounded global citizens capable of thriving in Society 5.0. Ultimately, the content aspires to catalyze positive transformations in educational paradigms, fostering a future that is both sustainable and inclusive for Southeast Asia.

2. METHODOLOGY

The study's cornerstone is an extensive literature review that underpins SEAMEO's pivotal role in education (Laksmiwati et al., 2023). Through a meticulous examination of relevant literature, the author gains insight into key concepts associated with SEAMEO's impact, including critical themes such as Society 5.0, sustainable education, and the intricate intersections of diverse cultures. This comprehensive exploration forms the foundation for understanding the complexities of SEAMEO's involvement in education, providing valuable insights into its relationship with contemporary concepts and the multi-faceted nature of its influence. By immersing themselves in a diverse array of literature, the author uncovers the fundamental principles that define SEAMEO's significance in education, ultimately enriching the understanding of its pivotal role in shaping educational practices (Alemayehu, 2020).

The employed method is the descriptive-analytical approach, designed to objectively and comprehensively elucidate a phenomenon or condition and subsequently subject it to critical analysis. The descriptive facet of this method is deployed to articulate a clear and detailed depiction of a particular phenomenon, in this case, the pivotal role undertaken by SEAMEO in shaping education within the Society 5.0 era. The author is tasked with providing an exhaustive account of SEAMEO's endeavors, encompassing specific programs and activities implemented to achieve their objectives. Concurrently, the analytical aspect of the method is harnessed to critically analyze SEAMEO's role in shaping education during the Society 5.0 era from various perspectives, including cultural, social, economic, and political lenses. The author is further tasked with scrutinizing the repercussions of SEAMEO's role in education in Southeast Asia (Ng et al., 2021).

3. RESULTS AND DISCUSSION

3.1. SEAMEO's Strategies: Global Alignment & Analysis

Aligned with its strategic vision spanning from 2019 to 2024, SEAMEO is currently spearheading the initiative of commissioning 11 comprehensive country case studies. These studies are meticulously designed to delve into the intricate landscape of education technology in Southeast Asia, meticulously scrutinizing the myriad opportunities and challenges within the region. The overarching objective of this regional report is to enhance its utility for national audiences while fostering substantive policy dialogues throughout the region. This endeavor unequivocally underscores SEAMEO's unwavering commitment to comprehensively grasp and harness the potential of education technology within the unique context of Southeast Asia (Nelles, 2023).

SEAMEO INNOTECH recently organized a webinar aimed at facilitating a comprehensive discussion surrounding the diverse contexts and scenarios pertaining to the integration of technology in education across Southeast Asian countries. This strategic initiative forms an integral component of SEAMEO's broader endeavors, specifically in the preparation of a thematic background paper tailored for UNESCO's Global Education Monitoring. The webinar serves as a testament to SEAMEO's proactive engagement and substantial contributions to championing the cause of technology in education within the region, exemplifying the organization's commitment to fostering advancements in educational practices through strategic collaborations and informed dialogues (Nurazizah et al., 2021).

The meticulous process of strategic alignment serves as a foundational mechanism to guarantee that an organization's structure, resource utilization, and cultural framework seamlessly align with its overarching strategy. By harmonizing these essential components,

strategic alignment plays a pivotal role in enhancing organizational performance through the optimization of process/system operations and the synergized activities of various teams and departments. The significance of this concept is particularly pronounced in the intricate dynamics of a global business environment, where the coordination of activities extends across diverse regions and time zones. Recognizing and implementing strategic alignment not only fosters operational efficiency but also ensures the organizational agility necessary to navigate the complexities inherent in a globally dispersed business landscape (Ruel et al., 2021).

The pivotal importance of strategic alignment lies in its role in guaranteeing the harmonization of an organization's activities with its overarching strategies, thereby culminating in enhanced performance outcomes. Research findings assert that the mere formulation of a strategic plan alone does not exert a substantive impact on business performance; rather, it is the meticulous alignment of activities to these strategies that truly differentiates successful organizational outcomes (Tkachenko et al., 2022).

In a broader context, SEAMEO's strategic directives for global alignment and analysis are underscored by a focused commitment to comprehending and leveraging education technology within the unique context of Southeast Asia. Simultaneously, the organization recognizes and prioritizes the strategic alignment imperative, acknowledging its instrumental role in optimizing organizational performance, particularly within the intricate dynamics of the global business environment. This multi-faceted approach underscores SEAMEO's dedication to strategic coherence, thereby positioning it at the forefront of effective organizational management and developmental initiatives (Diao et al., 2023).

3.2. SEAMEO's Strategies: Harmonizing SDGs and SEP Analysis

In its pursuit to elevate the standards of education, science, and culture across Southeast Asia, SEAMEO conscientiously aligns its strategic initiatives with the globally recognized Sustainable Development Goals (SDGs) and the tenets of the Sufficiency Economy Philosophy (SEP). This strategic alignment underscores SEAMEO's commitment to cultivating sustainable human resources and enhancing the overall quality of life within the region. By harmonizing its mission with these frameworks, SEAMEO seeks to not only address immediate educational needs but also contribute meaningfully to the broader socio-economic and cultural development goals outlined by the SDGs and the guiding principles of SEP. This concerted effort signifies SEAMEO's dedication to comprehensive and sustainable regional development, positioning it as a catalyst for positive transformation in the educational landscape and beyond (Nelles et al., 2022).

SEAMEO meticulously aligns its strategies with the comprehensive framework of the 17 Sustainable Development Goals (SDGs) delineated in the 2030 Agenda for Sustainable Development. The organization demonstrates a nuanced understanding of the intricate interconnections inherent within the SDGs, encompassing dimensions of social, economic, and environmental sustainability. Through the deliberate integration of the SDGs into its initiatives, SEAMEO aspires to make meaningful contributions toward the realization of overarching objectives, including the eradication of poverty, hunger, AIDS, and gender-based discrimination, while concurrently prioritizing advancements for marginalized and disadvantaged populations. This strategic alignment underscores SEAMEO's commitment to addressing multi-faceted global challenges and its dedication to fostering sustainable development on a comprehensive scale (Pongsin et al., 2023).

SEAMEO SEPS, situated in Bangkok, Thailand, has organized webinars designed to disseminate expertise and knowledge pertaining to the practical integration of the

Sufficiency Economy Philosophy (SEP). This strategic initiative exemplifies SEAMEO's steadfast commitment to the alignment and harmonization of SEP's principles with sustainable development practices. The concerted effort towards the practical integration of SEP signifies SEAMEO's dedication to fostering sustainable development and resilience within the region, thereby concurring with the overarching objectives delineated by the Sustainable Development Goals (SDGs). Through these educational initiatives, SEAMEO seeks to engender a comprehensive understanding and application of SEP, ensuring its meaningful incorporation into regional developmental frameworks and contributing to the larger discourse on sustainable and resilient socio-economic practices (Phuoc & Duke, 2023).

The imperative of harmonizing the Sustainable Development Goals (SDGs) and the Sufficiency Economy Philosophy (SEP) is paramount to ensuring the coherence of SEAMEO's endeavors in education, science, and culture with sustainable development principles. The alignment of SEAMEO's strategies with the global SDGs, coupled with the integration of SEP principles, underscores the organization's commitment to contributing actively to the overarching international agenda for sustainable development. This strategic approach enables SEAMEO to address the distinctive needs and challenges intrinsic to the Southeast Asian context, thereby facilitating a nuanced and context-specific implementation of sustainable development practices. In essence, SEAMEO's strategic alignment encompasses the synchronization of initiatives with the 17 SDGs and the incorporation of SEP principles, ultimately fostering sustainable human resources and an enhanced quality of life throughout Southeast Asia. This nuanced and comprehensive alignment epitomizes SEAMEO's dedication to serving as a pivotal contributor to global sustainable development endeavors while concurrently addressing the unique regional priorities and challenges within its purview (Fernandez, 2020).

3.3. Global Educational Frameworks Enhancing Contemporary Discourse

SEAMEO's commitment to advancing contemporary discourse manifests prominently in its collaborative initiatives, notably exemplified by its partnership with the UNESCO Global Education Monitoring (GEM) Report Team in the development of the GEM Regional Report 2023 on Technology and Education (Charitonos et al., 2023). This pioneering collaboration serves as a testament to SEAMEO's dedication to seamlessly integrating global educational frameworks, with a specific focus on the dynamics of technology in education. By engaging in such endeavors, SEAMEO not only underscores its commitment to remaining abreast of global educational trends but also actively addresses the evolving educational requirements of Southeast Asian nations. This collaborative effort signifies a strategic alignment with international educational standards, positioning SEAMEO as a catalyst for informed, inclusive, and progressive educational practices in the Southeast Asian region (Phuoc & Duke, 2023).

SEAMEO's proactive stance towards advancing discourse on educational leadership and management within the Southeast Asian region is evident through its facilitation of regional workshops (Irawan et al., 2023). Notably, the collaborative initiative with SEAMEO RETRAC resulted in the organization of workshops like "Enhancing Inclusive and Equitable Quality Education in Southeast Asia through Innovative Educational Leadership and Management" (Anita et al., 2021). These workshops underscore SEAMEO's commitment to providing platforms for constructive discussions and the exchange of insights on contemporary approaches to educational leadership. By spearheading such initiatives, SEAMEO actively contributes to the professional development of educational leaders within the region, fostering an environment conducive to inclusive and equitable quality education. This strategic commitment aligns seamlessly with the organization's broader mission of

enhancing the educational landscape in Southeast Asia through proactive engagement and knowledge dissemination (Esthi et al., 2023).

SEAMEO's commitment to augmenting the capacity development of educational leaders, school administrators, and teachers is prominently reflected through a diverse array of training courses, workshops, and seminars. These initiatives, diligently provided by the 26 SEAMEO Regional Centres, stakeholders, and collaborative partners, constitute a significant facet of the organization's multi-faceted approach to advancing contemporary discourse and achieving program excellence in education. By systematically addressing the professional development needs of diverse educational stakeholders, SEAMEO ensures the cultivation of a knowledgeable and adept cadre of individuals equipped to navigate the evolving challenges and opportunities within the field of education. This strategic emphasis on capacity development aligns seamlessly with SEAMEO's overarching mission of elevating educational standards and fostering sustained excellence throughout the Southeast Asian region (Kitamura & Ashida, 2023).

SEAMEO INNOTECH's active engagement in scrutinizing the diverse contexts and applications of educational technology across Southeast Asian countries, evident through its webinars and contribution to the preparation of thematic background papers for UNESCO's Global Education Monitoring, underscores the organization's steadfast commitment to embracing technological advancements as an integral facet of contemporary discourse in education. This strategic involvement signifies SEAMEO's recognition of the transformative potential of educational technology in addressing regional educational challenges. In essence, SEAMEO's holistic approach, encompassing the integration of the Sufficiency Economy Philosophy (SEP) and alignment with global educational frameworks, coupled with its proactive initiatives in organizing regional workshops and facilitating capacity development, exemplifies its pivotal role in shaping and elevating the discourse surrounding education in the Southeast Asian context, ultimately contributing to program excellence in the field (Bernardo et al., 2022).

3.4. SEAMEO Strategies for Possible Education in the Future: Bridging Cultures for Sustainable Development

SEAMEO's Education in Emergencies program is designed to offer vital support to communities grappling with crises. This initiative underscores a commitment to delivering flexible, adaptable, and context-specific educational solutions meticulously tailored to meet the unique needs of learners confronted by challenging environments. The program serves as a responsive mechanism, addressing the exigencies of educational delivery during times of crises and upheaval. Through this strategic approach, SEAMEO endeavors to mitigate the impact of emergencies on the continuity of education, affirming its dedication to the broader mission of enhancing access to quality education, even in the face of unforeseen challenges (Tarricone et al., 2023).

SEAMEO's steadfast commitment to fostering innovation and technology within the educational domain, encompassing policies, teacher training, and technological integration, is indicative of its emphasis on individualized instruction and personalized educational methodologies. This strategic commitment aligns with contemporary pedagogical trends, acknowledging the significance of tailoring instructional methods to cater to the unique learning needs of each student. SEAMEO's multi-faceted approach, spanning policy frameworks, teacher capacity building, and technological advancements, underscores its dedication to providing a learning environment that accommodates diverse learning styles and maximizes the potential for individualized educational experiences. This concerted effort positions SEAMEO as a key player in shaping modern educational paradigms that

prioritize personalized instruction for optimal student learning outcomes (Carreon & Aquino, 2021).

Functioning as a dedicated training center for educational research and training, SEAMEO INNOTECH ardently endeavors to shape an improved future and learning milieu for students (Castro et al., 2023). Its unwavering commitment extends to the provision of high-quality and innovative solutions, notably exemplified through the integration of e-learning platforms. This strategic approach aligns with contemporary educational paradigms, acknowledging the transformative potential of technology in enhancing accessibility, flexibility, and effectiveness within the realm of education. SEAMEO INNOTECH's role as a pioneering training hub underscores its dedication to advancing educational methodologies, ensuring the seamless integration of modern tools and platforms for optimal learning outcomes (Chong et al., 2022).

Anticipating the educational landscape by 2050, SEAMEO envisions a decrease in physical campuses, a transformative shift validated by general search results. However, specific information on this aspect within SEAMEO's plans is not discernible from the available data. Concurrently, SEAMEO positions itself at the forefront of educational evolution, particularly in embracing educational technology and innovative learning methodologies. The organization's active engagement in disseminating insights on Southeast Asian countries' utilization of technology in education underscores its commitment to fostering discussions and advancements in edtech and project-based learning, aligning with the evolving educational needs and aspirations of the region (Hines & Dockiao, 2021).

SEAMEO underscores a commitment to evolving educational roles by prioritizing the capacity development of educational leaders, school administrators, and teachers. This emphasis is particularly evident in the diverse training courses, workshops, and seminars meticulously offered by the 26 SEAMEO Regional Centres, stakeholders, and collaborative partners. Through these initiatives, SEAMEO actively cultivates an environment that aligns with contemporary educational paradigms, recognizing the nuanced transformation of teachers into guides. This strategic focus positions SEAMEO at the vanguard of addressing the evolving dynamics within the realm of education, fostering a cadre of educators adept at assuming roles as facilitators and mentors in the learning process (Dzvimbo et al., 2022).

SEAMEO's overarching mission to elevate the standards of education, science, and culture in Southeast Asia encapsulates a commitment to cultivating sustainable human resources for an enhanced quality of life. Integral to this objective is the deliberate emphasis on nurturing the social and emotional abilities of learners. By incorporating these facets into the educational framework, SEAMEO endeavors to equip students with a holistic skill set, fostering not only academic prowess but also social adeptness and emotional intelligence. This strategic approach underscores the organization's dedication to shaping well-rounded individuals capable of contributing meaningfully to societal well-being (Pongsin et al., 2023).

4. CONCLUSION

The paper outcomes emanating from a synthesis of empirical investigations or literary contributions function as catalysts for meaningful discussions and intellectual engagements. These findings not only substantiate the validity of the research question or manuscript's central thesis but also pave the way for broader scholarly conversations, enriching the academic landscape. In light of these research outcomes, constructive suggestions emerge as a natural progression, offering avenues for refinement, expansion, or methodological enhancements. These recommendations serve as valuable guideposts, steering future research endeavors toward greater precision, depth, and relevance.

Constructive feedback and suggestions provide researchers with a roadmap for refining methodologies, expanding theoretical frameworks, or addressing potential limitations, thereby contributing to the iterative nature of academic inquiry. The implications drawn from the research findings or manuscript content carry substantial significance, transcending the immediate scope of the study. Implications extend beyond the boundaries of the specific research context, resonating with broader academic, societal, or practical domains. Whether offering insights for policy formulation, suggesting avenues for further exploration, or delineating practical applications, the implications of research findings contribute to the ongoing dialogue in academia and facilitate the translation of knowledge into actionable outcomes. In essence, the journey from research findings to scholarly discourse, suggestions, and implications reflects the dynamic and iterative nature of academic inquiry, actively contributing to the cumulative body of knowledge and fostering continuous learning and refinement within the scholarly community.

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Economy Section Article

Rural Inclusive Entrepreneur to Accelerate The Achievement of Village Sustainable Development Goals

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ABSTRACT

The article explores diverse facets of entrepreneurial development, examining factors such as age, gender, marital status, and company size estimates, as well as its impact on economic growth, unemployment, and societal issues. It also highlights the role of religious institutions and local wisdom in fostering entrepreneurship. The research aims to construct a rural inclusive entrepreneurship model for achieving Village Sustainable Development Goals (SDGs), focusing on poverty and hunger eradication and equitable economic growth. The study employs a development research strategy and uses a saturated sampling technique to gather data from the directors and chairpersons of the District BUMDes Forum in Bali Province. Data collection encompasses documentation, village observations, and in-depth interviews with Village-Owned Enterprises' operational executors. The waterfall method guides data analysis through needs analysis, model design, feasibility testing, implementation, and effectiveness evaluation. Findings underscore collaborative efforts in realizing Village SDGs and identify factors facilitating and hindering the entrepreneurial model's construction. While abundant resources and government support facilitate construction, challenges include limited competence and entrepreneurial orientation. The study, limited to one BUMDes, suggests potential insights from partnering with diverse BUMDes to inform varied rural entrepreneurship development. Implications extend to policy development, with draft models serving as policy briefs for accelerating Village SDGs across different communities.

KEYWORDS

collaborative efforts; entrepreneurial development; inclusive entrepreneurship; rural development; village SDGs

1. INTRODUCTION

Entrepreneurship, derived from the combination of “hero,” meaning brave and “business,” implying running a business, represents the courage to venture into economic activities (Zbierowski & Gojny-Zbierowska, 2022). Integral to entrepreneurship is creativity and driving innovation, which are key indicators of entrepreneurial spirit (Gouvea et al., 2021). The essence of entrepreneurship involves a strong ability to work independently, problem-solving skills, risk-taking courage, creative thinking, and a commitment to ethical business practices (Aránega et al., 2023). Entrepreneurship significantly contributes to a company’s success by fostering economic growth and reducing unemployment (C. Li et al., 2020).

Recent entrepreneurship research focusing on agribusiness ventures in Lagos, Nigeria, has unveiled factors influencing entrepreneurial development (Agu & Nwachukwu, 2020). Positive correlations were found between entrepreneurship and age, gender, marital status, and company size estimates, while family size and primary occupation exhibited negative relationships (Zhu et al., 2020). Entrepreneurial development proved effective in enhancing economic growth and alleviating social issues, exemplified by social entrepreneurship initiatives like Village Credit Institutions (LPD) in Bali, inspired by the Grameen Bank concept (Suarmanayasa et al., 2020; Sugiartana, 2021).

Moreover, research has explored entrepreneurial development efforts by religious institutions, such as Islamic boarding schools and mosques (Raya, 2022). These institutions contribute to shaping entrepreneurial minds and fostering economic empowerment (Dolezal & Novelli, 2022). Similarly, the Hindu community in Bali engages in entrepreneurship through the Krama Bali Cooperative forum, aligning with local wisdom (Rideng et al., 2023).

In order to address the higher poverty rates in rural areas, which persist despite the abundance of untapped potential, this study fills a research gap by concentrating on rural inclusive entrepreneurship. The objective is to construct a model for inclusive village entrepreneurs, aiming to achieve Village Sustainable Development Goals (SDGs) and analyze supporting and inhibiting factors. The novelty lies in fostering inclusivity in rural entrepreneurship, aiming for multicultural entrepreneurs managing local potentials through collaborations. The significance of the research lies in urgently addressing rural poverty, leveraging the richness of natural and human resources in villages through collaborations among Village-Owned Enterprises, communities, micro-entrepreneurs, and academics, and aligning with the broader goal of accelerating Village SDGs.

2. METHODOLOGY

2.1. Research Design

The study falls within the realm of development research, a specialized form of research and development (R&D) dedicated to generating, testing, and evaluating the feasibility of innovative products (Bachri et al., 2023). This research, slated for a three-year duration, focuses on constructing an inclusive village entrepreneurship model to expedite the attainment of Village Sustainable Development Goals (SDGs). The initial phase resulted in a preliminary model, with subsequent years earmarked for conducting feasibility tests and evaluating its effectiveness (Bansal et al., 2023). Various data, categorized as primary, were gathered through observational methods, in-depth interviews, and Focus Group Discussions, contributing to the comprehensive analysis of the inclusive entrepreneurial model’s potential impact and viability (Mondal et al., 2023).

2.2. Population and Sample Used

The study encompassed directors and chairpersons of the District BUMDes Forum in Bali Province as the research population, employing a saturated sampling technique where all members were included as samples (Hennink & Kaiser, 2022). The research collaborator was BUMDes Artha Krama Mandiri in Antiga Kelod Village, Manggis District, Karangasem Regency, Bali Province. In-depth interviews were conducted not only with BUMDes operational implementers but also involved key figures from the Antiga Kelod Village Government, including the Village Head, Village Secretary, and Head of Government Affairs, ensuring a comprehensive understanding. The data quality was rigorously maintained through method triangulation (Hosseini et al., 2021) and data source triangulation, enhancing the reliability and robustness of the research findings (Farquhar et al., 2020).

2.3. Data Collection Techniques

Documentation methods were employed for the collection of secondary data (Jo & Gebru, 2020), accompanied by on-site observations conducted in the selected villages representing the research samples. Additionally, in-depth interviews were conducted with operational executors (Syamsi et al., 2021) of Village-Owned Enterprises (BUMDes). On Saturday, May 27, a Focus Group Discussion took place, featuring the participation of Entrepreneurship Experts (academics from the Faculty of Economics and Business, Udayana University), Rural Development Practitioners (representatives from BUMDes/BUMDes.id schools), and BUMDes Directors, along with chairpersons of the BUMDes Forum from various regencies in Bali. The event also saw the attendance of experts in Village Community Empowerment from the Bali Provincial government and the Head of Community Economic Business Empowerment and Rural Areas at the Bali Provincial Population and Civil Registration Office (Akbar et al., 2020). This diverse gathering aimed to enrich the research with a comprehensive range of perspectives and insights (Subawa et al., 2023).

2.4. Tools or Instruments Used

The data collection instrument employed was a worksheet designed to summarize the inherent natural and human potentials of rural areas (H.-Y. Li et al., 2020). This tool facilitated the systematic compilation of information pertaining to both the environmental and human aspects of rural regions. The worksheet served as a comprehensive means to collate and analyze the diverse elements that contribute to the overall potential of the studied rural areas (Ramaano, 2022). Through its structured format, the instrument enabled a meticulous recapitulation of the intricate interplay between natural resources and human capacities, providing valuable insights for the research aimed at understanding and enhancing rural development (Kumar et al., 2021).

2.5. Data Analysis Methods

The method employed for data analysis was the waterfall technique, a structured approach commencing with needs analysis, followed by the design and testing of a preliminary model, and culminating in the implementation and evaluation of its effectiveness. This method ensures a systematic progression through various stages, providing a comprehensive and iterative framework for examining the collected data (Thesing et al., 2021). Beginning with a thorough needs analysis enables a precise understanding of the research requirements. Subsequently, the design and feasibility testing phase refines the initial model, addressing potential challenges and enhancing its viability. Implementation follows, where the model is put into practice, and its effectiveness is systematically assessed. The waterfall method's

sequential nature ensures a logical flow, allowing for adjustments at each stage, ultimately contributing to a thorough and well-structured data analysis process (Fajriati & Budiman, 2022).

3. RESULTS AND DISCUSSION

3.1. Result

This study has three main objectives. Firstly, it seeks to develop an inclusive rural entrepreneurship model to expedite the realization of the Village Sustainable Development Goals (SDGs), specifically targeting the eradication of poverty, alleviation of hunger, and fostering equitable economic growth (del Arco et al., 2021). The model is being crafted in Antiga Kelod Village, utilizing documentation data showcasing the untapped potential of natural resources, including salt farming, marine fishing, and coconut and banana cultivation. This inclusive rural entrepreneurship model involves the collaboration of BUMDes with micro-entrepreneurs, village communities (such as youth organizations and family welfare empowerment), and universities, emphasizing the need for harmonization among BUMDes, Village Governments, Village Communities, and Universities to foster rural inclusive entrepreneurs. The strong commitment of BUMDes operational implementers is anticipated to sustain the entrepreneurial program's longevity.

Secondly, the study aims to analyze the supporting factors for constructing the rural inclusive entrepreneurship model. Rural inclusive entrepreneurship involves promoting and supporting diverse entrepreneurial activities in rural areas, ensuring the active involvement of all segments of the population for sustainable and equitable economic development (Zhao et al., 2021). Findings from focus group discussions reveal that Bali Province has 631 out of 636 villages with established BUMDes, signifying a high presence. However, five villages lack BUMDes, indicating potential areas for development. Importantly, 78 percent of existing BUMDes are legally recognized entities, highlighting their strategic role in realizing rural inclusive entrepreneurship. The study emphasizes the pivotal role of BUMDes directors in enhancing their entrepreneurial spirit and underscores the significance of collaborative efforts among stakeholders.

Thirdly, the research seeks to analyze inhibiting factors in constructing the rural inclusive entrepreneurship model. Identified constraints include the potential hindrance of a social enterprise model aiming to empower people experiencing poverty and reduce reliance on government assistance (Maksum et al., 2020). The study recognizes the necessity of overcoming challenges to establish social enterprises, emphasizing the need for strong collaboration and a supportive environment. It underscores the importance of addressing inhibiting factors to ensure the success and sustainability of the rural inclusive entrepreneurship model, ultimately contributing to the alleviation of rural poverty and achieving Village SDGs.

3.2. Modeling Rural Inclusive Entrepreneurship through BUMDes Collaboration

Rural areas, although rich in economic potential, encounter various challenges, such as limited resources, insufficient market access, and inadequate infrastructure (Somanje et al., 2020). Overcoming these hurdles requires a focus on promoting inclusive entrepreneurship, creating an environment where individuals, regardless of their background or available resources, can actively engage in and reap the benefits of entrepreneurial endeavors (Di Vaio et al., 2022). A promising strategy to realize this

objective involves the collaborative efforts of BUMDes or Village-Owned Enterprises. BUMDes serve as legal entities established by local communities to oversee economic activities and generate income for the village (Nuraini, 2020). Through strategic collaboration, BUMDes can effectively pool resources, share expertise, and cultivate a more resilient ecosystem that empowers rural entrepreneurs (Mastika et al., 2023). This collaborative approach not only addresses the challenges faced by rural areas but also promotes sustainable economic development by fostering an inclusive entrepreneurial landscape that benefits all members of the community.

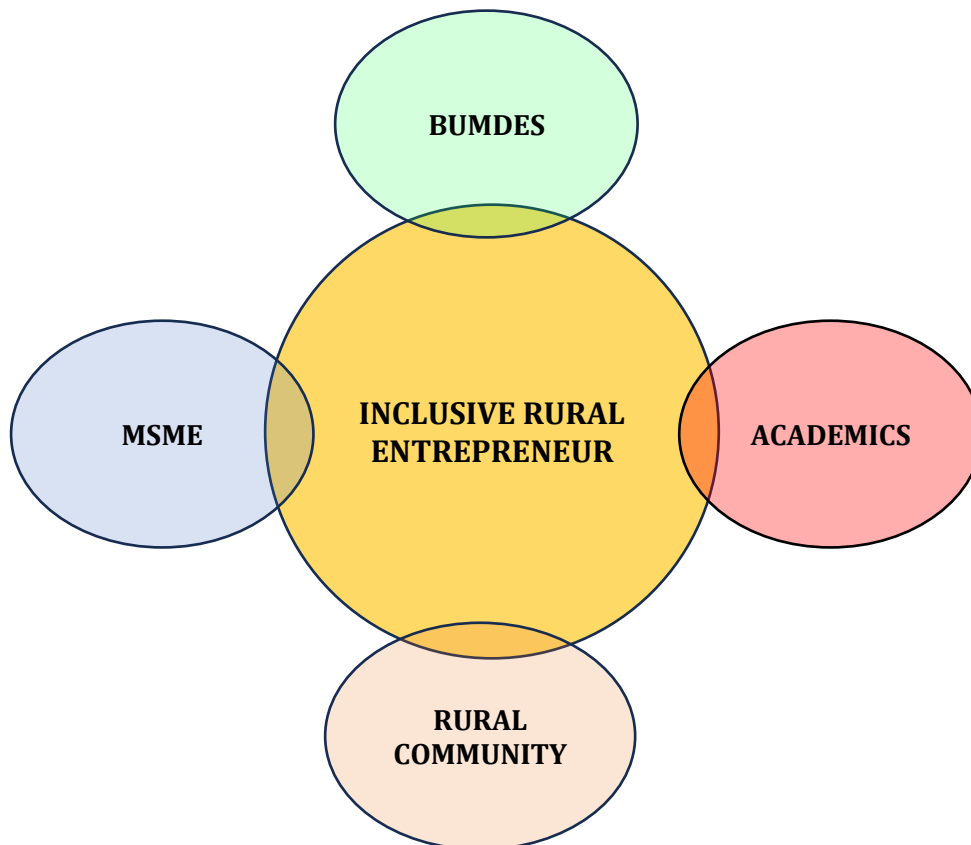


Figure 1. Visualization of rural inclusive entrepreneurship models

In **Figure 1**, the visualization illustrates the creation and improvement of inclusive rural entrepreneurship as a complex ecosystem, where different stakeholders play crucial roles and contribute distinct elements essential to its success. This complex network involves academia, BUMDes (Village-Owned Enterprises), MSMEs (Micro, Small, and Medium Enterprises), and rural communities, each playing a distinct role in promoting the growth of this essential economic engine. According to Berrone et al. (2023), academics play a significant role in establishing the intellectual framework for inclusive rural entrepreneurship through thorough research. This research encompasses local market dynamics, resource mobilization, social impact assessment, and effective enterprise models. Their findings not only inform policy decisions but also offer practical strategies for implementation. Furthermore, academics play a crucial role in capacity building and training by developing programs that cover essential business skills, financial management, digital literacy, and marketing (Rodenburg et al., 2021). These programs empower rural entrepreneurs with the knowledge and skills essential for success.

BUMDes serve as instrumental platforms for inclusive rural entrepreneurship by facilitating resource provision and aggregation. They offer a mechanism for pooling resources such as land, equipment, infrastructure, and finances, making them accessible to rural entrepreneurs and minimizing entry barriers. Moreover, BUMDes plays a pivotal role in providing market access and facilitating connections with distribution channels, contributing to the visibility and recognition of local products and services. The mentorship and support offered by BUMDes further guide rural entrepreneurs in navigating business challenges, providing essential services like accounting, legal advice, and technology support (Sinarwati & Prayudi, 2021).

MSMEs contribute significantly to inclusive entrepreneurship by fostering job creation and economic growth in rural areas (Aminullah et al., 2022). Their role extends to innovation and knowledge transfer, serving as exemplars and disseminating practical learning opportunities for aspiring entrepreneurs. Through collaboration and value chain integration facilitated by BUMDes, rural MSMEs connect with larger businesses, reinforcing regional economic linkages and creating more efficient and resilient local economies (Hernita et al., 2021).

Rural communities form the foundation of inclusive rural entrepreneurship, actively participating in and owning the process (Maksum et al., 2020). Their involvement in identifying needs, planning initiatives, and implementing strategies ensures that entrepreneurship benefits all community members. Rural communities contribute to the ecosystem by developing a competent workforce through skill development and capacity-building initiatives, addressing skill gaps and collaborating with educational institutions (Tarlani & Sirajuddin, 2020). Additionally, communities play a vital role in resource mobilization and investment, pooling traditional knowledge and attracting external investments by showcasing the potential and viability of rural entrepreneurship initiatives.

The dynamic and mutually reinforcing relationships between these stakeholders form a resilient framework for inclusive rural entrepreneurship. Academia informs BUMDes facilitate, MSMEs drive local economies, and rural communities provide the foundation (Kania et al., 2021). Effective collaboration and communication between these entities are essential for the flourishing of inclusive rural entrepreneurship (Annahar et al., 2023), fostering a more prosperous and equitable future for rural communities.

3.3. Discussion

The research at hand addresses the pressing issue of high poverty rates in a village rich in natural and human resources. Despite these assets, the underutilization of human resources, particularly within the operational implementers of BUMDes (Village-Owned Enterprises), has prompted the exploration of a solution. The waterfall model aims to expedite the realization of the Village Sustainable Development Goals (SDGs), with a primary focus on eradicating poverty, alleviating hunger, and fostering equitable economic growth (Illham et al., 2022). The construction of the rural inclusive entrepreneurship model involves collaboration with various stakeholders, including prospective entrepreneurs, BUMDes, academics, and diverse community groups such as family welfare empowerment (PKK), farmer groups, tourism awareness groups, fishermen groups, and youth organizations. The initiative seeks to leverage the abundant natural and human resources in the village (Saleh et al., 2020), supported by government policies, particularly through the allocation of village funds for economic recovery and BUMDes capacity building.

While the research identifies supporting factors, it also acknowledges inhibiting factors in the construction of the model. Challenges include the low entrepreneurial orientation of BUMDes operational implementers and rural communities, coupled with limited education,

marketing abilities, and financial facilities. These obstacles resonate with findings from rural entrepreneurship research in India, emphasizing the significance of addressing infrastructural limitations (Girschik, 2020).

The research collaborates with BUMDes Artha Krama Mandiri Antiga Kelod, where the partner's role is vital in providing in-kind support during the research. Actively participating in research activities (Kurnianto et al., 2023), the partner collaborates with academics to design programs aimed at optimizing the management of natural resources for poverty reduction and achieving equitable economic growth (Permatasari et al., 2021). The anticipated implementation of the rural inclusive entrepreneurship model holds the potential to uplift rural economic development, as observed in the successful application of similar models (Raja et al., 2022).

The contribution of this research to the field of economics lies in its dual focus. Firstly, it employs a development research approach to construct a rural inclusive entrepreneurship model, diverging from previous studies that primarily examined determinants of rural entrepreneurship orientation (Khizar et al., 2022). Secondly, the inclusive nature of the constructed rural entrepreneurship model distinguishes it from exclusive models discussed in earlier research, emphasizing collaboration among diverse stakeholders (German et al., 2020). This research provides valuable insights and a practical approach to fostering inclusive rural entrepreneurship for sustainable economic development.

4. CONCLUSION

In conclusion, this research underscores the critical need for addressing rural poverty through the construction of an inclusive entrepreneurship model, leveraging abundant natural and human resources. The identified supporting factors, including government policy support and collaboration with various stakeholders, offer a pathway to expedite the achievement of Village SDGs. However, acknowledging inhibiting factors such as low entrepreneurial orientation and infrastructural limitations is crucial for devising effective strategies. The collaboration with BUMDes Artha Krama Mandiri Antiga Kelod exemplifies the potential impact of partnerships in implementing and sustaining the rural inclusive entrepreneurship model. Policy suggestions should prioritize the allocation of village funds for economic recovery and BUMDes capacity building while emphasizing the importance of stakeholder collaboration. Improving and broadening the model, tackling the problems that have been found, and investigating variances in various rural contexts are all promising avenues for future research that could advance the area of inclusive rural entrepreneurship.

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Economy Section Article

Business Model Canvas and SWOT Analysis on the Purchases Feasibility Electric Vehicles in Denpasar City

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ABSTRACT

The use of electric vehicles is currently one of the main ways to achieve one of the main targets and goals of the Sustainable Development Goals (SDGs), namely Climate Action or a form of focus on handling climate change and realizing fossil energy security. Although electric vehicles have more positive impacts on the environment and the community, their usage is still relatively low compared to conventional vehicles. This research aims to determine the feasibility of purchasing electric vehicles at Uwinfly Arjuna Bali. Uwinfly Arjuna Bali uses Business Model Canvas and SWOT analysis to create the right sales and promotion strategy to encourage public interest in electric vehicles. This research uses qualitative descriptive methods. The data used in this study was obtained from interviews, documentation, and literature studies. The application of the IFAS Matrix, EFAS Matrix, IE Matrix, and SWOT Matrix is used in SWOT analysis. In addition, to find out the market conditions in the Uwinfly Arjuna Bali business, a feasibility assessment of non-financial and financial aspects is also carried out. The analysis using the Business Model Canvas indicates a need for development in customer segmentation. The results of the SWOT Matrix analysis show that Uwinfly Arjuna Bali's business is strong and likely. In the analysis of business feasibility aspects, it can be concluded that Uwinfly Arjuna Bali's business is worth pursuing.

KEYWORDS

business feasibility studies; business model canvas; electric vehicles; sustainable development goals; swot analysis

1. INTRODUCTION

The current global scenario is marked by the undeniable presence of climate change, posing a threat to the natural environment and human well-being (Upadhyay, 2020). A significant contributor to this phenomenon is the emission of greenhouse gases, a key driver of global warming. Indonesia is the tenth-largest contributor to global greenhouse gas emissions, underscoring the urgency for environmental action (Lamba et al., 2020). Paradoxically, the escalating number of vehicles, reliant on diminishing fossil fuel supplies, poses a dual challenge by exacerbating emissions and endangering the country's energy sustainability (Idris et al., 2022).

Switching to electric cars is important to fight climate change because it lowers greenhouse gas pollution (Breuer et al., 2021). Electric cars are better for the earth than regular cars because they don't release pollution into the air (Lazzeroni et al., 2021). This change aligns with global plans to lower carbon emissions and helps ensure energy security as fossil fuel stocks are used up (Rabbi et al., 2022). The government of Indonesia is committed to encouraging people to buy electric cars, as shown by Presidential Regulation Number 55 of 2019 (Maghfiroh et al., 2021). This rule encourages active involvement, especially from the car industry, which shows that the government is serious about promoting sustainable transportation (Setiawan et al., 2022). Ultimately, using electric cars is essential for meeting climate goals and creating a greener, more sustainable future (Yuliandari & Violie, 2021).

Uwinfly Arjuna Bali, a distributor and dealer in Denpasar, leads the city's electric vehicle (EV) movement. They promote EVs' eco-friendliness, smooth, silent operation, and cost-effectiveness with lower running costs and simplified maintenance. However, restricted range and lengthier charging periods have prevented the widespread adoption of EVs. EVs have downsides, but Uwinfly Arjuna Bali promotes their benefits. They want to bridge the gap between innovation and regular life by selling a choice of electric vehicles and spreading awareness of their benefits, making Denpasar and Beyond cleaner, quieter, and more sustainable.

Using the Business Canvas Model and a SWOT Analysis, this study aims to determine whether Denpasar City can acquire electric vehicles. The Business Model Canvas is an all-inclusive framework that lays out a company's processes to create, deliver, and collect value. To determine whether it is possible to incorporate electric vehicles into the city's transportation system, the study will use the Business Model Canvas in conjunction with the SWOT Analysis. The results will help shed light on the feasibility of the change and guide the creation of targeted advertising and sales tactics. Ultimately, these plans aim to get people excited about electric cars, which aligns with the larger goals of green and sustainable urban transportation. As a result, the study offers important information that can be used theoretically and practically to promote eco-friendly transportation.

2. METHODOLOGY

This study used a descriptive qualitative method. This research is a case study that aims to determine the feasibility of buying an electric vehicle at Uwinfly Arjuna Bali. Data collection in this study was carried out using interviews, documentation, and a literature review. The primary data in this study were obtained by interview method and documentation with the business owner Uwinfly Arjuna Bali (Hajirasouli et al., 2021). Meanwhile, secondary data was obtained through a literature review. The interview process in this study was structured by researchers with the Uwinfly Arjuna Bali electric vehicle business owner (Tavory, 2020). The documentation process in this study was in the form of photos and

sound recordings taken during interviews with the business owner, Uwinfly Arjuna Bali (Crossley et al., 2021). In this study, a literature review was carried out by collecting information related to this research from journals and books that can be used as references in preparing this research report (Mengist et al., 2020).

A comprehensive analysis of Uwinfly Arjuna Bali’s feasibility in adopting electric vehicles employed data analysis techniques, integrating the Business Model Canvas and SWOT analysis. Financial scrutiny, investment feasibility, and strategic planning were assessed, while non-financial aspects covered legal, market, management, human resources, and environmental considerations (Sideri, 2021). The study utilized IFAS, EFAS, and SWOT matrices to address strengths, weaknesses, opportunities, and threats, ensuring a robust evaluation of Uwinfly Arjuna Bali’s potential in the electric vehicle market.

3. RESULTS AND DISCUSSION

3.1. Business Model Canvas

The Business Model Canvas is a comprehensive framework delineating an organization’s strategic steps in creating, delivering, and capturing value (Sjödín et al., 2020). This canvas sheet intricately details the fundamental aspects of business design, comprising nine interconnected elements. Osterwalder’s four foundational blocks—supply, consumers, infrastructure, and finance—comprise interconnected components, encompassing key considerations such as value proposition, customer relationships, channels, customer segments, key partners, key activities, key resources, cost structure, and revenue streams (Islam & Iyer-Raniga, 2023). This model’s simplicity enhances its utility, providing a lucid depiction of complex business concepts for enhanced comprehension.

Business Model Canvas				
Key Partners <ul style="list-style-type: none"> PT. Uwinfly Indonesia Industries Caezar Molis Bali Home Credit FIF Kredit Plus BPR Kertiawan 	Key Activities <ul style="list-style-type: none"> Sales of electric vehicles Doing marketing of electric vehicles to customers 	Value Propositions <ul style="list-style-type: none"> Stylish, modern and dynamic vehicle design Providing home service Provide warranty on the vehicle Assist in the management of vehicle documents 	Customer Relationship <ul style="list-style-type: none"> Provide the best service to customers Provide attractive promos and cashback Provide convenience in transactions 	Customer Segments <ul style="list-style-type: none"> All of people who want to switch from conventional vehicles to electric vehicles. People who have an interest in electric vehicles
	Key Resources <ul style="list-style-type: none"> Physical resources : electric vehicle shops. Financial resources: IDR 150,000,000. HR: owner and several employees 		Channel <ul style="list-style-type: none"> Own channel Via flyers, Word Of Mouth Instagram, Facebook, Tiktok, and influencers 	
Cost Structure <ul style="list-style-type: none"> Fixed Costs: rent, employee salaries Variable Costs: electricity costs, vehicle unit purchase costs, shop maintenance costs, promotion costs. 			Revenue Stream <ul style="list-style-type: none"> The pricing mechanism applies a fixed price. Sales of electric vehicles both through Instagram and in person. 	

Figure 1. Business Model Canvas Uwinfly Arjuna Bali (Source: Processed data, 2023)

Uwinfly Arjuna Bali successfully implements the ninth element in the Business Model Canvas. Strategic development opportunities for the organization include refining customer segmentation on the Customer Segment element, encompassing individuals interested and disinterested in electric vehicles due to governmental policies. Regarding key partnerships,

Uwinfly Arjuna Bali can enhance collaborative efforts by engaging in educational initiatives with the government to promote the advantages of electric vehicles. Furthermore, optimizing promotional activities and expanding market outreach can be achieved through efficient service provision, enticing promotions, and fostering customer satisfaction, thereby bolstering the sales of electric vehicles.

The research “Conceptual Design of a Business Model Canvas Mobile Battery Swap Charging Station” by Rochani et al. (2023) focuses on mobile battery swap charging stations. Research on the strategic and operational deployment of mobile charging stations, including client segmentation, critical relationships, cost structures, and income sources, using a business model canvas. In line with this paper’s modeling findings, creative business models for mobile battery charging stations can help build sustainable and efficient electric car infrastructure.

3.2. Feasibility Study

A business feasibility study is a meticulous research endeavor aimed at evaluating the viability of a proposed business idea, specifically in terms of its potential to yield profitability. According to Galati et al. (2021), this comprehensive analysis delves into the intricacies of the business plan, assessing its appropriateness for implementation. The study scrutinizes various facets of the business to ascertain whether it is feasible and capable of achieving success. A business feasibility study serves as a detailed examination and assessment of a business or idea, providing insights into its practicality and potential for successful execution.

Determining a business’s feasibility hinges on its ability to meet predetermined standard values across multiple dimensions. Dong et al. (2020) state that to do a complete business feasibility evaluation, it is necessary to look at more than one thing. This study exemplifies applying such a holistic approach in evaluating the feasibility of acquiring electric vehicles at Uwinfly Arjuna Bali. Various aspects, encompassing financial, operational, and strategic considerations, are scrutinized to ascertain the viability of this business decision. By systematically evaluating each facet, this study aims to provide a nuanced understanding of the overall feasibility of incorporating electric vehicles into Uwinfly Arjuna Bali’s operations.

3.2.1. Legal Aspect

The meticulousness and authenticity of corporate documentation are imperative as they constitute the legal foundation that businesses must possess, encompassing their entity structure and requisite permits. Uwinfly Arjuna Bali, in this context, has obtained a Risk-Based Business Permit with Business Identification Number (NIB) 2403220069905, categorizing it as a low-risk new motorcycle retail business. In addition to NIB, the company holds a Taxpayer Identification Number (NPWP) with the number 08.399.163.8-901.00. Ensuring roadworthiness, Uwinfly Arjuna Bali provides electric vehicles with pertinent documents such as taxes and road permits, ensuring the safety and compliance of their electric vehicles on the road.

3.2.2. Market and Marketing Aspects

The assessment of market opportunities and product potential is intricately examined through the lens of market and marketing aspects. Uwinfly Arjuna Bali adopts a strategic approach by delving into the marketing mix’s seven elements. This integrated strategy elucidates how the company strategically determines, provides, and offers its products or

services to the target market segment. By scrutinizing aspects such as product, price, place, promotion, people, process, and physical evidence, Uwinfly Arjuna Bali endeavors to comprehend and optimize its positioning within the market, ensuring a nuanced understanding of the dynamics influencing customer engagement and market success (Ziegler & Abdelkafi, 2022).

3. 2. 2. 1. Products

Uwinfly Arjuna Bali strategically addresses the product elements encompassing types, quality, design, packaging, size, features, brand name, service, and warranty in its electric vehicle offerings. These encompass diverse types and aesthetically appealing color choices under the Uwinfly brand, distinguished as the premier quality electric vehicle brand characterized by a modern, dynamic, and stylish design. The product line includes electric bicycles and motorbikes, with a commendable average monthly sale of 20 units. Uwinfly Arjuna Bali further enhances customer satisfaction by providing spare parts and vehicle servicing. Notably, the official guarantee accompanying the purchase of electric bicycles and motorbikes reinforces the commitment to product quality and customer assurance, contributing to the brand's credibility and market standing.

3. 2. 2. 2. Price

Price, the value relinquished in exchange for a product or service, constitutes a critical aspect of Uwinfly Arjuna Bali's market strategy. The pricing structure employed by the dealership aligns closely with industry standards for electric vehicle dealers. The price range for vehicles at Uwinfly Arjuna Bali spans from IDR 5,000,000 to IDR 22,900,000. Notably, the pricing is bifurcated into on-road and off-road categories, reflecting the nuanced considerations in the pricing strategy. This competitive pricing approach positions Uwinfly Arjuna Bali within the market landscape, offering affordability while catering to diverse customer preferences and requirements.

3. 2. 2. 3. Place

The place element, encompassing distribution channels, scope, location, warehouse placement, and transportation, plays a pivotal role in Uwinfly Arjuna Bali's market strategy. It was situated at Jln. Arjuna No. 11, Dauh Puri Kaja, Kec. North Denpasar, Denpasar City, Bali 80111, the store's location is strategically positioned for easy customer accessibility. This advantageous location caters to Denpasar City residents and draws customers from various cities across Bali. The business's market segmentation targets individuals interested in electric vehicles, extending its reach to a diverse customer base seeking environmentally friendly transportation options. Meticulously considering place elements fortifies Uwinfly Arjuna Bali's market presence and facilitates widespread customer engagement.

3. 2. 2. 4. Promotions

Promotion, advertising, sales force, and public relations constitute vital elements in Uwinfly Arjuna Bali's promotional strategy. The adept utilization of social media platforms, including Instagram, TikTok, and Facebook, underscores the company's proactive approach to introducing its products to the public. Collaborative initiatives with influencers and active participation in exhibitions further amplify the brand's visibility. Moreover, leveraging customer-to-customer recommendations proves invaluable in promoting electric vehicles. Uwinfly Arjuna Bali's multifaceted promotional endeavors showcase a well-rounded

approach, strategically employing various channels and influential networks to communicate its offerings effectively and enhance market presence.

3. 2. 2. 5. Physical Evidence

Uwinfly Arjuna's physical evidence encompasses its retail facility situated at Jln. Arjuna No. 11, Dauh Puri Kaja, Kec. North Denpasar, Denpasar City, Bali 80111. This physical shop serves as a prominent showcase for electric vehicles, providing customers with a firsthand experience of the products. Within this setting, transactions of buying and selling electric vehicles transpire, reinforcing the tangible and experiential aspects of Uwinfly Arjuna's offerings. The physical shop becomes a pivotal component of the brand's physical evidence, establishing a tangible presence and facilitating customer engagement in the context of electric vehicle acquisition.

3. 2. 2. 6. People

The people element, encompassing company employees, customers, and other stakeholders, is acknowledged as a critical factor in Uwinfly Arjuna Bali's business model. Recognizing human resources as the paramount asset, the company strongly emphasizes the skills and welfare of its employees. Business operations are overseen directly by the owner, with the support of adept and experienced professionals. Employees are committed to delivering optimal service marked by friendliness and courtesy in customer interactions. This approach not only underscores the significance of human capital but also reinforces Uwinfly Arjuna Bali's dedication to ensuring a positive and client-centric experience in their business dealings.

3. 2. 2. 7. Process

The procedural framework applied by Uwinfly Arjuna Bali in delivering services to customers is methodical and customer-centric. Marketing initiatives are tactfully executed through social media platforms, ensuring widespread public recognition. Prospective customers expressing interest can visit the physical store or conveniently place vehicle orders via Instagram. The transaction process ensues, involving a mutual agreement on vehicle type and color selection. Subsequently, the completion of the transaction involves the submission of requisite documents and files for the issuance of a Vehicle Number Certificate. Notably, employee-driven vehicle delivery is facilitated for customers beyond Denpasar, while local customers have the additional convenience of test-driving the vehicles before making a purchase. This meticulous procedural approach reflects Uwinfly Arjuna Bali's commitment to seamless customer experiences and efficient service delivery.

3. 2. 3. Financial Aspect

The financial aspect of business feasibility involves a comprehensive analysis of costs, anticipated expenditures, and projected income. Financial scrutiny can be conducted through investment feasibility criteria, encompassing metrics such as Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI). The Payback Period (PP) calculation provides insights into the duration required for a business to recover its initial investment. Determining the breakeven point, where business income matches the invested capital, is crucial. This investment is accomplished through the Break Even Point (BEP) calculation, offering valuable insights into the financial viability and sustainability of the business venture. These financial evaluations are pivotal indicators, guiding decision-making processes and ensuring a sound and economically viable business proposition.

Based on the financial assessment, Uwinfly Arjuna Bali demonstrates feasibility. The positive Net Present Value (NPV) of IDR 51,291,120 achieved within a 5-month operational period signifies a favorable outcome. The Internal Rate of Return (IRR) also stands at 28.44%, surpassing the required interest rate of 18%, confirming the execution viability. The Profitability Index (PI) further supports this conclusion, with a value of 1.61, exceeding the benchmark of 1. These financial metrics collectively affirm the sound financial standing of Uwinfly Arjuna Bali, providing a solid foundation for its continued success and sustainability in the electric vehicle market.

The calculated Payback Period for Uwinfly Arjuna Bali's capital investment is an expedited one month and 15 days. Moreover, the Break Even Point (BEP) analysis reveals consistent positive outcomes from December to April, indicating the point at which the business covers its costs. In December, the BEP unit and Rupiah BEP were 1.06 and IDR 14,784,425, respectively. In subsequent months, we witnessed a steady BEP, with values of 1.04, 1.04, 1.05, and 1.04, and corresponding Rupiah BEP figures. This value-sustained profitability and efficient payback underscore the financial soundness and resilience of Uwinfly Arjuna Bali's business model.

3.2.4. Management and Human Resources Aspects

This aspect scrutinizes the managerial resources capable of planning, executing, and controlling activities in alignment with the company's objectives, necessitating a sound organizational structure. Uwinfly Arjuna Bali, under the direct management of its owner, Mr. I Komang Kresna, along with his wife, Mrs. Ika, and a dedicated team of employees, maintains a business culture centered on friendliness and exceptional customer service. According to Miretti et al. (2021), the organizational structure is characterized by simplicity and flexibility, with distinct sections such as marketing, store, mechanical, and finance. The marketing section focuses on product promotion through various channels, while the Store staff ensures cleanliness, customer service, and timely vehicle deliveries. The mechanical section addresses customer vehicle service needs, and the finance section meticulously records business expenses and income. Employees receive competitive basic salaries, with shop staff earning IDR 1,500,000 and marketing staff IDR 2,000,000.

3.2.5. Environmental Aspects

Environmental considerations encompass the multifaceted impact of a company on its surroundings. Uwinfly Arjuna Bali stands as a positive contributor, aligning with governmental initiatives to expedite the adoption of electric vehicles. Utilizing electric vehicles serves as a proactive solution to mitigate the emission of greenhouse gases, consequently addressing climate change. According to Cao et al. (2021), this commitment resonates with the sustainable development goal of climate action. Additionally, Uwinfly Arjuna Bali's embrace of electric vehicles aligns with the broader objective of preserving fossil fuel resilience. Beyond environmental benefits, the company's endeavors contribute to job creation, fortifying the local economy and fostering a holistic approach to sustainability and societal well-being.

3.3. SWOT Analysis

SWOT analysis, an acronym for Strengths, Weaknesses, Opportunities, and Threats, is a structured framework to delineate strategic service strategies. As elucidated in Freddy Rangkuti's presentation, this analytical tool systematically evaluates both external and internal factors. The primary objective is to optimize advantages and opportunities while

concurrently mitigating weaknesses and threats. According to [Raouf et al. \(2021\)](#), by meticulously organizing and scrutinizing these factors, SWOT analysis becomes an invaluable instrument in strategic planning, enabling businesses to chart a course that aligns with their strengths, shores up their weaknesses, capitalizes on available opportunities, and fortifies against potential threats. This methodical approach contributes to informed decision-making, fostering adaptability and resilience in dynamic business environments.

According to [Wibowo \(2023\)](#), integral to SWOT analysis, the EFAS Matrix (External Factor Analysis Summary) and IFAS Matrix (Internal Factor Analysis Summary) serve as crucial tools for evaluating internal strengths and weaknesses in tandem with external opportunities and threats. These matrices facilitate a comprehensive comparison of internal strategies against external factors, providing a systematic framework for strategic decision-making. The IFAS Matrix concentrates on internal aspects, emphasizing strengths and weaknesses, while the EFAS Matrix delves into the external environment, focusing on opportunities and threats. Together, they furnish a nuanced understanding of the interplay between internal capabilities and external dynamics, guiding organizations toward effective strategic planning and execution.

3.3.1. Matrix IFAS

Uwinfly Arjuna Bali exhibits a robust internal profile, with an impressive score of 2.76 for internal strength factors, surpassing the score of 0.93 attributed to internal weaknesses. This data underscores that the company's intrinsic strengths outweigh its identified weaknesses. The cumulative effect is reflected in the noteworthy total IFAS Matrix score of 3.69, affirming Uwinfly Arjuna Bali's favorable positioning in leveraging internal factors for strategic advantages. According to [Shaik et al. \(2023\)](#), this assessment provides valuable insights into the company's internal dynamics, aiding in informed decision-making and strategic planning as it navigates the landscape of electric vehicle adoption and business sustainability.

3.3.2. Matrix EFAS

Uwinfly Arjuna Bali demonstrates a favorable external landscape, with a substantial score of 2.48 for external opportunity factors, surpassing the score of 1.14 for external threats. This data highlights the company's adeptness in identifying and capitalizing on external opportunities while mitigating potential threats. The collective impact is evidenced by the commendable total EFAS Matrix score of 3.62, emphasizing Uwinfly Arjuna Bali's strategic alignment with external factors. According to [Bohnsack et al. \(2020\)](#), this comprehensive evaluation provides a robust understanding of the external environment, enabling the company to navigate challenges effectively and seize opportunities for sustained growth and success in electric vehicle adoption.

3.3.3. Matrix Internal-External (IE)

The positioning and strategic analysis for Uwinfly Arjuna Bali relies on the comprehensive scores derived from the IFAS and EFAS Matrix. According to [Barman et al. \(2023\)](#), this analytical approach involves evaluating the nine cells within the matrix, enabling the company to discern its strategic positioning. By considering internal strengths and weaknesses alongside external opportunities and threats, Uwinfly Arjuna Bali can strategically determine alternative courses of action for future business expansion and adeptly navigate the competitive landscape. This methodical analysis is a cornerstone for

informed decision-making, fostering adaptive strategies to ensure sustained growth and effective competition within the dynamic electric vehicle market.

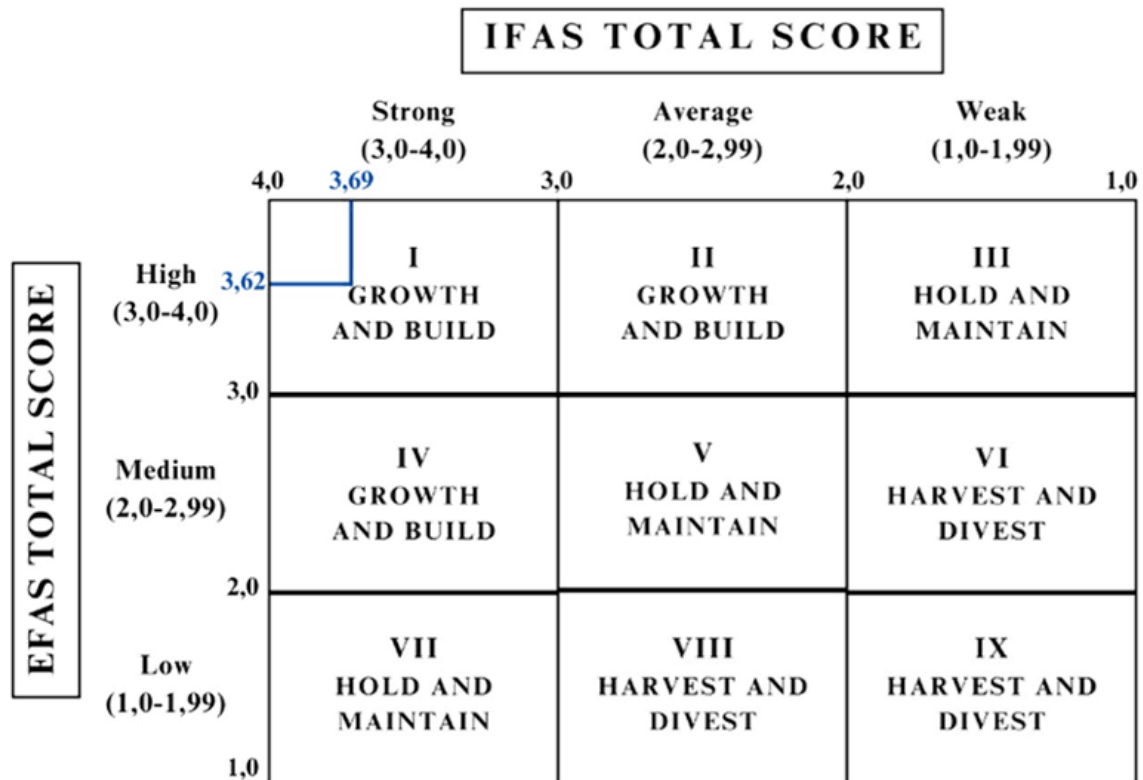


Figure 2. Matrix Internal-External Uwinfly Arjuna Bali
(Source: Processed data, 2023)

Uwinfly Arjuna Bali, positioned in cell 1 of the internal-external matrix, aligns with the growth and build quadrant. This positioning is akin to findings in the research by [Husairi et al. \(2021\)](#), indicating a shared strategic context. The recommended strategies for Uwinfly Arjuna Bali involve an intensive approach, encompassing market development, market penetration, and product development, or an integrative strategy, including backward integration, forward integration, and horizontal integration. To actualize these strategies, the company can enhance customer service, expand market reach through intensified social media promotion, and actively participate in exhibitions as platforms for business promotion. These strategies are tailored to capitalize on the growth potential and fortify Uwinfly Arjuna Bali's market presence.

3.3.4. Matrix SWOT

The SWOT Matrix serves as a methodical presentation of the factors derived from the SWOT Analysis, systematically organized into a matrix. According to [Almutairi et al. \(2022\)](#), this structured approach enhances the analytical process, clearly and concisely displaying all relevant factors for a comprehensive assessment. In the case of Uwinfly Arjuna Bali, the SWOT Matrix encapsulates the strengths, weaknesses, opportunities, and threats, providing a visual representation that facilitates a nuanced understanding of the company's strategic landscape. Utilizing this matrix aids in identifying key strategic insights, enabling informed decision-making, and formulating targeted strategies.

IFAS	Strengths	Weaknesses
	<ol style="list-style-type: none"> 1. Stylish, modern and dynamic vehicle design 2. Many types and color variations of vehicles 3. Lower maintenance and fuel costs 4. Providing home service 5. Environmentally friendly vehicles 6. Cheaper vehicle tax costs 	<ol style="list-style-type: none"> 1. Mileage and maximum speed are still limited 2. Haven't been able to reach the terrain in the form of a sharp uphill road 3. Battery charging time is quite long 4. Only provide Uwinfly brand electric vehicles 5. Electric refueling stations are still limited
EFAS	SO Strategy	WO Strategy
Oppurtunities	SO Strategy	WO Strategy
<ol style="list-style-type: none"> 1. The development of increasingly sophisticated technology 2. Reducing greenhouse gas emissions from the use of fossil energy 3. Electric vehicles as everyday vehicles 4. The price of fuel oil has increased 5. Provision of subsidies for the purchase of electric vehicles by the government 	<ol style="list-style-type: none"> 1. Make good use of social media for promotional activities 2. Expanding market reach 3. Participating in exhibitions to introduce electric vehicles to the public 4. Increase customer satisfaction 	<ol style="list-style-type: none"> 1. Keep up with technological developments to improve the quality of electric vehicles 2. Expand cooperation with the government to promote electric vehicles 3. Adding electric fueling stations
Threats	ST Strategy	WT Strategy
<ol style="list-style-type: none"> 1. There are many competing companies 2. Electricity rates may increase 3. Public doubts about electric vehicles 	<ol style="list-style-type: none"> 1. Improving the quality of service to customers 2. Provide attractive promos to customers 	<ol style="list-style-type: none"> 1. Creating superior value in order to be able to win the competition 2. Add supporting facilities for electric vehicles 3. Outreach to the public about electric vehicles

Figure 3. Uwinfly Arjuna Bali Matrix SWOT
(Source: Processed data, 2023)

Based on the SWOT Matrix Analysis, Uwinfly Arjuna Bali emerges as a robust business with promising opportunities. Consequently, a recommended alternative strategy for business development is the SO strategy, emphasizing the alignment of Strengths with Opportunities. According to [van Zanten and van Tulder \(2021\)](#), this strategic approach entails leveraging the company’s strengths to capitalize on emerging opportunities. Uwinfly Arjuna Bali can implement SO strategies by prioritizing initiatives such as enhancing customer satisfaction, utilizing social media for effective promotional activities, expanding market outreach, and actively participating in exhibitions to introduce electric vehicles to a wider audience. Through these targeted strategies, the company can strategically position itself to maximize

its strengths with the prevailing opportunities, fostering sustainable growth and market prominence.

Electric vehicles (EVs) present compelling advantages, making them an appealing choice for consumers and businesses. Notably, EVs contribute to environmental sustainability by diminishing emissions and lowering carbon footprints. Moreover, according to [Husain et al. \(2021\)](#), the potential for cost savings on fuel and maintenance enhances their economic appeal. Technological advancements have further bolstered the EV landscape, improving driving range and overall performance. These enhancements position electric vehicles as increasingly competitive alternatives to traditional internal combustion engines, fostering a paradigm shift toward sustainable and efficient transportation solutions.

Within the WO (Weaknesses Opportunities) strategy framework, Uwinfly Arjuna Bali can strategically align with technological advancements to enhance the quality of electric vehicles. Embracing the evolving landscape of technology provides an avenue to address current limitations in electric vehicles, such as restricted mileage and maximum speed. According to [Feng & Magee \(2020\)](#), this strategy involves staying abreast of sophisticated technological developments, ensuring that potential improvements can be applied to refine and develop electric vehicles further. Moreover, fostering collaboration with the government in promoting electric vehicles becomes pivotal, as supportive policies can stimulate public interest and contribute to the overall success of electric vehicle adoption, creating a symbiotic relationship between technological innovation and strategic partnerships.

While electric vehicles (EVs) showcase notable strengths, they are not without weaknesses. Common concerns encompass the charging infrastructure's adequacy and range anxiety, stemming from uncertainties about the vehicle's travel distance on a single charge. According to [Venegas et al. \(2021\)](#), the initial higher purchase cost of EVs than traditional vehicles poses a financial barrier for potential adopters. Environmental apprehensions arise from the production and disposal of EV batteries, accentuating sustainability challenges. Furthermore, the market may present limitations in the available EV models. Recognizing and addressing these weaknesses becomes essential for the holistic integration and widespread acceptance of electric vehicles in the automotive landscape.

Within the WT (Weaknesses Threats) strategy framework, Uwinfly Arjuna Bali can strategically establish superior value propositions to gain a competitive edge. According to [Chirumalla et al. \(2022\)](#), this involves effectively communicating the advantages and benefits of electric vehicles to the public, addressing potential weaknesses, and dispelling concerns. Collaborating with the government to enhance supporting facilities for electric vehicles contributes to creating a conducive environment for community acceptance. Uwinfly Arjuna Bali positions itself to navigate threats and strengthen its market presence by aligning with government initiatives and actively participating in public outreach.

The electric vehicle market exhibits considerable opportunities for growth and innovation. According to [Cao et al. \(2021\)](#), the surge in environmental consciousness and governmental encouragement for electric vehicle adoption fosters a burgeoning market. This environment stimulates prospects for advancements in battery technology, the expansion of charging infrastructure, and the introduction of new electric vehicle models to meet evolving consumer demands. Embracing these opportunities enables companies like Uwinfly Arjuna Bali to not only navigate potential threats but also contribute to the ongoing evolution and sustainability of the electric vehicle industry.

4. CONCLUSION

Based on a comprehensive evaluation of Uwinfly Arjuna Bali's business model and feasibility analysis, it is evident that the company has successfully implemented the nine elements of the Business Model Canvas. In terms of business development, the company's strategic approach includes customer segmentation to encompass both those interested and uninterested in electric vehicles, aligning with government policies for environmentally friendly transportation. Key partnerships are leveraged to expand cooperative relationships, collaborate with the government, and educate the public about the benefits of electric vehicles. Uwinfly Arjuna Bali demonstrates legal eligibility with proper permits and legal documentation for the electric vehicles offered in business feasibility. The market and marketing aspects reflect feasibility through evident market share and successful sales. The company's advantages in providing electric vehicles, home services, streamlined transactions, reasonable pricing, and effective promotional activities contribute to its feasibility. Financially, positive indicators such as positive Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI), coupled with a short Payback Period, affirm the business's feasibility. Regarding management and human resources, Uwinfly Arjuna Bali exhibits feasibility with a well-defined organizational structure, clear job descriptions, and fair compensation, fostering a conducive working environment. The business is deemed feasible from an environmental perspective as it actively promotes environmentally friendly electric vehicles. The IFAS Matrix and EFAS Matrix analyses place Uwinfly Arjuna Bali in a growth and build position, signifying its positive internal and external factors. The SWOT Matrix reinforces the business's strengths and opportunities, leading to the recommended strategy of leveraging strengths to exploit opportunities (SO strategy). This matrix involves enhancing customer service, offering attractive promotions, participating in exhibitions, and continually staying abreast of technological advancements to improve electric vehicle quality. Uwinfly Arjuna Bali is positioned for growth and development, backed by a robust business model, favorable market conditions, and strategic planning that aligns with industry trends and opportunities.

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Economy Section Article

Exploring Entrepreneurial and Digital Literacy in Mushroom Farming Businesses Sustainability

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ABSTRACT

This study delves into the collaborations between mushroom farmers, digital entrepreneurship, and sustainability, investigating the potential economic, environmental, and social benefits of this nexus. The problem formulation centers on the transformative impact of digital technologies on entrepreneurial activities within the mushroom farming sector and the sustainable practices integral to mushroom farming. The primary objectives encompass understanding how digital entrepreneurship, facilitated by digital tools, can enhance the visibility and accessibility of mushroom products and comprehensively explore the sustainability dimensions inherent in mushroom farming practices. The study uses content analysis and interviews to get insights from entrepreneurs and industry professionals using qualitative research methods. Preliminary results indicate that digital tools can significantly propel entrepreneurial growth within the mushroom farming industry, while sustainable practices, including reduced water usage and recycling of agricultural waste for substrate, contribute to environmental conscientiousness and economic viability. The discussion underscores the multifaceted impact of mushroom farming, not only as an economic driver but also as a means of poverty reduction and enhancement of small farming systems' sustainability through recycling organic matter. This study illuminates the promising potential of combining digital entrepreneurship with sustainable agricultural practices, particularly in mushroom farming, providing valuable insights for entrepreneurs, policymakers, and researchers.

KEYWORDS

agricultural practices; digital entrepreneurship; economic and environmental impact; mushroom farming; sustainability

1. INTRODUCTION

The global Covid-19 pandemic, originating in Wuhan, China in December 2019, has significantly impacted various sectors worldwide, particularly the economic domain (Wang et al., 2021; Widodo et al., 2022). Industries grappling with financial challenges have resorted to employee layoffs. However, amidst the adversity, the pandemic has spurred entrepreneurial interest globally (Dayour & Adam, 2022). In Beruk Village, located in Jatiyoso District, Karanganyar Regency, Central Java, Indonesia, predominantly agrarian, with farmers, ranchers, and entrepreneurs, the community has embraced entrepreneurship by cultivating ear mushrooms. Ear mushrooms have become a good business idea because of their tasty flavor, high nutritional value, high market demand, and ease of care. These qualities make them resilient during economic uncertainty (Mishra, 2022).

Entrepreneurship involves the integration of novel ideas, innovation, and product development, enhancing the product's value (Ferrerias-Méndez et al., 2021). It plays a pivotal role in advancing a nation's progress. Establishing a business requires acquiring entrepreneurial and digital literacy (Matli & Ngoepe, 2020). Entrepreneurial literacy encompasses using positive, creative, and innovative traits to translate business opportunities into ventures that benefit individuals, society, and customers (Tortia et al., 2020). Factors, including mindset, attitudes, and behaviors, significantly influence entrepreneurial literacy, highlighting its pivotal role in shaping successful entrepreneurial endeavors (Mawson et al., 2023).

Digital literacy is the competence to access, comprehend, and utilize information from diverse digital sources (Pangrazio et al., 2020). Its profound impact on businesses is evident in the swift acquisition and dissemination of the latest information, facilitating informed decision-making (Mikalef et al., 2021). Moreover, digital literacy proves instrumental in resource optimization, time and cost savings, network expansion, and skill enhancement (Wang et al., 2022). The proficiency in navigating digital realms enhances operational efficiency and strategic capabilities, positioning businesses to thrive in an increasingly interconnected and technologically driven landscape (Imjai et al., 2023).

To circumvent duplication, the author meticulously reviewed prior research, extracting pertinent insights from various studies. The focus of this study diverges in terms of location and timeframe, centering on mushroom farmers in Beruk Village, Jatiyoso Subdistrict, Karanganyar Regency, Central Java Province. This research endeavors to discern the impact of entrepreneurial and digital literacy on the sustainability of farming enterprises in this specific geographic context, presenting a novel contribution to the academic landscape. The uniqueness of this research lies in its exploration of mushroom farming in Beruk Village, Jatiyoso Sub-district, Karanganyar District, which, to date, has been unexplored by researchers. The anticipated contribution of this article extends beyond its immediate audience, offering valuable insights to readers and serving as a foundational resource for future researchers engaged in comparable agricultural investigations.

2. METHODOLOGY

This study employs qualitative and phenomenological analysis methods to investigate the impact of entrepreneurial and digital literacy on the sustainability of mushroom farming businesses in Beruk Village, Jatiyoso District, and Karanganyar Regency. The phenomenological approach seeks to elucidate the nuances surrounding entrepreneurship and digital mushroom farming within the Beruk village environment. Primary data gathered directly through interviews and field data collection, comprises responses from mushroom

producers regarding the influence of digital literacy and entrepreneurship on business sustainability. Secondary data, obtained indirectly through literature studies, libraries, and archives, includes information from the local government and demographic data. The study utilizes snowball sampling, focusing on two mushroom farmers as informants. The intention is to gather detailed information impacting the sustainability of their businesses. Initially selecting one or two individuals, additional informants were included based on their perceived expertise, ensuring a comprehensive understanding of the subject matter.

3. RESULTS AND DISCUSSION

3.1. Sustainability Business Through Entrepreneurial Literacy

Entrepreneurial literacy, integral to business continuity, encompasses knowledge acquisition, comprehension of influencing factors, and mastery of fundamental elements (Marvel et al., 2020). It is a foundational pillar, enabling entrepreneurs to navigate challenges effectively, make informed decisions, and understand essential aspects of the entrepreneurial process. The multifaceted nature of entrepreneurial literacy highlights its pivotal role in shaping successful and sustainable business endeavors (Vaio et al., 2022).



Figure 1. Interview with Mrs. Sularni

3.1.1. Knowledge

Knowledge is a crucial indicator of entrepreneurial literacy, significantly influencing the sustainability of mushroom farming businesses in Beruk Village. Basic entrepreneurial knowledge encompasses the skills required to successfully initiate and manage a business. According to Ngah & Wong (2020), this knowledge encompasses the ability to identify opportunities, formulate strategies, efficiently manage capital, and effectively market products. The importance of understanding entrepreneurship is underscored by insights gained from an interview with Mrs. Sularni. Her perspective highlights that entrepreneurs must possess a solid grasp of entrepreneurial knowledge to navigate challenges and ensure the success of their businesses. Failure to do so may lead to difficulties or even business failure. Thus, a comprehensive understanding of entrepreneurial knowledge is essential for aspiring and existing entrepreneurs in Beruk Village.

3.1.2. Influence Factors

Entrepreneurial literacy is influenced by critical factors such as knowledge, attitudes, skills, and capital (Oggero et al., 2020). Among these, the capital factor holds particular significance in entrepreneurship, as an interview with Mrs. Sularni underscored. According to her, capital is pivotal, as the absence of financial resources impedes the initiation and development of a business. Beyond capital, the interplay of skills and knowledge emerges as equally vital for business success. Without requisite skills, a business may falter and face bankruptcy. According to Sutisna et al. (2021), a holistic understanding of entrepreneurial factors, comprising knowledge, attitudes, skills, and access to capital, is essential for fostering entrepreneurial literacy and ensuring businesses' sustained success and growth in the entrepreneurial landscape.

3.1.3. Basic Elements

As discussed with Ms. Sularni about her mushroom farming venture, competition is an inevitable part of navigating the economic arena. With numerous competitors, Mrs. Sularni adopts a diligent, innovative, and courageous approach, expanding her role beyond a farmer to become a mushroom supplier. This strategic response aligns with entrepreneurship theory, as Ochago et al. (2023) articulated, emphasizing entrepreneurship as a creative pursuit. According to this theory, entrepreneurs generate novel products or services, previously nonexistent, with the potential to cater to a broad audience. Mrs. Sularni's proactive and multifaceted strategy exemplifies the entrepreneurial spirit, demonstrating adaptability and innovation in business competition, in line with foundational principles in the entrepreneurship literature.

3.2. Business Sustainability Through Digital Literacy

Three dimensions of digital literacy significantly impact business sustainability. Firstly, proficiency in accessing and comprehending digital information enables businesses to stay abreast of current trends (Hickey & Chartrand, 2020). Secondly, adept utilization of digital tools and platforms enhances operational efficiency, contributing to sustainable practices (Toumbourou et al., 2023). Lastly, a keen understanding of cybersecurity and data privacy fosters a secure digital environment, safeguarding businesses against potential threats and ensuring sustained longevity (Wardhiani et al., 2023).

3.2.1. Basic Digital Knowledge

Foundational digital knowledge is a pivotal indicator in the digital literacy of mushroom farmers within Beruk Village, Jatiyoso District, Karanganyar Regency. According to Prihadyanti and Aziz (2023), this knowledge encompasses technological and informational proficiency, enabling entrepreneurs to expand market reach, enhance operational efficiency, and boost productivity. The integration of internet media platforms, such as Facebook and WhatsApp, for marketing purposes, is observed among mushroom farmers (Unay-Gailhard & Brennen, 2022). Insights derived from an interview with Ms. Sularni underscore the significance of technological understanding in today's sophisticated landscape, emphasizing the missed opportunities should entrepreneurs fail to leverage digital tools for business growth and sustainability.

3.2.2. Evaluation of Content and Information

Content and information evaluation is a critical assessment of the accuracy and quality of generated content (Santoso et al., 2023). When opting for online product marketing, businesses must carefully select platforms, define target markets and competitors, and prioritize data security (Juswadi et al., 2020). The content produced should be of high quality, relevance, and attractiveness to effectively enhance sales, engage customers, and establish a robust brand presence. Insights from an interview with Ms. Sularni underscore the pivotal role of content in marketing, emphasizing its capacity to capture customer attention and foster brand strength, thereby contributing to increased sales and market success.

3.2.3. Internet Search

Internet search is paramount for entrepreneurs as a crucial tool for accessing essential business information and fostering brand development (Fahmi & Savira, 2023). In an interview with Ms. Sularni, she emphasized the significance of branding to ensure product recognition. Utilizing social media platforms like Facebook for marketing and displaying her business name on her pickup truck exemplifies her strategic approach to brand promotion (Susanti et al., 2023). According to Javaid et al. (2022), this integration of online resources facilitates information retrieval for business operations and underscores the contemporary reliance on digital platforms for brand visibility. Ms. Sularni's practices align with the broader understanding that effective internet utilization contributes to information access and brand-building efforts, enhancing overall success and recognition of entrepreneurial endeavors.

3.3. Digital Entrepreneur, Sustainability, and Mushroom Farming

Business sustainability is defined by a company's ability to maintain a sufficient budget for ongoing operations and development, aiming to maximize the wealth of capital owners (Kurniawan et al., 2022). While profit maximization is a primary objective, ensuring business continuity is equally crucial in the face of competitive pressures. Business continuity programs are implemented to safeguard ongoing operations and prevent adverse situations such as bankruptcy, wherein a company becomes incapable of meeting its financial obligations (Gunawan et al., 2022). Predictive calculations play a pivotal role in assessing the sustainability of a business, factoring in direct and indirect costs associated with estimating the probability of bankruptcy. Calculating business sustainability is integral for management, emphasizing the importance of long-term internal performance growth achieved through consistently delivering quality products and services (Prayitno et al., 2022).

Due to various compelling factors, mushroom farming emerges as a financially advantageous endeavor for rural farmers. Notably, it offers a low-cost and straightforward entry point for farmers seeking to diversify their income sources and utilize rural land effectively. The high yield potential, averaging around 500 kilograms per crop, enhances its appeal as a lucrative venture. Additionally, mushroom farming provides access to tax benefits and programs that can result in further savings for qualifying farmers, including exemptions and tax credits. The income derived from mushroom production is categorized as agricultural income, presenting specific implications for tax purposes. With a modest monthly investment of less than Rs 10,000, farmers stand to earn a substantial monthly profit of at least Rs 25,000 through mushroom farming, underscoring its profitability. Beyond financial gains, mushroom farming contributes positively to rural communities by

fostering increased income, financial assistance, and housing support opportunities (Surya et al., 2020).

Mushroom farming emerges as a pivotal contributor to rural farming business sustainability, encompassing diverse benefits. Its inherent sustainability is marked by reduced water requirements compared to conventional crops, rendering it an environmentally conscious choice (Nugroho et al., 2022). Furthermore, mushroom farmers epitomize recycling practices by utilizing agricultural waste, enhancing the industry's sustainability. As a lucrative endeavor, it generates a steady income for rural farmers with a modest investment, presenting a viable avenue for sustainable income generation (Irawan et al., 2023). The positive impact extends to rural communities, fostering increased income, financial assistance, and housing support opportunities (Suswadi et al., 2023). Beyond financial gains, mushroom farming enables rural farmers to diversify their agricultural activities, mitigating reliance on a single crop and establishing a more stable income stream. Mushroom farmers are a multifaceted solution that aligns with environmental conscientiousness, economic viability, and community development in rural agriculture (Esthi et al., 2023; Widiyanti et al., 2023).

Mushroom farmers stand poised to play a pivotal role in digital entrepreneurship, aligning with sustainability principles and yielding multifaceted benefits for entrepreneurs and the environment (Bühler et al., 2023). In the digital transformation era, entrepreneurs within the mushroom agro-industry can harness digital tools and platforms for marketing, networking, and engaging potential buyers (Kumar & Karthikeyan, 2022). This digitized approach enhances the visibility and accessibility of mushroom products, thereby fostering entrepreneurial growth. Beyond its digital dimensions, mushroom farmers are inherently sustainable, demanding less water than conventional crops and promoting environmentally friendly practices (Sundari et al., 2023). Notably, mushroom farmers recycle, repurposing agricultural waste into a substrate, thereby contributing to the industry's overall sustainability (Suhartini et al., 2022). The significant and widespread impacts of mushroom farmers on livelihoods and poverty reduction underscore its potential for rural and peri-urban dwellers, offering a viable and attractive venture with minimal land and capital requirements (Surya et al., 2020). Moreover, recycling organic matter in mushroom farming further enhances the sustainability of small farming systems by serving as a valuable fertilizer.

4. CONCLUSION

The research findings underscore the integral role of entrepreneurial literacy in shaping the continuity of ear mushroom farming businesses. Given that entrepreneurship necessitates fundamental knowledge encompassing influencing factors and core elements such as knowledge, attitudes, and skills, it is imperative to emphasize educational initiatives targeting mushroom farmers. Incorporating digital literacy into these educational programs is equally crucial, as evidenced by its impact on the business continuity of mushroom farmers. Ensuring that entrepreneurs possess digital knowledge, proficiency in content evaluation, and internet search skills is vital for effective marketing and account security. Furthermore, recognizing the sustainability challenges within the mushroom farming business, interventions should focus on fostering basic knowledge of sustainable practices. Identifying supporting and inhibiting factors influencing entrepreneurial systems in sustainable business practices allows for a more comprehensive approach to business continuity. Regarding policy implications, there is a clear need to integrate entrepreneurial and digital literacy components into agricultural education programs, equipping mushroom farmers with the necessary skills for sustained success. Additionally, policies promoting sustainable business practices and addressing inhibiting factors can contribute to the

overall resilience and longevity of the mushroom farming industry. This comprehensive approach ensures that the research findings translate into actionable recommendations and policies, fostering a conducive environment for the sustainable growth of ear mushroom farming businesses.

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Economy Section Article

Empowerment of Used Imported Clothes Traders (Thriftling) Through Micro Entrepreneurship Collaboration System Activities

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ABSTRACT

This manuscript addresses the burgeoning trade in second-hand clothing, colloquially known as thrifting, within the city of Solo, located in central Java, Indonesia. With a population of 522,364, Solo is Java's third most populous city. The study, conducted in collaboration with the BPS Surakarta, sheds light on the multifaceted challenges posed by importing used clothing from developed countries, particularly Japan and the United States. The research aims to comprehensively analyze the impact of thrifting on the growth of the local textile industry, concurrently evaluating the socio-economic implications for the region. The mayor of Solo, cognizant of the potential issues, is actively involved in revitalizing tourism hotspots while simultaneously addressing the nuanced problem of thrifting. The study utilizes a mixed-methods approach to investigate quantitative and qualitative data by combining statistical and thematic content analysis of relevant literature and local perceptions. Preliminary findings reveal a substantial growth in the importation of used clothing, indicating a burgeoning market for thrifting, which, while offering affordability, presents challenges to the indigenous textile industry. The discussion unfolds by contextualizing the findings within the broader Sustainable Development Goals (SDGs) framework. It explores potential avenues for policy interventions to reconcile economic aspirations with sustainable industrial practices. Ultimately, this research contributes valuable insights into Solo's socio-economic landscape and the intricate dynamics surrounding thrifting, propelling the discourse towards informed policy-making and sustainable urban development.

KEYWORDS

clothing importation; sustainable development goals; textile industry; thrifting; urban development

1. INTRODUCTION

Solo, situated in central Java, boasts a population of 522,364, ranking as Java's third most populous city (Widyaningsih & Arif, 2022). Referred to as the "Spirit of Java," Solo has revitalized vital tourist attractions, including Solo Safari, Sheikh Zayed Solo Grand Mosque, Ngarsopuro area, and Manahan culinary shelter (Arieza, 2023). Despite ongoing municipal enhancements led by the current mayor, an unaddressed issue pertains to the trade of imported used clothing, commonly known as thrifting (Ezeudu et al., 2021). Indonesia, a primary destination for second-hand clothing imports, initially embraced this practice for its affordability (Payson et al., 2022). However, the sustained importation now poses a challenge, impacting the growth of the domestic textile industry (Farhana et al., 2022).

In recent years, the escalating influx of second-hand clothing imports in Indonesia has raised concerns about its potential impact on the country's economic growth (Rossi & Morone, 2023). Despite providing an affordable clothing alternative for budget-conscious consumers, these imports pose a significant challenge to local textile entrepreneurs, who must contend with cheaper, high-quality foreign products (Raya et al., 2021). To address this, empowering used clothes traders through alternative micro, small, and medium-sized enterprise (MSME) activities is crucial (Karim et al., 2022). Despite efforts to curb unauthorized imports, the thriving business of second-hand clothes persists, driven by the allure of acquiring low-cost branded items (Pozzo, 2020). The illicit importation of textiles into Indonesia posed a substantial challenge in 2022, with an estimated value reaching US\$ 2.94 billion (IDR 43 trillion) (Arkyasa, 2023).

Micro, small, and medium enterprises (MSMEs) play a pivotal role in the Indonesian economy, yet face challenges stemming from global competition, including issues of low quality, limited innovation, and a lack of information and communication technology (ICT) proficiency (Koeswahyono et al., 2022). To improve their competitiveness and sustainability, SMEs must quickly embrace technological advances, prioritize long-term profitability, produce environmentally friendly products, conserve natural resources, and utilize technology efficiently (Efendi et al., 2020). Additionally, upgrading product marketing systems is essential for their growth and success (Adiwijaya et al., 2020). Furthermore, sellers' responsibility in promoting socially desirable behaviour is paramount within marketing as a social process facilitating the exchange of goods and services (Tjandra et al., 2022). The emergence and integration of social networking sites since 1997, exemplified by platforms such as Facebook, Twitter, and Instagram, have further shaped corporate strategies and communication dynamics (Suharto et al., 2022).

This research addresses the challenges posed by the increasing importation of second-hand clothing in Indonesia. The study recognizes the vital role of micro, small, and medium enterprises (MSMEs) in the Indonesian economy and seeks to enhance their competitiveness and sustainability. By exploring innovative approaches, such as micro-entrepreneurship collaboration system activities, the research aims to empower used clothes traders facing economic pressures due to the influx of imported goods. The novelty of this research lies in proposing alternative MSME activities as a solution, emphasizing technological adaptation, long-term profitability, environmental considerations, and efficient use of technology. Furthermore, the study contributes to the academic discourse on the social responsibility of sellers in marketing, shedding light on the challenges faced by MSMEs and offering practical insights into upgrading product marketing systems for their growth. Overall, the research contributes to the broader understanding of sustainable economic practices and the empowerment of local businesses.

2. METHODOLOGY

This article employs a literature search methodology to aggregate relevant materials and discuss research findings on the impact of used clothing imports on domestic textile entrepreneurs in Indonesia. The data analysis, derived from a comprehensive review of literary sources, is descriptive and analytical, addressing key research questions (Ansari et al., 2022). In addition to analyzing the synthesized information, the study carefully selects literature related to the research focus, such as books, journals, and related publications (Fan et al., 2022). Limitations of the research include its sole reliance on written sources omitting additional field research methods like interviews or surveys (Chang et al., 2020). Furthermore, the study's scope is confined to examining the impact of used clothing imports solely on domestic textile entrepreneurs without exploring broader factors that might influence the Indonesian textile industry.

3. RESULTS AND DISCUSSION

According to Saputra et al. (2022), the term “empowerment,” stemming from the word “*daya*”, signifies the endowment of ability or authority. Defined by The Big Indonesian Dictionary as a procedural or act of empowerment, the term broadly encapsulates the process of authorizing a community or group to take action, addressing challenges and enhancing their standard of living (Suswadi et al., 2023). The interpretation of empowerment varies based on contextual socio-economic conditions, prompting different strategies in diverse communities (Suhendah et al., 2022). It remains challenging to offer a specific definition as the concept evolves depending on the context.

3.1. Micro Entrepreneurship Collaboration System

According to Fauzia (2022), micro-entrepreneurship encompasses small-scale business activities typically managed by an individual or a compact team, emphasizing agility and individualized attention to niche markets. Collaboration in micro-entrepreneurship, a pivotal strategy for contemporary firms, involves individuals or small businesses working together to attain shared objectives, pooling resources, and capitalizing on collective strengths for mutual gain. Essential facets of collaborative entrepreneurship encompass heightened flexibility, innovation, collaborator initiative, and risk acceptance. Increasingly integral to entrepreneurial success, collaboration transcends competition, allowing entrepreneurs to distribute workloads and enhance prospects of success. Micro-entrepreneurship examples span diverse professions, such as freelancers, graphic designers, writers, programmers, photographers, and service providers.

Collaboration in the realm of micro-entrepreneurship offers numerous benefits. These benefits encompass resource sharing, effective risk management through distributing burdens, promoting innovation, and facilitating valuable networking opportunities. According to Marsaoli and Kusumasari (2022), micro-entrepreneurs, often operating as sole proprietors or in small teams, distinguish themselves from small businesses by focusing on specialized services, niche markets, and lower annual revenue. This nuanced distinction underscores the unique dynamics of micro-entrepreneurship within the broader entrepreneurial landscape.

Several salient factors emerge in micro-entrepreneurship collaboration within the imported clothes trading sector, commonly known as thrifting. According to Ray and Nayak (2023), the Gen-Z demographic emerges as a pivotal market for thrifting, driven by social media influences and technological connectivity. Thrifting and swapping activities and

internet campaigns promote sustainable initiatives, striving to reshape consumer habits towards more eco-conscious choices. Entrepreneurial skills and innovation are paramount in the fashion industry, where individuals adept at creativity and innovation can navigate the competitive landscape effectively.

Despite its rise, thrifting presents a dichotomy of challenges and opportunities. While it may contribute to a shift towards quantity-focused spending practices, it concurrently offers the potential for a sustainable fashion revolution and the cultivation of guilt-free, eco-friendly shopping habits. According to [Hanadhyas and Wulandari \(2022\)](#), collaboration within the micro-business landscape involves resource sharing and knowledge exchange, fostering effective partnerships. Thrifting activities, encompassing shopping at thrift stores and flea markets, cater to consumers who seek unique items, embrace creative dressing, and prioritize budget-conscious, value-driven shopping experiences ([Irawan et al., 2023](#)). Beyond individual preferences, these sustainable initiatives aspire to address socio-economic impacts associated with excessive consumption and production, fostering a fashion revolution and promoting conscientious shopping practices under the guise of social awareness.

3.2. Thrifting Merchants

Within the domain of imported clothes trading, commonly referred to as thrifting, the influence wielded by brands emerges as a pivotal determinant in shaping consumer behaviour and market dynamics. Thrifting is increasingly acknowledged as a sustainable alternative to fast fashion, emphasizing reduced environmental impact and clothing reuse. Brands actively championing sustainable initiatives and ethical practices resonate strongly with consumers participating in thrifting activities, reflecting a desire to align personal values and the brands they endorse ([Ong et al., 2021](#)).

The evolving perception of thrifting, particularly among younger demographics, underscores the transformative influence of brands in portraying thrifted items as viable and fashionable choices. Consumer advocacy for thrift items is gaining momentum, driven by brands that effectively engage with the primary thrifting market, the Gen-Z demographic. Financial considerations further amplify the impact of brands, with thrifting promoted as a financially prudent and environmentally conscious choice. In this dynamic landscape, brands hold the potential to sway consumer behaviour, shaping the trajectory of the thrifting market ([Aulia, 2023](#)).

The market segments within the realm of imported clothes trading, particularly in the thriving thrifting activities in Indonesia, reveal a multifaceted landscape influenced by various perspectives and considerations. Government regulations and perceptions play a crucial role, with Indonesia expressing concerns about potential health risks associated with second-hand clothing imports. While the thrifting business is not prohibited, adherence to government guidelines is essential. The impact on the traditional textile industry is noteworthy, as thrifting and the influx of used clothing imports challenge its growth, potentially indicating a shift in consumer preferences amid the evolving market dynamics. Import trends showcase the popularity of thrifting, evident in the significant increase in used clothing imports, with fluctuations observed from 2012-2022 and a notable peak in 2019. Despite challenges, the forecasted substantial growth in all segments of Indonesia's apparel market underscores potential market dynamism and sustained consumer demand ([Dharma, 2023](#)).

Consumer behaviour and market segmentation are integral factors shaping Indonesia's apparel industry, driven by a combined top-down and bottom-up approach. Factors such as consumer spending, shopping behaviour, and performance indicators contribute to the

diverse nature of the market. However, protests staged by traders of imported used clothes in Jakarta highlight potential concerns and challenges within the industry. The government's commitment to maintaining the textile and apparel segment as a significant export highlights ongoing efforts to address economic challenges and foster stability in the sector (Bui et al., 2023).

Government regulations and perceptions in Indonesia regarding the importation of second-hand clothing have raised concerns related to potential health risks associated with these items. However, it is noteworthy that thrifting remains permissible in Indonesia, as long as the traded used goods adhere to the government's guidelines and are not prohibited. This nuanced approach allows for the continuation of thrifting activities while ensuring compliance with health and safety standards, reflecting the government's balanced stance in managing the second-hand clothing trade (Syahrivar et al., 2023).

The impact on Indonesia's textile industry is a subject of scrutiny, particularly in the context of the industry's growth since the onset of the COVID-19 pandemic. The recent threats posed by thrifting and the influx of used clothing imports suggest a potential paradigm shift in consumer preferences and market dynamics, posing challenges to the traditional textile sector. Import trends and the significant surge in used clothing imports, notably in 2022, underscore the popularity of thrifting in Indonesia, contributing to fluctuations in the market. Despite challenges, the forecasted significant growth across all segments of the Indonesian apparel market signals potential resilience and sustained consumer demand. Concerns within the industry, exemplified by protests staged by traders of imported used clothes, highlight the need for ongoing government support to maintain stability, preserve the textile and apparel segment as a vital export, and address economic challenges (Syahrina & Kusumasari, 2020).

3.3. MSME Merchant Empowerment

The implementation performance of Micro, Small, and Medium Enterprise (MSME) merchant empowerment policies in the context of imported clothes trading (thrifting) activities in Indonesia is influenced by diverse factors and governmental initiatives. The Government of Indonesia, through various measures, has demonstrated substantial support for MSMEs, such as increasing the allocation of MSME loans to enhance their contribution to the national economy. This concerted effort reflects a strategic move to fortify the role of MSMEs engaged in thrifting activities, potentially influencing their performance within the economic landscape (Rahmawati et al., 2023).

The Coordinating Ministry for Economic Affairs has actively reviewed MSME financing activities to optimize their role in the national economy, emphasizing stakeholder collaboration and coordination. These initiatives signify a comprehensive approach to fostering MSMEs, potentially impacting their performance, particularly those involved in imported clothes trading. However, challenges within the industry, as indicated by protests staged by traders of imported used clothes, necessitate a thorough understanding and strategic resolution to ensure effective policies aimed at empowering MSMEs engaged in thrifting activities (Surya et al., 2021).

To further support MSMEs, the Government has introduced programs targeting women entrepreneurs during the pandemic and providing assistance to micro-enterprises. These initiatives are designed to bolster the MSME sector and can significantly impact the performance of those involved in imported clothes trading. The empowerment of MSMEs is grounded in principles emphasizing family values, honest performance, environmental preservation, and independence, contributing to a balanced economic system. Focusing on financial literacy, economic stability, and inclusive financial practices is essential to ensure

the success and resilience of MSMEs in Indonesia's evolving economic landscape. Efforts to expand financial inclusion, promote financial literacy, and address barriers to accessing formal funding sources are crucial for the sustained growth and prosperity of MSMEs engaged in thrifting activities (Mohamed, 2020).

Implementing the Micro, Small, and Medium Enterprise (MSME) merchant empowerment policy in Indonesia can significantly impact sales profit in the realm of imported clothes trading, commonly known as thrifting. The government's commitment to fostering MSMEs, as evidenced by initiatives aimed at increasing the portion of MSME loans to contribute more substantially to the national economy, signifies a strategic move to enhance access to financing. This heightened accessibility can empower businesses engaged in imported clothes trading, potentially leading to increased investments and driving sales profit within this sector (Sinurat, 2023).

Furthermore, the revised definition of MSMEs in Indonesia, now encompassing retail and wholesale trade, expands the eligibility for priority sector lending. This inclusion benefits many retail and wholesale traders, offering improved financial options and support for structured business growth. For entities involved in imported clothes trading, this expanded eligibility may translate into enhanced economic opportunities, contributing to the potential augmentation of sales profit (Mujianto et al., 2023).

As the Indonesian trade climate continues to rely on the productivity of MSMEs for overall economic prosperity, the government's ongoing support for MSME empowerment is poised to create a conducive business environment. This condition, in turn, is expected to foster growth and potentially increase sales profit for businesses engaged in imported clothes trading. The alignment of government policies with the needs of MSMEs reflects a holistic approach to economic development, emphasizing the pivotal role of these enterprises in driving sustainable business activities and overall economic vibrancy (Apridar & Meutia, 2021).

4. CONCLUSION

In conclusion, the research findings illuminate the intricate landscape of imported clothes trading, specifically thrifting, in Solo, Indonesia. The investigation, driven by a comprehensive analysis of the socio-economic impacts, reveals that the surge in second-hand clothing imports poses a dual challenge for the local textile industry and provides affordable clothing options for the burgeoning population. The study successfully addressed its research objectives by delineating the economic consequences of thrifting while recognizing its role in meeting the consumer demand for cost-effective attire. As a recommendation, a balanced approach is advocated, wherein policies should be crafted to stimulate local textile production and innovation while fostering the sustainable growth of the thrifting market. Policy implications underscore the necessity for a nuanced regulatory framework promoting economic development and environmental sustainability. Local entrepreneurs and artisans need to be supported as part of the mayor's ongoing revitalization efforts to mitigate the potential adverse effects on the indigenous textile industry. Future research endeavours should delve deeper into the consumer behaviour dynamics driving thrifting, exploring the intersections of affordability, sustainability, and cultural influences. Additionally, a longitudinal study tracking the evolution of the thrifting market and its broader societal impacts could provide valuable insights for policymakers and industry stakeholders. This research contributes not only to the understanding of Solo's challenges but also offers a template for other cities grappling with similar economic and environmental conundrums in the wake of globalization and changing consumer preferences.

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Economy Section Article

Value-Based Selling as an Intervening Variable: Impacts on Salesperson Innovativeness and Performance

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ABSTRACT

This research addresses gaps in understanding the role of salesperson innovativeness and its influence on salesperson performance, specifically examining the mediating effect of value-based selling. The study seeks to answer whether salesperson innovativeness impacts performance and if value-based selling mediates this relationship. The study was conducted in a sales organization where respondents were selected using purposive sampling, employing a quantitative approach. Data was analyzed through regression and mediation analysis. Results indicate that salesperson innovativeness significantly enhances performance but does not significantly affect value-based selling. Additionally, while value-based selling positively impacts performance, it does not mediate the relationship between innovativeness and performance. According to the findings, encouraging innovation results in a direct boost in performance, but relying on value-based selling as a means of communication is ineffective. Future research should consider longitudinal studies to understand long-term effects, incorporate other relevant variables, conduct comparative studies across different industries, and utilize mixed-methods research to gain deeper insights into the dynamics between innovativeness, value-based selling, and performance. These approaches will help develop more comprehensive strategies for improving salesperson performance.

KEYWORDS

customer-centricity; innovation; mediation analysis; salesperson performance; value-based selling

1. INTRODUCTION

Salespeople play a crucial role in selling products and services within a company (Bowen et al., 2021). A skilled salesperson can enhance marketing effectiveness and achieve superior sales performance (Alnakhli et al., 2021). Life insurance agents, in particular, hold a significant position in the insurance industry as they act as the front line in product promotion (Baranauskas, 2021). The salesperson's ability to build trust and shape the company's image can influence customers to purchase insurance policies, thus increasing the premiums received by the insurance company (Arditto et al., 2020).

Several studies have examined the impact of salesperson innovativeness on sales performance. Ayodele & Kehinde (2020) concluded that idea generation and idea realization indicators in salesperson innovativeness do not affect performance. However, Edwards et al. (2023) demonstrated that salespeople with innovative abilities have the potential to create breakthroughs and capabilities, thereby enhancing sales initiatives and improving sales performance. This research aims to address the gaps in previous studies.

Customer value is crucial for companies. Products that provide high value to consumers tend to satisfy their needs and enhance transactional outcomes (Cambra-Fierro et al., 2021). Salespeople play a crucial role in creating product and service value by building quality relationships, understanding customer needs, and providing appropriate solutions (Böhm et al., 2020). Value-based selling is an effective sales method because it enables customers to make purchasing decisions based on the value they receive.

In the highly competitive sales world, salespeople must continuously innovate to stay ahead (Yi & Amenuvor, 2022). Value-based selling, a widely adopted approach, emphasizes understanding customers' fundamental needs and providing tailored solutions (Liu & Zhao, 2021). Despite its popularity, there is a lack of extensive research on how value-based selling specifically impacts sales performance by enhancing the innovativeness of salespeople (De Toni et al., 2022). This method's potential to drive sales success through fostering creativity and novel approaches among sales personnel remains an area ripe for exploration (Mullins et al., 2020). Understanding this relationship could provide valuable insights into optimizing sales strategies and improving overall sales effectiveness (Chaker et al., 2022).

This study aims to answer the question: Does value-based selling impact sales performance by enhancing the innovativeness of salespeople? It contributes new insights by investigating the role of innovativeness as an intervening variable linking value-based selling to sales performance. By understanding this mechanism, companies can develop more effective training programs to enhance value-based selling skills, ultimately driving improved sales performance. This research highlights the potential for innovation-focused strategies to optimize sales outcomes and offers a pathway for businesses to leverage value-based selling for sustained success.

This research holds both theoretical and practical significance. Theoretically, it enhances our understanding of the factors influencing sales performance by uncovering the mediating role of innovativeness. Practically, the findings can assist companies in designing more effective sales strategies by emphasizing the development of value-based selling skills and the innovative capacities of their salespeople. By integrating these insights, businesses can create training programs and strategic initiatives that boost sales performance and foster a culture of continuous improvement and creativity among their sales teams.

2. METHODOLOGY

2.1. Basic Research Method

This quantitative research uses quantitative data directly from the respondents (Irawan et al., 2023). This research is classified as basic research regarding the depth of exploration in developing knowledge. This research aims to test the relationship between each independent variable and the dependent variable. This research will test the hypothesis and explain the influence of the independent variable, namely salesperson innovation, on salesperson performance, using value-based selling as an intervening variable.

2.2. Research Location Selection Method

The research was conducted in Semarang City, Indonesia, which was chosen for its large concentration of life insurance companies and its diverse population of life insurance agents. This setting provided a rich environment for studying the dynamics of value-based selling and salesperson innovation, offering a broad spectrum of data due to the varied backgrounds and practices of the agents (Tienken et al., 2023). The city's unique market characteristics make it an ideal location to explore how innovative selling techniques can enhance sales performance in the life insurance sector.

2.3. Research Respondent Determination Method

Primary data for this research was obtained directly from respondents through questionnaires containing relevant questions related to the studied variables (Suswadi & Irawan, 2023a). Salespersons of life insurance companies in Semarang City represent the population chosen for this research. The sampling technique used in this research is purposive sampling, which selects samples based on certain characteristics. The respondents who will be used as samples in this research are life insurance agents who have been actively working in the sales field for over a year and hold an AAJI license. The total number of respondents for this research was set at 52 people.

2.4. Research Data Collection Method

A structured interview with a questionnaire to get detailed information on the studied factors was used to gather research data (Suswadi & Irawan, 2023b). The questionnaire featured closed-ended questions with pre-determined answer choices, ensuring consistency and ease of analysis. This approach allowed for systematic data collection, enabling the researchers to capture respondents' insights and experiences accurately. By standardizing the responses, the method facilitated a clear understanding of how the variables interacted, providing robust data for testing the research hypothesis and exploring the relationships between salesperson innovation, value-based selling, and sales performance.

2.5. Research Data Analysis Method

The data analysis method used in this research is regression analysis using SPSS as the analysis tool. Regression analysis is used to test the extent of the influence of the independent variable, salesperson innovation (X), on the dependent variable, salesperson performance (Z), and to test the mediating effect of the intervening variable, value-based selling (Y). The Sobel test is used to test the influence of the intervening variable.

Operational Definition of Variables

- a) Salesperson innovation (X): The ability of a salesperson to develop and implement new ideas to improve sales performance.
- b) Value-based selling (Y): A sales approach that focuses on understanding the customer's needs and providing solutions that create value for the customer.
- c) Salesperson performance (Z): The level of achievement of a salesperson in meeting sales targets.

Hypothesis

- H1: There is a positive relationship between salesperson innovation and salesperson performance.
- H2: There is a positive relationship between value-based selling and salesperson performance.
- H3: Value-based selling mediates the relationship between salesperson innovation and salesperson performance.

3. RESULTS AND DISCUSSION

3.1. Validity and Reliability Test Result

Validity and reliability are two essential aspects of research that ensure the trustworthiness and accuracy of the findings (Rose & Johnson, 2020). Conducting validity and reliability tests in this study is crucial for several reasons. Firstly, validity testing ensures that the measurements of salesperson innovation, value-based selling, and salesperson performance accurately reflect the true essence of these constructs, providing confidence in the genuine relationships between the variables (Corsaro & Maggioni, 2022). Secondly, reliability testing assesses the consistency and stability of these measures over time and across different conditions, ensuring that the results are robust and replicable (Forbes et al., 2021). Lastly, demonstrating the validity and reliability of the measures enhances the credibility of the research, instilling confidence in the conclusions drawn and facilitating acceptance within the academic community and the broader field of business management (Cvitanovic et al., 2021).

Table 1. Validity and Reliability Test Result

Variable		R Table	R Calculate	Validity	Cronbach Alpha	Reliability
Salesperson Innovativeness	X1	0.852	0.2732	Valid	0.678	Reliable
	X2	0.862				
	X3	0.724				
	X4	0.655				
	X5	0.809				
Value-based Selling	Y1	0.884	0.2732	Valid	0.782	Reliable
	Y2	0.837				
	Y3	0.949				
	Y4	0.914				
	Y5	0.918				
Salesperson Performance	Z1	0.919	0.2732	Valid	0.794	Reliable
	Z2	0.932				
	Z3	0.924				
	Z4	0.967				
	Z5	0.914				

Source: Primary data analysis

Table 1 shows that all the indicators in this study have a calculated R-value greater than the tabled R-value, indicating they are valid measurement tools for the research variables (Firdausy & Budisetyowati, 2022). The questionnaire items effectively capture the concepts of salesperson innovativeness, value-based selling, and salesperson performance (Guenzi & Nijssen, 2023), confirming the study measures what it intends to. The reliability testing yielded a Cronbach Alpha (α) value greater than 0.60 for all variables, demonstrating good internal consistency (Baistaman et al., 2020). This result ensures the questionnaire items within each variable consistently measure the same construct. Validity and reliability tests confirm the questionnaire items accurately reflect salesperson innovativeness, value-based selling, and sales performance, providing a solid foundation for further analysis (Benova et al. 2020).

The results confirm that the questionnaire accurately measures value-based selling strategies, emphasizing understanding customer needs and providing tailored solutions. Validity tests highlight their impact on customer satisfaction and loyalty, while reliability tests confirm accurate capture of sales performance metrics. This rigorous validation enhances the study's credibility, offering precise insights into the relationships between salesperson innovativeness, value-based selling, and sales performance (Razi et al., 2022). Businesses can use these validated tools to develop effective sales strategies and training programs, driving improved performance and competitive advantage.

3.2. Path Analysis Test Result

The core objective of this research is to investigate how value-based selling mediates the relationship between salesperson innovativeness and performance. Path analysis is employed to examine these mediating effects, estimating both the direct impact of salesperson innovativeness on performance and the indirect impact through value-based selling. This method visualizes relationships through a path model, clearly illustrating the direction and strength of the hypothesized effects (Nicholson et al., 2020). Additionally, path analysis includes statistical tests to assess the significance of these effects, enabling a determination of whether value-based selling's mediating role is statistically significant.

3.2.1. Path Analysis 1 ($X \rightarrow Y$)

Path analysis is a crucial tool for understanding the relationship between salesperson innovation (X) and value-based selling (Y) in this research. Unlike simple correlation analysis, path analysis explores causal relationships and identifies mediating mechanisms that affect sales performance. It allows us to distinguish between salesperson innovation's direct and indirect effects on value-based selling, revealing both immediate impacts and subtle influences through mediating variables. Additionally, it provides a clear visual representation of these relationships, simplifying complex interactions into an understandable diagram (Xu et al., 2020). This interaction helps identify key areas for improving sales performance. Path analysis also uses robust statistical tests to confirm whether the observed relationships are genuine causal connections (Hofmann et al., 2020).

Table 2. Path Regression Analysis for the Relationship of Variables X and Y

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.655	1.181		4.788	.000
	X	.254	.152	.231	1.678	.100

a. Dependent Variable: Y

Source: Primary data analysis

The empirical findings of this study, shown in **Table 2** and presented in the form of the linear regression equation $Y = 0.231X + e$, underscore the pivotal role of salesperson innovation in fostering value-based selling practices. The positive coefficient of 0.231 indicates that a one-unit increase in salesperson innovation leads to a 0.231-unit increase in their ability to implement value-based selling strategies. This significant association highlights the transformative power of innovation in empowering salespeople to adopt customer-centric approaches that prioritize understanding and addressing customer needs. These results align with research by [Salonen et al. \(2021\)](#), which states that innovative salespeople are more likely to challenge conventional sales tactics, embrace new ideas, and experiment with creative solutions, ultimately leading to the successful implementation of value-based selling.

The findings of this research hold profound implications for sales organizations aiming to elevate their performance. Companies can foster a more customer-centric sales environment by cultivating a culture of innovation and encouraging salespeople to embrace new ideas ([Giovannetti et al., 2022](#)). This approach leads to increased customer satisfaction, loyalty, and enhanced sales outcomes, creating a competitive edge in the market ([Sheth et al., 2020](#)). Path analysis has proven invaluable in unravelling the intricate relationship between salesperson innovation and value-based selling, highlighting the importance of fostering innovation within sales organizations to empower salespeople and achieve superior sales performance.

3.2.2. Path Analysis 2 ($X \rightarrow Y \rightarrow Z$)

Path analysis emerges as a powerful tool to unravel this complex web of relationships, shedding light on the direct and indirect pathways leading to sales excellence ([Alzoubi et al., 2022](#)). Unlike mere correlation analysis, path analysis explores causal relationships and mediating mechanisms shaping sales outcomes. This method shows how value-based selling mediates the impact of innovation on performance, revealing the pathways to improved sales outcomes.

Table 3. Path Regression Analysis for the Relationship of Variables X, Y, and Z

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.605	1.134		.533	.596
	X	.691	.124	.598	5.583	.000
	Y	.230	.112	.220	2.051	.046

a. Dependent Variable: Z

Source: Primary data analysis

Table 3 presents the empirical findings of this study, illustrated by the linear regression equation ($Z = 0.598X + 0.220Y + e$), underscoring the multifaceted nature of sales performance. The significant coefficient of 0.598 highlights the direct impact of salesperson innovation on performance, indicating that a one-unit increase in innovation leads to a 0.598-unit increase in sales performance. This direct effect reflects the transformative power of innovation, empowering salespeople to challenge conventional tactics, embrace new ideas, and experiment with creative solutions, ultimately leading to more effective strategies and improved performance. Additionally, the coefficient of 0.220, representing the effect of value-based selling on performance, underscores the importance of customer-centric approaches in driving sales success. This positive association indicates that a one-unit increase in value-based selling practices results in a 0.220-unit increase in sales performance, highlighting the combined impact of innovation and customer-focused strategies on achieving superior sales outcomes.

The path analysis reveals that value-based selling mediates the influence of salesperson innovation on sales performance. These results are in line with research by [Giovannetti et al. \(2022\)](#), which underscores the importance of fostering innovation and channelling it into customer-centric practices. Innovative salespeople who implement value-based strategies can better understand customer needs, tailor solutions, and build strong relationships, enhancing sales outcomes ([Alnakhli et al., 2021](#)). The findings suggest that sales organizations should cultivate a culture of innovation and encourage customer-centric approaches to improve performance.

3.3. Hypothesis Testing

3.3.1. Influence of the Innovativeness of Salespersons on Value-Based Selling

Based on **Table 2**, the linear regression equation $Y = 5.655 + 0.231X + e$ suggests a positive association between the two variables. However, the critical aspect lies in the significance value of the path coefficient (0.231) exceeding 0.05. This result indicates that the observed positive association between innovation and value-based selling is not statistically significant at the conventional alpha level of 0.05. Furthermore, the t-value (1.678) being smaller than the critical t-value from the t-table (2.00958) reinforces the acceptance of the null hypothesis (H_0), stating no significant relationship. Consequently, authors must reject the alternative hypothesis (H_a) that proposed a positive influence of innovation on value-based selling. These results align with research by [Corsaro \(2022\)](#), which underscores the complexity of the relationship and suggests that other factors may mediate or moderate the impact of innovation on value-based selling practices.

Table 4. Coefficient of Determination for the Relationship of Variables X and Y

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.231 ^a	.053	.034	1.54872

a. Predictors: (Constant), X

Source: Primary data analysis

Based on **Table 4**, the coefficient of determination (R^2) measures how much the independent variable influences the dependent variable. In this study, the R^2 value is 0.034, indicating that salesperson innovativeness accounts for 3.4% of the variance in value-based selling. This result means that other variables not included in the model influence the remaining 96.6% of value-based selling, suggesting that innovativeness alone is not a significant driver of value-based selling practices.

Sales innovativeness has been identified as a crucial factor in value-based selling, emphasizing the value provided to customers rather than just product features or price. Recent studies have highlighted the importance of marketing innovation, including sales innovativeness, in driving firm value and performance. Furthermore, research shows that consumer innovativeness and perceived value significantly influence the adoption of technological innovations (Ahmad et al., 2022).

One study by Azeem et al. (2022) found that marketing innovation, whether market-driven or market-driven, positively impacts firm value through effects on cash flow drivers. This impact is influenced by market conditions such as demand uncertainty, technological turbulence, and competitive intensity. Additionally, service, service, and managerial innovations positively affect customer value. Researchers suggest that implementing innovative services can enhance customer satisfaction, and consumer innovativeness influences the adoption of technological innovations, with perceived value mediating this relationship.

3.3.2. Influence of Value-Based Selling on the Salesperson's Performance

Regression analysis emerges as a powerful tool for examining the relationship between variables. This study allows us to assess how much a salesperson's innovativeness (X) can explain the variation in their performance (Z). Based on Table 3, the analysis yielded a regression coefficient 0.598 for the innovativeness variable, with a significance value of 0. This result signifies a statistically significant positive relationship. In simpler terms, we observe a corresponding average increase of 0.598 units in salesperson performance for every unit increase in salesperson innovation. Furthermore, the t-value of 5.598 exceeding the critical t-table value (2.00958) reinforces the rejection of the null hypothesis (H_0), stating no relationship. Consequently, we can accept the alternative hypothesis (H_a) that posits a positive influence of innovation on performance.

Table 5. Coefficient of Determination for the Relationship of Variables X and Z

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.683 ^a	.467	.445	1.23074

a. Predictors: (Constant), Y, X

Source: Primary data analysis

Based on Table 5, the coefficient of determination (R^2) measures the extent to which the independent variables influence the dependent variable. In this study, the R^2 value is 0.445, indicating that salesperson innovativeness and value-based selling account for 44.5% of the variance in salesperson performance. This result means that 55.5% of the variation in performance is due to other factors not included in the model, highlighting that innovativeness and value-based selling are not the sole determinants of salesperson performance.

The existing literature on sales force performance primarily focuses on innovation and value-based selling. However, recent research indicates that these are not the only factors affecting a salesperson's success (Eroğlu & Kiray, 2020). For instance, personal characteristics such as listening skills, effort, and product knowledge are crucial, and addressing deficiencies in these areas through training can enhance performance (Singh Dubey et al., 2022). Additionally, organizational context, including support and resources, and the quality of peer collaboration significantly impact sales outcomes (Chen et al., 2021). Moreover, understanding customer needs and adapting sales approaches to different

environments is vital for success (Rangarajan et al., 2020). Therefore, a holistic approach considering personal, organizational, peer, buyer, and situational dimensions is essential for developing comprehensive strategies to support and empower sales teams (Ohiomah et al., 2020).

3.3.3. Mediation Analysis

Mediation analysis is a statistical technique used to assess whether a third variable (the mediator) explains the relationship between an independent variable (X) and a dependent variable (Z). In this study, the analysis aimed to determine if value-based selling practices (Y) mediate the influence of salesperson innovation (X) on salesperson performance (Z). The hypothesis was that salesperson innovation affects performance indirectly through its impact on value-based selling. Essentially, the goal was to ascertain if innovation leads to enhanced performance by promoting value-based selling practices, thereby highlighting the importance of this mediation process in achieving superior sales outcomes.

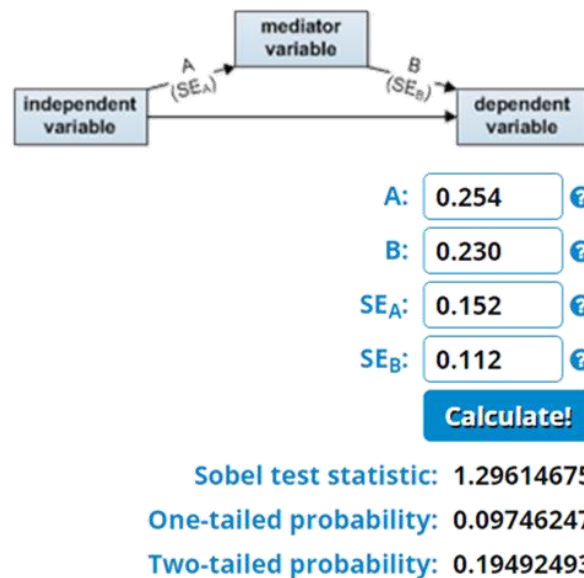


Figure 1. Sobel Test Result

The Sobel test is a widely used method to assess the significance of an indirect effect in mediation analysis. According to **Figure 1**, the Sobel test yielded a test statistic 1.296 with a p-value of 0.19. Since a p-value greater than 0.05 indicates non-significance, these results suggest that the observed indirect effect is not statistically significant. In simpler terms, value-based selling does not mediate the relationship between salesperson innovation and performance in this study. While salesperson innovation may still impact performance, this effect appears to be direct rather than mediated by value-based selling practices.

While salesperson innovation may still impact performance, this effect appears to be direct rather than mediated by value-based selling practices. Recent research suggests that salesperson innovation can directly influence outcomes beyond its effect on value-based selling, challenging past assumptions that value-based selling is the sole pathway for enhancing performance (Liu & Zhao, 2021). Salesperson innovation encompasses a range of creative and adaptive behaviours, from identifying customer needs to developing tailored solutions (Salonen et al., 2021). Prior studies have shown that these innovative activities can enhance value-based selling practices, such as effectively communicating product benefits and aligning offerings with customer requirements (de Jong et al., 2021). However,

the current research proposes that salesperson innovation may also have a direct, additive effect on performance, irrespective of its impact on value-based selling (Mangus, 2023).

Innovative salespeople may have a heightened capacity to anticipate and respond to dynamic market conditions, allowing them to uncover and capitalize on opportunities that transcend the boundaries of value-based selling (Itani et al., 2022). By demonstrating adaptability, creativity, and a solution-oriented mindset, innovative salespeople may forge stronger customer relationships, secure more favourable terms, and ultimately drive superior sales outcomes (Locander et al., 2023). Empirical findings from a meta-analysis of relevant studies support this perspective, suggesting that while value-based selling practices remain important, salesperson innovation can exert a distinct, direct influence on performance (Alnakhli et al., 2021). These results highlight the need for a more holistic understanding of the factors driving salesperson effectiveness, recognizing the multifaceted role of innovative behaviours.

3.4. Discussion

Salesperson innovativeness positively influences performance, functioning as a key factor in marketing success (Endres et al., 2023). An innovative salesperson who understands customer needs and has direct access to information plays a crucial role in creating and delivering value (Itani et al., 2022). These creative individuals can effectively articulate value, provide tailored solutions, handle problems positively, and create a positive environment that engages customers (Chathoth et al., 2020). Such abilities enhance overall performance and boost the sales of new products (Shahbaz et al., 2020). Additionally, salespersons who sell creatively can develop new sales methods, increasing customer sales value and contributing significantly to the company's success (Yi et al., 2021).

This research demonstrates that salesperson innovativeness does not significantly influence value-based selling. This finding aligns with previous studies by Graciafernandy (2022), which suggest that salespersons still prefer traditional sales processes. These conventional methods have a long history of proven effectiveness, contributing positively to salesperson performance (Paesbrugge et al., 2020). Salespersons continue to feel comfortable using traditional approaches when interacting with customers, as supported by Scholz et al. (2021) study, which indicates that many consumers still favour the traditional sales process. In such a setting, salespersons can concentrate on closing sales without investing substantial time and effort into creating value, which may explain the limited impact of innovativeness on value-based selling (Alnakhli et al., 2021).

This research confirms that value-based selling positively influences salesperson performance, aligning with findings from previous studies by Graciafernandy (2022). Value-based selling activities and methods positively impact sales success, as noted by Alamäki & Korpela (2021). Creating superior customer value is crucial for a company's success in competitive markets (Hossain et al., 2021). By applying value-based selling, salespeople can help customers rationalize their investments, facilitating purchasing decisions (Keränen et al., 2020). Emphasizing valuable offerings in sales increases purchase intentions, even at high prices (Wang et al., 2021).

The results of the statistical tests in this study show an insignificant relationship, which shows that value-based selling cannot mediate the relationship between sales force innovation and performance. According to Salonen et al. (2021), this approach often limits salespeople's creativity in finding innovative market solutions. In their research, Liu & Zhao (2021) mentioned that salespeople must adhere to company values, which can limit their ability to be creative and offer unique solutions. According to de Jong et al. (2021), value-based selling emphasizes meeting sales targets, often at the expense of developing

innovation. Salespeople under pressure to hit targets may be stuck in routine practices, lacking the time or motivation to develop new ideas (Rapp et al., 2020). As a result, without the drive to innovate, their performance tends to stagnate (Freixanet & Rialp, 2022).

4. CONCLUSION

This study investigates the influence of salesperson innovativeness on salesperson performance, using value-based selling as an intervening variable. The findings reveal that while salesperson innovativeness significantly enhances salesperson performance, it does not directly impact value-based selling. Additionally, value-based selling positively affects salesperson performance but fails to mediate the relationship between innovativeness and performance. Based on these results, it is recommended that sales organizations foster innovativeness to boost performance directly, but they should not rely on value-based selling as a mediating factor. Future research should explore the long-term effects of innovativeness through longitudinal studies, incorporate other relevant variables, conduct comparative studies across industries, and employ mixed-methods research designs. These approaches will provide a more comprehensive understanding of the complex dynamics between salesperson innovativeness, value-based selling, and salesperson performance, offering valuable insights for enhancing sales strategies and practices.

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