



SYNERGIZING PROPHETIC VALUES AND PHYGITAL LEARNING: A HOLISTIC FRAMEWORK FOR CONSCIENCE DRIVEN ENTREPRENEURSHIP EDUCATION

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ABSTRACT

This research aims to explore the implementation of the entrepreneurship program at SMA Muhammadiyah Mlati. Using a qualitative case study approach, data were collected through in-depth interviews, participatory observation of "Market Day," and documentation of the P5 (Project for Strengthening the Profile of Pancasila Students) modules. The results indicate that the school successfully synergizes ISMUBA (Al-Islam, Kemuhammadiyah, and Arabic) values with the Merdeka Curriculum framework. This integration fosters a "conscience-driven" mindset by embedding prophetic traits shiddiq, amanah, fathanah, and tabligh into business practices. Furthermore, the school utilizes a phygital approach, combining physical business laboratories with digital marketing on social media to enhance students' 21st-century competencies. An intensive mentorship system ensures that technical challenges are transformed into learning opportunities through continuous evaluation. The study concludes that the program effectively develops students into commercially competent and socially responsible innovators. To ensure long-term sustainability, it is suggested that the school expands external partnerships with local industries and formalizes certified digital literacy training for its students.

Keywords: *Entrepreneurship Education: ISMUBA Values: Merdeka Curriculum: Phygital Learnin*

1. INTRODUCTION

The rapid evolution of the global economy in the 21st century has necessitated a fundamental shift in how entrepreneurship education is delivered at the secondary school level. Traditional models that focus solely on financial literacy and profit maximization are increasingly viewed as inadequate for preparing students to face complex ethical and digital challenges [1]. In the Indonesian context, there is a growing demand for an educational framework that not only fosters commercial competence but also instills a strong moral foundation. Entrepreneurship education is now expected to be a transformative vehicle that equips students with adaptability, creative problem-solving, and a sense of social responsibility [2].

However, a significant gap remains between theoretical business knowledge and the ethical application of that knowledge in real-world scenarios. Many entrepreneurship programs fail to address the spiritual and moral dimensions of trading, leading to a generation of entrepreneurs who prioritize material gain over social justice and integrity. SMA Muhammadiyah Mlati seeks to bridge this gap by integrating ISMUBA (Al-Islam, Kemuhammadiyah, and Arabic) values into its vocational curriculum. This integration is designed to ensure that entrepreneurship is perceived not merely as a secular economic activity but as a form of worship (ibadah) that contributes to the welfare of the community [3], [4].

The core of this ethical integration lies in the internalization of prophetic traits shiddiq (truthfulness), amanah (trustworthiness), fathanah (wisdom), and tabligh (communication) into students' business practices. By embedding these values, the school aims to cultivate a "conscience-driven" entrepreneurial mindset, where honesty in product description and transparency in pricing are non-negotiable standards [5]. This approach aligns with the prophetic tradition of trade, which emphasizes that a merchant's integrity is the primary capital

for long-term success. Such a value-based model is essential in mitigating unethical business practices like deception or exploitation which are prevalent in unregulated markets [6].

Simultaneously, the implementation of the Merdeka Curriculum through the Project for Strengthening the Profile of Pancasila Students (P5) provides a structured pedagogical framework for this mission. P5 allows schools to shift from passive classroom learning to an active, project-based model where students engage in the entire lifecycle of a startup [7]. This curriculum encourages students to explore local wisdom and sustainable resources, fostering a sense of innovation that is rooted in their immediate environment. By connecting academic subjects like mathematics and language to practical business projects, the school demonstrates the real-world relevance of cross-disciplinary knowledge [8], [9].

To remain relevant in the digital era, SMA Muhammadiyah Mlati has adopted a phygital learning approach, which synergizes physical business laboratories with digital platforms. While "Market Day" serves as a physical space for students to practice interpersonal communication and currency handling, social media platforms like Instagram and TikTok are used to master digital marketing and branding [10]. This dual-track strategy is crucial because digital literacy has become a primary predictor of entrepreneurial success in the Industry 4.0 era. This phygital ecosystem allows students to experiment with data-driven decision-making while maintaining the human touch of face-to-face commerce [11].

Despite these innovations, the success of such a complex program depends heavily on an intensive mentorship and continuous evaluation system. Teachers at SMA Muhammadiyah Mlati function as business mentors who provide guidance through market fluctuations and technical setbacks. This mentorship creates a psychological safety net, encouraging students to view failure as a learning opportunity rather than a terminal point [12]. Continuous evaluation through reflective dialogue helps students internalize a growth mindset, which is a key psychological trait for enduring entrepreneurial resilience in a competitive landscape [13].

Ultimately, this research is driven by the need to document and analyze how spiritual values and modern technological adaptations can be harmonized within a secondary school setting. SMA Muhammadiyah Mlati serves as a unique case study of how a "conscience-driven" framework can produce graduates who are both commercially competent and socially responsible. By exploring the synergy between prophetic ethics, the P5 curriculum, and phygital innovation, this study seeks to provide a holistic model for entrepreneurship education that can be replicated in other faith-based institutions [14]. The findings of this research are expected to contribute to the broader discourse on how to prepare the next generation of "Muslimpreneurs" for the fast-evolving global economy [15], [16].

2. LITERATURE REVIEW

2.1. Entrepreneurship Education

Entrepreneurship education at the secondary school level has evolved from merely teaching managerial skills into a comprehensive development of an innovative mindset. In the modern educational context, entrepreneurship is viewed as a vehicle to equip students with adaptability, financial independence, and creative problem-solving skills amidst global economic uncertainty. This education does not only focus on the final outcome of business establishment but emphasizes the transformative process that builds student self-efficacy in identifying market opportunities and managing risks. Effective entrepreneurship curricula integrate practical experience with critical reflection, allowing students to internalize their roles as agents of economic change capable of creating value for their surrounding communities [17], [18].

Pedagogically, entrepreneurship education currently places increasing emphasis on experiential learning approaches or learning based on real-world experiences. This involves transitioning the teacher's role from a content provider to a facilitator or mentor who accompanies students in facing actual market dynamics. Research indicates that active involvement in business simulations, such as school bazaars or mini-incubators, provides a significantly more permanent impact compared to purely theoretical learning. By directly encountering customer interactions and capital management, students develop crucial interpersonal skills and emotional intelligence. The primary focus is to build mental resilience so that students do not view failure as an end, but as vital data for future strategic improvement [19], [20].

2.2. ISMUBA Values

ISMUBA values, which encompass Al-Islam, Kemuhammadiyah (Muhammadiyah-ness), and Arabic, constitute a unique ethical foundation within Muhammadiyah educational institutions that distinguishes them from secular education. In the realm of entrepreneurship, ISMUBA serves as a moral compass ensuring that every economic activity aligns with Sharia principles and the spirit of social service. The internalization of these values is achieved through the cultivation of prophetic traits, namely *shiddiq* (truthfulness), *amanah* (trustworthiness), *fathanah* (wisdom/intelligence), and *tabligh* (effective communication). The application of ISMUBA values ensures that student orientation is not solely fixed on material profit-seeking, but also on achieving blessings (*barakah*) and community benefit (*maslahah*) through transparent and equitable business practices [21].

Furthermore, Kemuhammadiyah values emphasize the spirit of philanthropy and community empowerment that has characterized the movement since its inception. Students are taught that the success of a Muslim entrepreneur is measured by the extent to which their venture benefits others, realized through the practice of almsgiving or *infaq* from the net profits obtained. Arabic also plays an important role in providing a terminological understanding of Islamic economic contracts (*muamalah*), ensuring students understand the legal basis of the transactions they perform. Overall, the integration of ISMUBA within the entrepreneurship curriculum creates a strong "Muslimpreneur" identity, where spiritual integrity becomes the primary capital underlying the students' professional ambitions on a global stage [22].

2.3. Merdeka Curriculum

The Merdeka Curriculum introduces a new paradigm through the Project for Strengthening the Profile of Pancasila Students (P5), which grants schools greater autonomy to explore entrepreneurial themes across disciplines. P5 is designed to strengthen student character through project-based learning that is contextual and relevant to contemporary challenges. Within this framework, entrepreneurship is no longer viewed as a standalone subject but as a collaborative project combining various competencies, such as mathematics for budgeting, art for product design, and language for marketing [23]. The flexibility of this curriculum allows teachers to align project themes with local wisdom or the economic potential of the school's surroundings, making learning more meaningful and applicable [24].

The implementation of P5 in entrepreneurship systematically guides students through the entire business lifecycle, from the ideation stage and market research to launch and evaluation. This process is designed to build independence and cooperation (*gotong royong*), which are key elements of the Pancasila Student Profile. Through continuous evaluation and end-of-project reflection, students are encouraged to think critically about production efficiency and the effectiveness of their marketing strategies [25]. This curriculum successfully transforms the classroom into a social laboratory where students have the freedom to experiment, make mistakes, and learn independently under teacher guidance. Thus, P5 functions as a bridge connecting national academic standards with the reality of practical skill requirements in the workforce [26].

2.4. Phygital Learning

Phygital learning is an innovative approach that combines physical experiences with digital advancements to create an immersive and modern learning ecosystem. In entrepreneurship education, this concept allows students to engage in traditional trade practices at school, such as Market Day, while simultaneously managing digital storefronts on social media or e-commerce platforms. This synergy is crucial as it trains students to master two market realms at once: face-to-face interactions that build direct customer trust, and a digital presence that expands promotional reach. This approach ensures that entrepreneurship education remains relevant to the consumer behavior of the Industry 4.0 era, which is heavily dependent on information technology [27].

The use of digital elements in phygital learning provides students with access to accurate data and metrics, such as content interaction rates, advertising reach, and customer feedback via comment sections. This trains students in data-driven decision-making, which is a core competency for future entrepreneurs. On the other hand, the physical aspect maintains the human essence of business, such as communication ethics and tangible logistics management. By optimizing school facilities as physical outlets and utilizing social media as a marketing engine, students learn to integrate assets efficiently. Ultimately, this phygital strategy equips graduates with high technological literacy without disregarding conventional social interaction values [28].

3. METHOD

This research employs a qualitative approach with a case study design to explore the implementation of the entrepreneurship program at SMA Muhammadiyah Mlati in depth. The selection of the qualitative method is based on the necessity of understanding social phenomena and participant perspectives naturalistically regarding the integration of character values within school business practices [29], [30]. Primary data were collected through in-depth interview techniques with the school principal, program coordinators, and subject teachers, as well as participatory observation during Market Day activities and the Project-Based Learning (P5) process. Furthermore, secondary data collection was conducted through a documentation study of project modules, the ISMUBA curriculum, student financial reports, and school social media content as digital evidence of technological adaptation. This multi-method approach aims to ensure data validity through source and technique triangulation to provide a comprehensive overview of the entrepreneurial ecosystem within the institution [31].

Data analysis was conducted inductively following an interactive model consisting of data reduction, data display, and conclusion drawing or verification [32]. During the reduction stage, information obtained from interview transcripts and field notes was sorted to focus on main themes such as the internalization of religious values, practical learning methods, and the mentor assistance system. The reduced data were then presented in a descriptive narrative format that connects field observation results with the Merdeka Curriculum documents implemented by the school. To ensure the authenticity of the findings, the researcher performed member checking by re-confirming the analysis results with informants at SMA Muhammadiyah Mlati to avoid researcher subjectivity. This systematic procedure enables the researcher to generate credible conclusions regarding how spiritual values and digital innovation can synergize in shaping the entrepreneurial character of students [33].

4. RESULTS AND DISCUSSION

4.1. Internalization of Ismuba Values in Entrepreneurship

The integration of Al-Islam, Kemuhammadiyahan, and Arabic (Ismuba) values serves as the fundamental ethical cornerstone of the entrepreneurship program at SMA Muhammadiyah Mlati. Based on in-depth interviews with the school's religious department and a comprehensive review of curriculum documentation, it is evident that the school prioritizes spiritual integrity over mere profit-seeking motives. By embedding Islamic principles directly into the business curriculum, the school ensures that students perceive entrepreneurship not merely as a secular financial activity, but as a form of ibadah (worship) and a vital means to provide *maslahah* (benefit) to the community (Ummah). This theological framing transforms the classroom into a space where economic ambition and spiritual devotion coexist, preparing students to become "Muslimpreneurs" who seek success in both this world and the hereafter.

The practical application of these values is observed through the intentional cultivation of prophetic characters, namely *shiddiq* (truthfulness), *amanah* (trustworthiness), *fathanah* (wisdom), and *tabligh* (communication). In the context of their daily business practices, students are taught that profit is secondary to the integrity of the transaction; they are trained to be rigorously honest in describing product specifications and transparent in their pricing models, ensuring no deceptive practices (*gharar*) occur. This ethical framework is reinforced through daily reflections and religious guidance sessions, where teachers connect modern market challenges with Islamic moral narratives, thereby inspiring a sense of resilience and unwavering integrity even in the face of intense market competition.

Furthermore, documentation reveals that the use of Arabic terms in business contexts and the inclusion of Muhammadiyah's organizational values foster a strong sense of identity and social responsibility. Students are encouraged to allocate a specific portion of their theoretical profits to *infaq* or social charity, mirroring the philanthropic spirit that has defined the Muhammadiyah movement since its inception. This holistic approach ensures that when students eventually enter the professional world, they carry a "conscience-driven" entrepreneurial mindset. They are trained to balance material success with spiritual fulfillment and social justice, ensuring that their future ventures contribute positively to the socio-economic fabric of society.

4.2. Project-Based Curriculum (P5) Implementation

The implementation of the entrepreneurship program at SMA Muhammadiyah Mlati is systematically structured through the *Projek Penguatan Profil Pelajar Pancasila* (P5), as mandated by the national Merdeka Curriculum. Field observations indicate that this project-based learning model effectively shifts the

educational focus from passive classroom listening to active, hands-on production and problem-solving. Students are divided into small, collaborative groups to brainstorm, design, and execute business ideas that align with specific quarterly themes, such as sustainability or local entrepreneurship. This structured approach ensures that every student, regardless of their prior academic background, gains practical exposure to the entire lifecycle of a startup venture, from the initial "blue-sky" thinking to final execution.

During the observation phase, it was noted that students engage deeply in the technicalities of the production process, ranging from the ethical sourcing of raw materials to the meticulous branding of the final product. Documentation in the form of project modules and lesson plans highlights a deliberate focus on local wisdom, such as the innovative processing of traditional local food or the creation of handicrafts using eco-friendly materials. By focusing on local resources, the school teaches students to identify "hidden gems" within their immediate environment. This fosters a sense of innovation and environmental consciousness that is essential for modern entrepreneurs who must navigate a global market while remaining rooted in local sustainability.

The documentation also confirms that the P5 framework allows for a sophisticated level of cross-disciplinary learning, where students apply mathematics for budgeting, Indonesian language for persuasive branding, and art for product design. This interdisciplinary method helps students visualize the practical relevance of their academic subjects in a tangible, real-world context, breaking down the silos between different fields of study. The final stage of the P5 project involves a comprehensive exhibition where students present their entire entrepreneurial journey. By reflecting openly on the failures, pivots, and successes they encountered, students build a robust foundation for critical thinking and professional problem-solving that will serve them far beyond the school gates.

4.3. Market Day as a Practical Business Laboratory

Market Day at SMA Muhammadiyah Mlati serves as a vital "living laboratory" where theoretical classroom knowledge is tested against the unpredictable realities of the marketplace. Observational data shows that these events are highly anticipated highlights of the school calendar, transforming the campus grounds into a vibrant bazaar where students take full ownership of their stalls. This platform allows students to face real customers, handle physical currency or digital payments, and experience the immediate pressure of fluctuating supply and demand. It serves as an essential experiential learning tool that bridges the gap between simulated textbook exercises and the high-stakes professional business world.

One of the most prominent skills developed during Market Day is public speaking and the art of persuasive communication. Students are observed actively engaging with peers, teachers, and external visitors to pitch their products, requiring them to build self-confidence and refine their interpersonal skills in real-time. This "soft skill" development is crucial, as it teaches students how to articulate unique value propositions and handle customer rejection with professionalism and grace. The school's controlled environment provides a safe yet challenging space for students to overcome shyness, allowing them to develop a charismatic and resilient entrepreneurial presence that is difficult to cultivate in a traditional classroom setting.

Beyond the excitement of sales, Market Day facilitates practical, high-impact lessons in financial management and organizational teamwork. Each student group must maintain a simple yet accurate ledger to track their initial capital, operational costs, and total revenue to determine their true net profit. Documentation of these financial reports shows that students quickly learn the importance of accuracy and accountability in money management lessons that are often better learned through experience than theory. Furthermore, the necessity of working in teams forces students to delegate tasks effectively, with some focusing on marketing while others handle logistics, directly mirroring the collaborative and specialized nature of successful modern corporate environments.

4.4. Optimization of School Facilities and Social Media

To support the entrepreneurship program, SMA Muhammadiyah Mlati strategically utilizes both its physical infrastructure and its digital presence to create a comprehensive learning ecosystem. Interview results with program coordinators reveal that the school provides dedicated physical spaces, such as the canteen, hall, and specifically designated "entrepreneurship corners," for students to display and sell their products. By integrating these micro-businesses into the daily school routine, the institution significantly lowers the barrier to entry for novice entrepreneurs. This allows students to "beta-test" their products in a supportive environment, gaining confidence before they eventually scale their ideas to a wider audience outside the school.

In addition to physical facilities, the school has shown a remarkable adaptation to the digital era by seamlessly incorporating social media marketing into the entrepreneurship curriculum. Observation of the school's official Instagram and TikTok accounts, as well as various student-led business pages, highlights a high level of digital literacy among the participants. Students are encouraged to create creative, high-quality promotional content, including short-form videos, aesthetic product photography, and engaging copy. This documentation proves that the school recognizes digital marketing not as an elective, but as a core competency for the 21st-century entrepreneur, moving far beyond traditional brick-and-mortar business concepts.

The synergy between physical and digital platforms creates what can be described as a phygital learning experience. Interviews suggest that this dual-track approach not only increases product visibility but also teaches students about the nuances of digital ethics, copyright laws, and the long-term power of online branding. By utilizing digital tools, students learn to analyze engagement metrics and customer feedback from comments sections, providing them with data-driven insights to improve their offerings. This technological integration ensures that the entrepreneurship program remains relevant and competitive, equipping students with the tools necessary to navigate the fast-evolving digital economy.

4.5. Intensive Mentorship and Continuous Evaluation

The long-term success and sustainability of the entrepreneurship program at SMA Muhammadiyah Mlati are underpinned by a robust system of intensive mentorship and continuous evaluation. Documentation, including student progress reports and teacher observation logs, indicates that educators at the school do not merely act as traditional graders but as active business mentors and facilitators. These mentors provide nuanced guidance throughout the entire business cycle, offering insights into current market trends and helping students refine their business models as challenges arise. This hands-on guidance ensures that students do not feel overwhelmed or abandoned when facing the inevitable complexities and setbacks of running a startup.

A key feature of this mentorship is the formal, reflective evaluation session held at the conclusion of each production and sales cycle. During these sessions, teachers and students engage in an open, transparent dialogue to identify specific hurdles, such as inefficient production methods, poor pricing strategies, or weak marketing efforts. According to interview data, these evaluations are intentionally designed to be constructive rather than punitive, encouraging students to view "failure" as a valuable data point for future iteration. This process is instrumental in building a growth mindset, teaching students that persistence, adaptability, and the ability to learn from mistakes are just as important as the initial business idea.

Finally, the documentation of these evaluations serves as a strategic roadmap for the school to improve the program year after year. By tracking the recurring challenges faced by students, the administration can adjust the curriculum to provide more targeted workshops or invite guest speakers from the industry to address specific knowledge gaps. This loop of continuous feedback and institutional improvement ensures that the entrepreneurship program is a dynamic entity. It evolves alongside the students' needs and market changes, ultimately producing graduates who are not only capable of launching a business but are also equipped with the sophisticated skills required to sustain and grow one in a competitive world.

4.6. Discussion

The integration of ISMUBA (Al-Islam, Kemuhammadiyah, and Arabic) values at SMA Muhammadiyah Mlati represents a significant paradigm shift from purely profit-oriented business education toward a comprehensive, value-based entrepreneurial model. This approach fundamentally prioritizes ethical conduct and social responsibility over mere material gain by systematically embedding the prophetic traits of shiddiq (truthfulness), amanah (trustworthiness), fathanah (wisdom), and tabligh (communication) into the core curriculum and daily school culture. Such deep spiritual internalization ensures that students perceive not merely as a cold financial activity or a secular career path, but as muamalah a sacred social interaction governed by Sharia principles that demands justice and fairness in every transaction [34], [35], [36].

The practical application of these religious values serves as a powerful preventative measure that effectively mitigates the risks of unethical business practices, such as fraud or exploitation, while simultaneously fostering a "conscience-driven" mindset among the youth. By consistently connecting daily business challenges and market dilemmas with Islamic moral narratives and the history of Muslim traders, the school provides a spiritual anchor that guides students through the complexities and temptations of intense market

competition. This methodology creates a unique educational environment where spiritual integrity and professional ambition coexist harmoniously, mirroring the successful characteristics of faith-based educational institutions that strive to produce "technically competent yet spiritually grounded" graduates [37], [38], [39].

In terms of the pedagogical framework, the implementation of the Project-Based Learning (P5) model at SMA Muhammadiyah Mlati demonstrates a sophisticated and proactive alignment with the modern Merdeka Curriculum guidelines. This model intentionally shifts the educational focus away from passive classroom listening toward active, hands-on production, which has been shown to significantly improve student engagement and retention by transforming abstract economic concepts into tangible, marketable products. Such a structured, step-by-step approach ensures that every student, regardless of their academic starting point or prior business knowledge, gains deep exposure to the entire lifecycle of a startup venture, from the initial brainstorming phase to the final execution [40], [41], [42].

Furthermore, the school's strategic emphasis on local wisdom specifically in the processing of traditional local food and the creation of sustainable handicrafts fosters a dual sense of environmental awareness and regional economic pride. By focusing on resources available within their immediate environment, students learn to identify and capitalize on local opportunities that are often overlooked in traditional, generic curricula that favor globalized corporate models. This strategy teaches students the vital lesson that innovation does not always require high-tech or expensive solutions but can stem from adding creative value to local heritage, community resources, and indigenous knowledge [43], [44], [45].

The Market Day initiative serves as a vital "living laboratory" where theoretical knowledge is rigorously tested against the harsh, unpredictable realities of the marketplace. These events transform the school grounds into a vibrant, high-energy bazaar, functioning as an effective business laboratory that helps reduce student anxiety regarding real-world market interactions and professional networking. By directly facing actual customers, managing inventory, and handling both physical currency and digital transactions, students bridge the gap between simulated classroom exercises and the professional business world, gaining a sense of commercial reality that books alone cannot provide [46], [47], [48].

During these Market Day events, the development of public speaking and persuasive communication skills becomes a primary, measurable learning outcome for the students. Negotiating with peers, teachers, and external visitors requires a high level of confidence, emotional intelligence, and interpersonal refinement that cannot be achieved through textbook rote learning or written exams. These "soft skills" are often more permanent and impactful for the students' future careers because they are forged through immediate, real-time feedback from customers, allowing students to develop a charismatic, resilient, and adaptable entrepreneurial presence [49], [50], [51].

The optimization of physical school facilities combined with a robust social media presence reflects a modern phygital (physical and digital) approach to 21st-century entrepreneurship. The school's strategic use of Instagram and TikTok for product promotion and brand storytelling validates the research-backed idea that digital literacy and content creation are the most significant predictors of entrepreneurial success among the younger generation. By providing physical "entrepreneurship corners" for display alongside digital platforms for promotion, the school creates a low-risk environment where students can experiment with digital branding while remaining competitive in an increasingly digital-first global economy [52], [53], [54].

Finally, the long-term success and sustainability of the program are underpinned by an intensive mentorship and evaluation system where teachers transition from being mere graders to becoming active business mentors and consultants. This system provides a vital psychological safety net that encourages students to take calculated risks and view inevitable business failures as essential data points for future growth and strategy refinement. Through continuous reflective dialogue and the practical application of infaq (charity) from their net profits, students develop a robust growth mindset and a sense of financial integrity that balances individual success with community empowerment and social welfare [13], [55], [56].

5. CONCLUSION

The implementation of the entrepreneurship program at SMA Muhammadiyah Mlati has successfully synergized ISMUBA spiritual values with the P5 curriculum through a phygital (physical and digital) approach, effectively fostering holistic entrepreneurial character in students. This program has proven

successful in transforming students from passive learners into commercially competent yet socially responsible innovators through the practice of *infaq* and intensive mentorship. For future development, it is suggested that the school strengthen external partnerships with local MSMEs to expand market access and formalize certified digital literacy training to ensure that graduates remain competitive and relevant in the ever-evolving digital economy.

REFERENCES

- [1] E. N. Purnomo, A. Imron, B. B. Wiyono, A. Y. Sobri, and Z. A. Dami, "Transformation of Digital-Based School Culture: implications of change management on Virtual Learning Environment integration," *Cogent Education*, vol. 11, no. 1, pp. 1–17, 2024, [Online]. Available: <https://doi.org/10.1080/2331186X.2024.2303562>
- [2] H. Wantoro, M. M. Afandi, and D. H. Siswanto, "Development of a Guided Discovery-Based scientific approach Module for enhancing Problem-Solving Skills," *Contemporary Education and Community Engagement*, vol. 1, no. 2, pp. 51–63, 2025.
- [3] Tarso, D. H. Siswanto, and A. Setiawan, "Teacher qualifications in the implementation of the Kurikulum Merdeka and ISMUBA," *Curricula: Journal of Curriculum Development*, vol. 4, no. 1, pp. 13–28, 2025, doi: 10.17509/curricula.v5i1.76836.
- [4] H. N. Adha and D. Prawironegoro, "Human values in ISMUBA-based rahmatan lil-alamin education," *Journal of Education and Teaching (JET)*, vol. 5, no. 1, pp. 119–132, 2024, doi: 10.51454/jet.v5i1.322.
- [5] S. Sutrisno, A. D. Kuraesin, S. Siminto, I. Irawansyah, and A. M. Almaududi Ausat, "The Role of Information Technology in Driving Innovation and Entrepreneurial Business Growth," *Jurnal Minfo Polgan*, vol. 12, no. 1, pp. 586–597, 2023.
- [6] A. Hanama, Y. Kristiawan, D. H. Siswanto, and A. B. P. D. A. F. Syah, "Program market day sebagai stimulus untuk mengembangkan karakter kewirausahaan murid sekolah dasar," *MURABBI*, vol. 3, no. 2, pp. 62–70, 2024, doi: 10.69630/jm.v3i2.39.
- [7] E. Hidayati, D. Hadi Siswanto, E. Susetyawati, and K. Kintoko, "Character education through tapak suci: A qualitative case study in Indonesian Senior High School," *Journal of Educational Research and Practice (JERP)*, vol. 4, no. 1, 2026, doi: 10.70376/jerp.v4i1.402.
- [8] W. Astiwi and D. H. Siswanto, "Assessing the ethnomathematical values of gudeg jogja: A qualitative inquiry into three-dimensional spatial decomposition and sequential programming," *Jurnal Padamu Negeri*, vol. 3, no. 2, pp. 78–89, Feb. 2026, doi: 10.69714/yjwmsg46.
- [9] A. U. Husna, D. H. Siswanto, and N. T. Purwaningsih, "Beyond symbolic Identification: Assessing the gap between procedural numeracy and structural sense in linear equations," *JPIM: Jurnal Penelitian Ilmiah Multidisipliner*, vol. 03, no. 01, pp. 950–962, 2026.
- [10] N. Wahyuni, S. R. Alam, E. K. Alghiffari, and D. H. Siswanto, "Harnessing TikTok for learning: Examining its impact on students' mathematical numeracy skills," *Journal of Professional Teacher Education*, vol. 02, no. 02, pp. 48–56, 2024, doi: 10.12928/jprotect.v2i2.945.
- [11] A. S. Rahmatullah, E. Mulyasa, S. Syahrani, F. Pongpalilu, and R. E. Putri, "Digital Era 4.0: The Contribution to Education and Student Psychology," *Linguistics and Culture Review*, vol. 6, no. S3, pp. 89–107, 2022, doi: 10.21744/lingcure.v6ns3.2064.
- [12] K. Kintoko, D. H. Siswanto, V. E. Siswandari, and F. Mulianingsih, *Kepemimpinan Wakil Kepala Sekolah: Manajemen, Inovasi dan Transformasi Pendidikan*. Surabaya: Yayasan Andus Edukasi Indonesia, 2025.
- [13] R. Janudom, "Instilling Growth Mindset to Promote Students' English Learning Behaviors and Oral Communication Learning Achievement," *Pasaa*, vol. 67, no. December, pp. 1–32, 2023.
- [14] D. H. Siswanto, W. Astiwi, Kintoko, and M. M. E. Susetyawati, "Mapping Research Trends on Mathematics Learning Motivation: A Bibliometric Analysis Using VOSViewer," *JPIM: Jurnal Penelitian Ilmiah Multidisipliner*, vol. 02, no. 03, pp. 671–682, 2025.
- [15] R. Nivornusit, T. Kraiwanit, and P. Limna, "Food delivery competition in the digital economy: Price war strategy in a developing country," *Digital Business*, vol. 4, no. 1, p. 100076, 2024, doi: 10.1016/j.digbus.2024.100076.
- [16] F. T. Hatmoko, S. Rochmat, D. H. Siswanto, and S. A. Pisriwati, "Integrasi teknologi dalam pendidikan Sekolah Dasar sebagai upaya peningkatkan literasi," *MURABBI*, vol. 3, no. 2, pp. 112–124, 2024, doi: 10.69630/jm.v3i2.47.

- [17] A. N. R. Kurniawan, Sistiyan, and Z. F. Qolbi, "Efficient learning strategies: Student attraction to entrepreneurship lessons using technology," *Curricula: Journal of Curriculum Development*, vol. 3, no. 1, pp. 125–142, 2024.
- [18] Tarso, H. Suryatama, S. A. Saputra, A. Hanama, and D. H. Siswanto, "Unlocking potential with entrepreneurship training for vocational high school students," *JSCD: Journal of Social and Community Development*, vol. 1, no. 02, pp. 85–94, 2024, doi: 10.56741/jscd.v1i02.737.
- [19] S. A. Pisriwati, D. H. Siswanto, and N. Yogyanto, "Innovating aromatherapy candles from used cooking oil for student entrepreneurship," *Dedicated: Journal of Community Services (Pengabdian kepada Masyarakat)*, vol. 3, no. 1, pp. 1–14, 2025.
- [20] W. Gu, J. Wang, X. Hua, and Z. Liu, "Entrepreneurship and high-quality economic development: based on the triple bottom line of sustainable development," *International Entrepreneurship and Management Journal*, vol. 17, no. 1, pp. 1–27, 2021, doi: 10.1007/s11365-020-00684-9.
- [21] H. Widodo, Sulastri, M. Jailani, and M. Huda, "The implementation of project based-learning as ISMUBA curriculum development in muhammadiyah schools," *TADRIS: Jurnal Pendidikan Islam*, vol. 19, no. 1, pp. 142–160, 2024.
- [22] A. A. Mundofi, "Pengembangan kurikulum ISMUBA dalam meningkatkan kualitas pendidikan muhammadiyah," *Jurnal Studi Islam dan Kemuhammadiyah*, vol. 4, no. 1, pp. 65–75, 2024, doi: 10.18196/jasika.v4i1.114.
- [23] D. H. Siswanto, *Kepemimpinan Keuangan Sekolah Berbasis Rasionalitas Matematis*. Pesisir Selatan: Lenggo Geni Pustaka, 2026.
- [24] Kemendikbudristek, *Pedoman penerapan kurikulum dalam rangka pemulihan pembelajaran*. 2022.
- [25] S. A. Saputra, H. Suryatama, W. A. Wibowo, D. H. Siswanto, and Y. Kristiawan, "Membangun Kesadaran Pancasila: Dialog Pemuda Melawan Ancaman Radikalisme Global," *Jurnal Solusi Masyarakat Dikara*, vol. 5, no. 1, pp. 7–11, 2025.
- [26] L. Li, "Reskilling and Upskilling the Future-ready Workforce for Industry 4.0 and Beyond," *Information Systems Frontiers*, pp. 1–16, 2022, doi: 10.1007/s10796-022-10308-y.
- [27] C. Giovannella and G. Roccasalva, "Phygital learning ecosystems and places beyond 2030," *Interaction Design and Architecture(s)*, vol. 64, pp. 88–110, Dec. 2025, doi: 10.55612/s-5002-064-001.
- [28] S. P. Prajapati and S. Das, "Understanding students' active reading in phygital learning environments: a study of smartphone-based textbook companions in Indian classrooms," *Front. Educ. (Lausanne)*, vol. 10, 2025, doi: 10.3389/educ.2025.1660133.
- [29] Irsyad *et al.*, *Manajemen Pembelajaran*. Padang: Literasi Langsung Terbit, 2026.
- [30] A. Subakti, D. H. Siswanto, and K. Kintoko, "From digital platforms to learning quality: A management model of learning information systems in secondary education," *Jurnal Riset Teknik Komputer*, vol. 3, 2026, doi: 10.69714/3688a706.
- [31] N. Naufal, F. Apriani, Fajriana, Nurdin, K. Nurdin, and D. H. Siswanto, *Analisis Multivariat*. Padang: Literasi Langsung Terbit, 2025.
- [32] E. Kulimbang *et al.*, *Metodologi Penelitian Pendidikan: Pendekatan Kuantitatif dan Kualitatif*. Padang: Literasi Langsung Terbit, 2026.
- [33] M. B. Miles and A. M. Huberman, "Qualitative Data Analysis: An Expanded Sourcebook," 1994.
- [34] S. Kraus, M. Filser, M. O'Dwyer, and E. Shaw, "Social entrepreneurship: an exploratory citation analysis," *Review of Managerial Science*, vol. 8, no. 2, 2014.
- [35] F. Saleh *et al.*, *Kurikulum dan Pengembangan Kurikulum*. Padang: Literasi Langsung Terbit, 2025.
- [36] C. T. Astuti, S. Leovanny, L. Aulia, N. Z. Caesaria, and D. H. Siswanto, "Learning Approaches, Climate, Motivation, Soft Skills, and Achievement: A Comparative Study of Nature-Based and Conventional Educational Systems," *JPIM: Jurnal Penelitian Ilmiah Multidisiplin*, vol. 02, no. 04, pp. 1832–1845, 2025.
- [37] Y. Dede, V. Akçakın, and G. Kaya, "Mathematical, mathematics educational, and educational values in mathematical modeling tasks," *ECNU Review of Education*, vol. 4, no. 2, pp. 241–260, 2021, doi: 10.1177/2096531120928089.
- [38] P. Hallinger, *Leading Educational Change: Global Perspectives on Educational Leadership and Policy*. New York: Routledge, 2020.
- [39] D. H. Siswanto, K. Kintoko, and N. Z. Caesaria, "Humanistic Educational Philosophy as a Basis for Developing the Merdeka Curriculum," *JUPERAN: Jurnal Pendidikan dan Pembelajaran*, vol. 05, no. 01, pp. 01–09, 2026.
- [40] R. Kumar, *Research methodology: A step-by-step guide for beginners (6th ed.)*. London: SAGE Publications, 2024.

- [41] S. Rochmat, Andriyani, and D. H. Siswanto, “Developing an RME-based 3D storybook with AR technology to enhance spatial ability,” *Bulletin of Applied Mathematics and Mathematics Education*, vol. 5, no. 1, pp. 9–22, 2025, doi: 10.12928/bamme.v5i1.10880.
- [42] W. Astiwi, D. H. Siswanto, and H. Suryatama, “Description regarding the influence of teacher qualifications and competence on early childhood learning achievement,” *Asian Journal of Applied Education (AJAE)*, vol. 3, no. 3, pp. 347–358, 2024.
- [43] G. Pisoni, N. Díaz-Rodríguez, H. Gijlers, and L. Tonolli, “Human-centred artificial intelligence for designing accessible cultural heritage,” *Applied Sciences (Switzerland)*, vol. 11, no. 2, pp. 1–30, 2021, doi: 10.3390/app11020870.
- [44] L. Hakim and D. H. Siswanto, *Manajemen Sekolah Inklusi: Strategi Pengelolaan Pendidikan Ramah Keberagaman*. Surabaya: Yayasan Andus Edukasi Indonesia, 2026.
- [45] D. H. Siswanto and W. Astiwi, *Pembelajaran Matematika Digital: Transformasi dan Inovasi Era 5.0*. Padang: Literasi Langsung Terbit, 2025.
- [46] S. Buteau, “Roadmap for digital technology to foster India’s MSME ecosystem-opportunities and challenges,” *CSI Transactions on ICT*, vol. 9, no. 4, pp. 233–244, 2021, doi: 10.1007/s40012-021-00345-4.
- [47] U. Khasanah, “UMKM Pasca Covid, Meningkatkan Pemberdayaan Ekonomi Global,” *Jurnal Ekonomi dan Bisnis Islam*, pp. 267–268, 2023, doi: 10.30868/ad.v7i01.4597.
- [48] D. H. Siswanto, “Kinerja UMKM Kecamatan Kesambi terkait pengaruh literasi dan inklusi keuangan,” *PELITA: Jurnal Penelitian dan Karya Ilmiah*, vol. 24, no. 2, pp. 60–70, 2024.
- [49] H. Hendriana and U. Sumarmo, *Hard Skills dan Soft Skills Matematik Siswa*. Bandung: PT Repika Aditama, 2017.
- [50] A. Kumar, P. N. Singh, S. N. Ansari, and S. Pandey, “Importance of Soft Skills and Its Improving Factors,” *World Journal of English Language*, vol. 12, no. 3, pp. 220–227, 2022.
- [51] G. Dogara, M. S. Bin Saud, Y. Bin Kamin, and M. S. Bin Nordin, “Project-based learning conceptual framework for integrating soft skills among students of technical colleges,” *IEEE Access*, vol. 8, pp. 83718–83727, 2020, doi: 10.1109/ACCESS.2020.2992092.
- [52] S. Batista-Toledo and D. Gavilan, “A Blended Learning Future: COVID-19 Lessons for ‘Phygital’ Higher Education,” *International Review of Research in Open and Distributed Learning*, vol. 26, no. 2, pp. 1–22, 2025, doi: 10.19173/irrodl.v26i2.8259.
- [53] N. Borgognon, L. Moccozet, and G. Molinari, “From Ecotone to Phygital SceneGraph: Designing Postdigital Classrooms for Collaborative Maker-Based Learning,” *Postdigital Science and Education*, vol. 7, no. 3, pp. 985–1006, Sep. 2025, doi: 10.1007/s42438-025-00575-8.
- [54] A. Subakti, D. H. Siswanto, and K. Kintoko, “From digital platforms to learning quality: A management model of Learning information systems in secondary education,” *Jurnal Riset Teknik Komputer*, vol. 3, no. 1, 2026, doi: 10.69714/3688a706.
- [55] Y. Jiang, H. Liu, Y. Yao, Q. Li, and Y. Li, “The Positive Effects of Growth Mindset on Students’ Intention toward Self-Regulated Learning during the COVID-19 Pandemic: A PLS-SEM Approach,” *Sustainability (Switzerland)*, vol. 15, no. 3, 2023, doi: 10.3390/su15032180.
- [56] M. Limori, D. H. Siswanto, T. Shigematsu, and W. Astiwi, “Integrating STEAM in Teaching Integrals: An Interactive Media Needs Analysis to Enhance Creative Thinking,” *RUKASI: Jurnal Ilmiah Perkembangan Penedidikan dan Pembelajaran*, vol. 02, no. 05, 2025.