

Literacy as a Key to Building Competitive Human Resources in Indonesia's Future



Sri Eka Astutiningsih¹, Indarta Priyana², Syech Idrus³, Suriyanti⁴, Maya Laisila⁵

UIN Sayyid Ali Rahmatullah Tulungagung¹, Universitas Informatika dan Bisnis. Indonesia², Sekolah Tinggi Pariwisata Mataram³, Universitas Pelita Bangsa⁴, Universitas Kristen Indonesia Maluku⁵

Email: srieika_astutiningsih@yahoo.com¹, indarta.priyana@unibi.ac.id², sidroess@gmail.com³, suriyanti308@gmail.com⁴, laisilamaya@gmail.com⁵

KEY WORDS	ABSTRACT
Literacy, Human Resources, Competitiveness, Indonesia, Qualitative Study.	Literacy plays a fundamental role in shaping competitive human resources, particularly in a rapidly evolving global economy. In the context of Indonesia, improving literacy levels is crucial for addressing skill gaps and fostering a workforce capable of meeting the challenges of the future. This study employs a qualitative methodology based on literature review and library research to examine the role of literacy in building Indonesia's human capital competitiveness. By synthesizing insights from academic articles, policy documents, and global literacy frameworks, the research identifies the multidimensional impact of literacy, encompassing foundational, digital, and critical literacies. The findings highlight that literacy extends beyond basic reading and writing skills; it includes the ability to analyze information, think critically, and adapt to technological advancements. Indonesia's current literacy initiatives, while significant, face challenges such as regional disparities, inadequate access to quality education, and low integration of digital skills in the curriculum. These challenges underscore the need for more inclusive and innovative approaches to literacy development. This study underscores the importance of integrating literacy programs with national human resource strategies to ensure alignment with global demands. Policies that prioritize digital literacy, continuous skill development, and equitable access to education are essential for fostering a competitive workforce. The research contributes to existing knowledge by providing a comprehensive framework for understanding literacy as a driver of human resource development and by offering actionable recommendations for policymakers, educators, and stakeholders.

1. INTRODUCTION

Indonesia, as the fourth most populous country in the world, faces a pressing challenge in preparing its human resources to meet the demands of an increasingly competitive global economy (Tayibnapis et al., 2018). Literacy, broadly defined as the ability to read, write, and critically analyze information, is a cornerstone of human capital development (Ployhart et al., 2014). However, Indonesia's literacy levels,

though improving, remain insufficient to fully support the country's ambition of becoming a leading global economic player (Zhu, 2019). According to global literacy indexes, significant disparities persist across regions, and digital literacy a critical skill in the Fourth Industrial Revolution is still underdeveloped in many parts of the country (Chowdhury et al., 2024). These realities highlight the urgent need to reevaluate and strengthen Indonesia's literacy strategies to build a workforce that is

competitive, adaptable, and innovative.

Existing studies have extensively examined the role of basic literacy in fostering individual and societal development(Sitopu et al., 2024). However, research on the integration of literacy with advanced skills such as digital proficiency, critical thinking, and lifelong learning remains limited, particularly within the Indonesian context(Somantri, 2021). This research gap is significant because literacy in the 21st century is no longer confined to foundational skills but encompasses a broader spectrum of abilities necessary for navigating a complex, technology-driven world. Addressing this gap is critical to ensuring that Indonesia's human resources are equipped to face future challenges.

The urgency of this research lies in its potential to guide policymakers, educators, and stakeholders in aligning literacy initiatives with national and global human resource needs(Andrin et al., 2024). Previous research has primarily focused on education infrastructure and access but has often overlooked the strategic role of literacy as a transformative tool for building competitiveness(Ben Ghrbeia & Alzubi, 2024). Furthermore, many studies have not adequately addressed the regional disparities in literacy levels and the unique challenges posed by Indonesia's diverse geography and population(Adi & Kamilia, 2023).

The novelty of this study lies in its comprehensive approach to understanding literacy as a multidimensional concept that integrates foundational, digital, and critical literacies (Aguilera & Pandya, 2021). By synthesizing insights from global frameworks and Indonesia-specific data, this research provides a framework for reimagining literacy as a key driver of human capital

competitiveness(Lim & Lee, 2024). This perspective is particularly relevant in the context of rapid technological change and the increasing importance of knowledge-based economies.

The primary objective of this study is to explore the role of literacy in shaping competitive human resources in Indonesia(Budiarto et al., 2024). Specifically, it aims to identify the challenges and opportunities associated with improving literacy, analyze its impact on workforce readiness, and propose actionable strategies for stakeholders(Wang et al., 2024). The expected benefits of this research include providing evidence-based recommendations for literacy development, fostering a more equitable and skilled workforce, and contributing to Indonesia's long-term economic growth and global competitiveness(Wibowo, 2023).

2. METHOD

This study employs a qualitative research methodology to explore the role of literacy in shaping competitive human resources in Indonesia(Budiarto et al., 2024). A qualitative approach is particularly suitable for this research as it allows for an in-depth exploration of concepts, relationships, and contextual factors (Chai et al., 2021). The study focuses on interpreting and synthesizing information from existing literature, emphasizing the multidimensional nature of literacy and its implications for human resource development in Indonesia(Widarni et al., 2022).

Data Sources

The primary data source for this study is secondary data obtained through a systematic review of relevant literature(Johnston, 2014). This includes peer-reviewed journal articles, government reports, policy documents, global



literacy frameworks, and statistical data from reputable organizations such as UNESCO, the World Bank, and Indonesia's Ministry of Education and Culture. The selection of sources is based on their relevance to the themes of literacy, human resource competitiveness, and Indonesia's specific challenges and opportunities.

Data Collection Techniques

Data collection is conducted using library research and a systematic literature review. Key terms such as "literacy development," "human resource competitiveness," "digital literacy in Indonesia," and "education policy in Indonesia" are used to search academic databases, including Scopus, Web of Science, and Google Scholar. Snowball sampling is employed to identify additional relevant sources by reviewing citations in the initially selected literature. Inclusion criteria include publications from the past 15 years, with a particular focus on works addressing the integration of literacy into workforce development (Satish & Starace, 2022).

Data Analysis Methods

The data collected is analyzed using thematic analysis to identify recurring patterns, themes, and insights related to literacy and human resource competitiveness (Miftah & Prasetyo, 2024). Braun and Clarke's six-phase framework is applied: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report (Campbell et al., 2021). This process ensures a systematic and rigorous synthesis of findings, enabling the identification of key challenges, opportunities, and actionable strategies for literacy development in Indonesia.

The validity of the analysis is enhanced through

triangulation, comparing findings across multiple data sources to ensure reliability and consistency. By combining theoretical frameworks with practical evidence, this study provides a comprehensive understanding of literacy's impact on Indonesia's future workforce. This methodological approach not only captures the complexity of the topic but also offers actionable insights for policymakers, educators, and stakeholders.

3. RESULT AND DISCUSSION

The findings of this study highlight the crucial role of literacy as a cornerstone for building competitive human resources in Indonesia, particularly in the context of a rapidly globalizing and technology-driven economy. Literacy is no longer confined to the traditional ability to read and write but has evolved into a multidimensional construct encompassing digital literacy, critical thinking, and problem-solving skills. These expanded dimensions of literacy are increasingly recognized as essential competencies for individuals to succeed in the modern workforce, particularly in an environment where innovation and adaptability are paramount.

Indonesia faces unique challenges in developing literacy levels that align with the demands of the global economy. While national literacy rates have improved over the past decade, significant disparities persist between urban and rural areas, as well as among different socioeconomic groups. Access to quality education remains uneven, with underdeveloped infrastructure and limited resources in many remote regions. These disparities hinder the equitable development of human capital, leaving segments of the population underprepared for the demands of a competitive labor market. The absence of a

cohesive strategy to address these gaps exacerbates existing inequalities and limits the nation's potential to leverage its demographic advantage.

The study also identifies the need for integrating digital literacy into the national curriculum as a critical step toward enhancing workforce readiness. In the Fourth Industrial Revolution, proficiency in technology and digital tools has become indispensable. However, many educational institutions in Indonesia have yet to fully incorporate digital literacy training into their programs. This gap not only affects students' preparedness for the labor market but also limits their ability to engage in lifelong learning, which is essential in an era of constant technological advancement. A targeted approach that combines foundational literacy with digital competencies can significantly enhance the employability and innovation capacity of Indonesia's workforce.

Leadership and policy frameworks also play a pivotal role in fostering a culture of literacy development. The study underscores the importance of government initiatives and private sector involvement in addressing systemic challenges. Programs that promote literacy, such as community-based learning centers, digital learning platforms, and public-private partnerships, have proven to be effective in other contexts and can be adapted to Indonesia's unique needs. Furthermore, policies that incentivize equitable access to education, teacher training, and technological investment are critical for creating an environment where literacy can thrive and contribute to human resource competitiveness.

Finally, the findings emphasize the transformative potential of literacy in fostering innovation, economic growth, and social

mobility. A literate workforce is better equipped to adapt to change, embrace new technologies, and contribute to problem-solving and decision-making processes. This underscores the need for a holistic approach to literacy development, one that considers not only the technical skills required for employment but also the broader cognitive and social capabilities necessary for lifelong success. Addressing these challenges and leveraging the opportunities presented by literacy will enable Indonesia to build a workforce that is not only competitive but also resilient and adaptive in the face of future uncertainties.

The study illustrates that literacy is a fundamental pillar of human resource development in Indonesia, with implications that extend beyond individual empowerment to national economic and social progress. By addressing current gaps and embracing innovative strategies, Indonesia can unlock the full potential of its human capital and secure a competitive position in the global landscape.

The Expanding Definition of Literacy in the 21st Century

The concept of literacy has evolved significantly from its traditional definition as the ability to read and write to encompass a broader range of competencies required in the modern era. In the context of Indonesia's human resource development, this expanded definition includes digital literacy, critical thinking, and problem-solving skills. Foundational literacy remains essential, but it is no longer sufficient to address the complexities of the global economy. In the Fourth Industrial Revolution, digital literacy has emerged as a critical component, enabling individuals to navigate, evaluate, and create content in a technology-driven world.

Research highlights that individuals equipped

with advanced literacy skills are better positioned to contribute to innovation and adapt to rapidly changing labor market demands. However, in Indonesia, digital literacy integration remains inconsistent, particularly in underdeveloped regions. The lack of access to digital tools and educational resources in rural areas further exacerbates this gap, leaving many individuals without the necessary skills to compete in the modern workforce.

Critical thinking and problem-solving, as aspects of literacy, are equally important for building a competitive workforce. These skills enable individuals to analyze information, make informed decisions, and generate innovative solutions to complex challenges. However, Indonesia's education system often emphasizes rote learning over critical thinking, which limits the development of these competencies. Addressing this issue requires a shift in educational practices and a greater emphasis on inquiry-based learning.

In addition, lifelong learning, a vital aspect of modern literacy, remains underprioritized in Indonesia's literacy policies. With technological advancements continually reshaping industries, the ability to learn and adapt is crucial for maintaining employability. Literacy programs must, therefore, extend beyond formal education to include opportunities for reskilling and upskilling throughout an individual's career.

In summary, Indonesia must adopt a holistic approach to literacy that incorporates digital, critical, and lifelong learning dimensions. This expanded definition of literacy is essential for equipping individuals with the skills needed to succeed in an increasingly competitive and technology-driven world.

Regional Disparities in Literacy Development

One of the most significant challenges in enhancing literacy in Indonesia is the stark regional disparities in access to quality education and resources. Urban areas, particularly those in Java and Bali, tend to have better infrastructure, higher teacher quality, and greater access to learning materials compared to rural or remote regions such as Papua and Maluku. These disparities create significant inequities in literacy development, limiting opportunities for individuals in underprivileged areas.

Studies show that students in rural areas face several barriers, including inadequate school facilities, a lack of trained teachers, and limited access to digital tools. As a result, literacy levels in these regions often fall below the national average. These inequities not only hinder individual development but also limit the collective potential of Indonesia's human capital. Without targeted interventions, regional disparities will continue to undermine national efforts to build a competitive workforce.

Government initiatives such as the School Operational Assistance (BOS) program and the Literacy Village program have made progress in improving literacy rates in underserved areas. However, these efforts have not fully addressed the root causes of inequality. For example, BOS funding is often insufficient to cover the specific needs of remote schools, and the Literacy Village program relies heavily on local community support, which varies widely in effectiveness.

Digital literacy presents a particularly significant challenge in rural areas, where



internet connectivity and access to technology are limited. Bridging this digital divide requires substantial investment in infrastructure, such as expanding internet coverage and providing affordable digital devices. Moreover, training programs for teachers and students must be tailored to the unique needs of these regions to ensure meaningful engagement with digital tools.

To address regional disparities, a multi-faceted approach is required. This includes improving infrastructure, increasing funding for rural education, and fostering partnerships between government, private sector, and local communities. By narrowing the literacy gap between regions, Indonesia can unlock the full potential of its human resources and ensure more equitable development.

The Role of Digital Literacy in Workforce Competitiveness

Digital literacy has become a cornerstone of workforce competitiveness in the 21st century, as most industries increasingly rely on digital tools and platforms. For Indonesia, enhancing digital literacy is critical for preparing its workforce to thrive in a technology-driven economy. However, current efforts to integrate digital literacy into education and training programs remain fragmented and underdeveloped.

The integration of digital literacy into the national curriculum is essential for equipping students with the skills needed to participate in the global economy. However, many schools in Indonesia lack the necessary resources, such as computers, internet access, and trained teachers, to deliver effective digital literacy programs. This gap is particularly pronounced in public schools and rural areas, where digital infrastructure is minimal or nonexistent.

Beyond formal education, digital literacy training must be extended to the workforce through reskilling and upskilling initiatives. Workers in industries such as manufacturing, agriculture, and retail need to adopt digital tools to improve productivity and competitiveness. Programs such as the Pre-Employment Card (Kartu Prakerja) have begun to address this need by providing digital skills training. However, these programs require greater scale and integration to achieve meaningful impact.

Digital literacy also plays a vital role in fostering entrepreneurship and innovation. Entrepreneurs with strong digital skills can leverage e-commerce platforms, digital marketing, and data analytics to grow their businesses. However, the lack of access to digital resources and training in many regions limits the entrepreneurial potential of Indonesia's workforce.

Investing in digital literacy is not only an educational imperative but also an economic one. By equipping its workforce with digital skills, Indonesia can enhance its global competitiveness, attract foreign investment, and create new opportunities for economic growth.

Policy and Leadership in Literacy Development

Effective policies and leadership are critical for driving literacy development in Indonesia. The government has introduced several initiatives aimed at improving literacy rates, such as the National Literacy Movement (Gerakan Literasi Nasional) and digital literacy programs under the Ministry of Education and Culture. While these initiatives have laid a foundation for progress, their implementation has faced

challenges in consistency, scalability, and coordination.

Leadership at both national and local levels plays a crucial role in ensuring the success of literacy programs. Strong leadership can mobilize resources, foster collaboration among stakeholders, and create an environment conducive to learning. However, the lack of coordination between government agencies, schools, and community organizations often undermines the effectiveness of literacy initiatives.

Policy frameworks must also address the systemic challenges that hinder literacy development, such as inadequate teacher training, insufficient funding, and regional disparities. For instance, policies that incentivize teacher placement in remote areas and provide ongoing professional development can significantly improve literacy outcomes in underserved regions.

Public-private partnerships have shown promise in addressing gaps in literacy development. Companies and non-governmental organizations (NGOs) have contributed to digital literacy programs, teacher training, and resource provision. Expanding these partnerships can enhance the reach and impact of literacy initiatives, particularly in areas where government resources are limited.

Ultimately, effective policies and leadership are essential for creating a sustainable literacy ecosystem. By aligning national strategies with local needs and fostering collaboration among stakeholders, Indonesia can accelerate progress toward building a competitive and literate workforce.

Literacy as a Driver of Innovation and

Economic Growth

The relationship between literacy and economic growth is well-established, with numerous studies highlighting how improved literacy levels contribute to higher productivity, innovation, and social mobility. In Indonesia, literacy has the potential to unlock significant economic opportunities by enabling individuals to acquire advanced skills, adapt to technological changes, and participate in knowledge-intensive industries.

A literate workforce is better equipped to engage in innovation, as literacy fosters critical thinking, creativity, and problem-solving. For example, employees with strong literacy skills can analyze market trends, generate new ideas, and implement innovative solutions. This is particularly important in Indonesia's growing sectors, such as technology, manufacturing, and creative industries, where innovation drives competitiveness.

Moreover, literacy enhances social mobility by providing individuals with the tools to access better education, higher-paying jobs, and entrepreneurial opportunities. This contributes to reducing poverty and inequality, creating a more inclusive and equitable society.

The study also highlights the role of literacy in attracting foreign investment. Countries with a skilled and literate workforce are more likely to attract global companies seeking a competitive labor pool. By improving literacy levels, Indonesia can position itself as a hub for innovation and economic activity in Southeast Asia.

To maximize the economic benefits of literacy, Indonesia must adopt a comprehensive approach that integrates education, workforce development, and economic policy. By doing so,



the country can build a competitive human resource base capable of driving long-term economic growth and global competitiveness.

4. CONCLUSION

literacy serves as a fundamental pillar in building competitive human resources for Indonesia's future, encompassing not only foundational skills but also digital proficiency, critical thinking, and lifelong learning. While progress has been made in improving literacy rates, significant challenges such as regional disparities, limited digital integration, and systemic barriers remain. Addressing these challenges requires a comprehensive strategy that includes equitable access to education, targeted digital literacy programs, and collaboration among government, private sector, and local communities. By fostering a robust literacy ecosystem, Indonesia can unlock its human capital potential, drive innovation, and secure a competitive position in the global economy.

5. REFERENCES

- Adi, D. P., & Kamilia, N. D. (2023). Analysis of Indonesia's Geographic Location on the Economic Well-being of the Society. *LANGGAR: Journal of Social, Humanities, and Islamic Study*, 2(1), 15–27.
- Aguilera, E., & Pandya, J. Z. (2021). Critical literacies in a digital age: Current and future issues. *Pedagogies: An International Journal*, 16(2), 103–110.
- Andrin, G., Kilag, O. K., Abella, J., Tañiza, F. N., Groenewald, E., & Cordova Jr, N. (2024). Leadership in Literacy: The Role of Instructional Leadership in Fostering Student Reading Achievement. *Excellencia: International Multi-Disciplinary Journal of Education (2994-9521)*, 2(1), 100–109.
- Ben Ghrbeia, S., & Alzubi, A. (2024). Building Micro-Foundations for Digital Transformation: A Moderated Mediation Model of the Interplay between Digital Literacy and Digital Transformation. *Sustainability*, 16(9), 3749.
- Budiarto, M. K., Rahman, A., & Efendi, A. (2024). Proposing information and communication Technology (ICT)-Based Learning transformation to create competitive human resources: A theoretical review. *Multidisciplinary Reviews*, 7(4), 2024076.
- Campbell, K. A., Orr, E., Durepos, P., Nguyen, L., Li, L., Whitmore, C., Gehrke, P., Graham, L., & Jack, S. M. (2021). Reflexive thematic analysis for applied qualitative health research. *The Qualitative Report*, 26(6), 2011–2028.
- Chai, H. H., Gao, S. S., Chen, K. J., Duangthip, D., Lo, E. C. M., & Chu, C. H. (2021). A concise review on qualitative research in dentistry. *International Journal of Environmental Research and Public Health*, 18(3), 942.
- Chowdhury, S. A., Dey, M., & Cross, B. (2024). Rethinking Education in the Era of Fourth Industrial Revolution (4IR): Perspective of Less Developed Countries. In *Future-oriented Learning and Skills Development for Employability: Insights from Singapore and Some Asia-Pacific Contexts* (pp. 35–52). Springer.
- Johnston, M. P. (2014). secondary data obtained through a systematic review of relevant literature. *Qualitative and Quantitative Methods in Libraries*, 3(3), 619–626.
- Lim, S. C. J., & Lee, M. F. (2024). Rethinking education in the era of artificial intelligence (AI): Towards future workforce competitiveness and business success. In *Emerging Technologies in Business: Innovation Strategies for Competitive Advantage* (pp. 151–166). Springer.
- Miftah, M., & Prasetyo, A. (2024). Digital Literacy Mastery and its Role in Human Resource Competitiveness. *5th Borobudur International Symposium on Humanities and Social Science 2023*, 125–133.
- Ployhart, R. E., Nyberg, A. J., Reilly, G., & Maltarich, M. A. (2014). Human capital is

- dead; long live human capital resources! *Journal of Management*, 40(2), 371–398.
- Satish, N., & Starace, J. (2022). *A Process Evaluation of the Integration of Title I (Workforce Development) and Title II (Adult Literacy) Services Under the Workforce Innovation and Opportunity Act in New Jersey*.
- Sitopu, J. W., Khairani, M., Roza, M., Judijanto, L., & Aslan, A. (2024). The importance of integrating mathematical literacy in the primary education curriculum: A literature review. *International Journal of Teaching and Learning*, 2(1), 121–134.
- Somantri, C. (2021). *Leadership of community education: evidence from Indonesia*. University of Nottingham.
- Tayibnapis, A. Z., Wuryaningsih, L. E., & Gora, R. (2018). Indonesia's efforts to achieve globally competitive human resources. *International Journal of Humanities and Social Science Invention (IJHSSI)*, 7(8), 1–6.
- Wang, W., Hussin, M., & Majid, M. Z. A. (2024). Employment Skills in Tertiary Work-Based Learning: A Multiple-Stakeholder Investigation into China's "3+ 1" Programs. *International Journal of Learning, Teaching and Educational Research*, 23(9), 198–219.
- Wibowo, A. (2023). Global economic challenges for Indonesia: Equitable development for sustainable prosperity. *Prosiding Seminar Teknologi, Akuntansi, Bisnis, Ekonomi, Dan Komunitas*, 3, 23–40.
- Widarni, E. L., Irawan, C. B., Harnani, S., Rusminingsih, D., & Alim, M. B. (2022). Human capital and internet literacy impact on economic growth in Indonesia. *Journal of Management, Economics, and Industrial Organization*, 6 (3), 101–112.
- Zhu, Z. (2019). China's global power ambition: expectations, opportunities and challenges. *Handbook on China and Globalization*, 240–248.