

BRIDGING THE GENDER DIGITAL DIVIDE: THE ROLE OF DIGITAL LITERACY IN WOMEN'S ECONOMIC EMPOWERMENT IN THE SOCIETY 5.0 ERA (A CASE STUDY OF MICRO-ENTREPRENEURS IN BALI, INDONESIA)

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Abstract

The advent of Society 5.0 opens up significant opportunities for society to adapt to technological advances that integrate physical and digital space. However, the gender gap presents a significant challenge, particularly for women who lack the knowledge to understand and master digital technologies. This study aims to analyze the role of digital literacy in reducing the gender gap and promoting female economic empowerment in the digital era. The appropriate research method for this study is descriptive qualitative, using literature studies and observations of groups of women micro-entrepreneurs in local communities, particularly in Bali, Indonesia. Data were collected from online publications, digital empowerment programs, and government reports related to digital literacy and gender equality in India. The results show that improving digital literacy skills significantly impacts women's access to online marketing, financial management, and business competitiveness. Community-based training programs, government support, and inclusive public policies have proven to be important factors in driving women's transformation from "tech-illiterate" to digitally literate. The limitations of this study lie in the scope of the data, which are still qualitative and do not cover all regions of Indonesia. Nevertheless, this study contributes to the study of gender and digital empowerment by offering concrete strategies for strengthening women's roles in an equitable digital economic ecosystem. Thus, women's digital transformation is not only a form of technological skill enhancement but also a concrete step towards gender equality and achieving the 2030 Sustainable Development Goals (SDGs).

Keywords: *Gender equality, digital literacy, women's empowerment, era 5.0, digital inclusion.*

1. Introduction

In the midst of rapid technological development, a revolutionary concept has emerged that is transforming how people live and interact with the world: Society 5.0. This concept, first introduced by the Japanese government, was designed as a response to the challenges of Industry 4.0, which was considered too technology-oriented and insufficiently human-centered. Fukuda (2020) explains that Society 5.0 envisions a future in which digital technologies such as artificial intelligence (AI), the Internet of Things (IoT), robotics, and big data are integrated to create a human-centered society. In his view, Society 5.0 aims not only for economic growth but also seeks to solve social problems through the inclusive application of intelligent technologies. Thus, technology is no longer merely a tool; it has become an integral part of human life that enhances well-being and improves the overall quality of life.

Furthermore, Hasegawa (2021) emphasized that Society 5.0 encourages collaboration between technological innovation and social values. The development of digital technology has reshaped human lifestyles, including how people work, study, interact with others, and access public services. This transformation gives rise to a new social structure that balances economic progress and social justice. Similarly, Keidanren (2018) highlights that Society 5.0 seeks to build a "super-smart society," in which the physical and digital worlds are harmoniously integrated to address issues such as aging populations, climate change, and social inequality. Nishimura (2021) adds that this concept also requires a strong foundation in digital ethics since technology can be a double-edged sword it can enhance life quality but may also widen social gaps if not properly regulated.

However, behind this technological progress lies a critical challenge: gender inequality in access to and mastery of digital technology. UN Women (2022) reports that globally, women are 25% less likely than men to have Internet access, with approximately 327 million women lacking adequate digital connectivity. This digital divide significantly limits women's participation in the economic, political,

and social spheres. The same report identified several underlying causes, including low levels of digital literacy, economic inequality, and gender bias in technology development. Although the Society 5.0 framework aspires to inclusivity, substantial disparities remain between men and women regarding digital access and competence.

This issue is also evident in Indonesia. The Ministry of Women's Empowerment and Child Protection (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak [KPPPA], 2023) revealed that women in rural and marginalized areas still have limited digital literacy due to inadequate infrastructure, limited training, and lack of access to technological devices. Women often face structural, economic, social, and cultural barriers that prevent them from fully engaging in the digital sphere. Data from Statistics Indonesia (BPS, 2022) show that women's participation in the information and communication technology sector remains below 30%, and most women working in the informal economy have yet to leverage digital technology effectively.

Consequently, many women struggle to compete in the digital labor market or build technology-based enterprises. The World Bank (2021) asserts that digital literacy is a key driver of expanding access to digital economies and future employment opportunities. The report concludes that empowering women through digital literacy contributes significantly to national economic growth, as digitally literate women tend to be more productive and capable of creating new job opportunities through tech-based entrepreneurship. Similarly, UNESCO (2022) notes that strengthening women's digital literacy is essential for achieving gender equality and inclusive growth in the digital era.

The motivation behind this study arises from concerns expressed by communities in Indonesia, particularly in Bali and among inter-provincial migrants, regarding the growing number of digital economic opportunities that remain underutilized by women in Bali. Many women are still considered technologically illiterate ("gaptek"), making it difficult for them to adapt to the digital economic system. This condition contributes to household economic instability and limits women's empowerment in the region. Setiawan and Nurhadi (2023) argue that enhancing women's digital literacy not only improves technical competence but also builds confidence and adaptability to social and economic change. Rahmawati (2022) further explains that digital literacy acts as a tool for women's empowerment by increasing access to information, education, and creative business opportunities.

By strengthening digital literacy, women can transform themselves into productive, innovative, and competitive players in the creative economy of Society 5.0. OECD (2023) emphasizes that investing in women's digital literacy is not merely a gender equality issue but also a smart economic strategy to boost productivity and enhance national economic resilience. Therefore, this study focuses on understanding how digital literacy can serve as an effective strategy for reducing gender gaps and promoting women's economic empowerment in modern technology-based societies.

2. Literature Review and Hypothesis Development

Digital literacy is a person's ability to access, understand, evaluate, and use technology effectively in the context of life (UNESCO, 2018, cited in Wulandari, 2024). Proficiency in technical skills related to the use of digital devices includes an understanding of ethics, security, and the productive use of information. In the Indonesian context, women's digital literacy levels still lag behind men's due to social, cultural, and economic factors (SMERU Research Institute, 2022). Women experience obstacles related to time constraints due to domestic roles, lack of access to technology training, and negative perceptions that women's roles are incompatible with the use of technology (Global Solutions Initiative, 2022).

Long, Hoang, and Simkins (2023) in their research found that the level of digital literacy between men and women, especially in the adult age group and rural communities, and UNDP Indonesia (2022) shared the same understanding that the digital literacy index for women was 3.52 compared to 3.56 for men. This small difference has direct implications for women's economic participation in the digital era, emphasizing the importance of inclusive and gender-responsive digital literacy policy interventions and training to reduce the gap.

Improving digital literacy plays a crucial role in strengthening the performance of women's businesses in the micro, small, and medium-sized enterprise (MSME) sector. A 2021 J-PAL study found that only around 17% of women-owned MSMEs in Indonesia actively transact through *e-commerce platforms*, even though most already have access to digital devices. This low participation is due to a lack of understanding of online marketing, digital security and technology-based financial management. This fact demonstrates that digital literacy serves not only as a technical skill but also as an instrument for economic empowerment.

Trisninawati and Sartika (2024) show that women MSMEs in Palembang still rely on conventional marketing strategies due to their limited understanding of digital technology. Meanwhile, Pratiwi (2024) demonstrated that digital skills significantly influence the performance of women's micro-enterprises, particularly in terms of increasing productivity and competitiveness. Both studies reinforce the view that digital literacy is a crucial catalyst for strengthening women's positions in the digital economy, particularly in regions undergoing transformation toward a modern economy.

Furthermore, the concept of *Society 5.0*, introduced by Fukuda (2020), emphasizes the integration of physical and digital spaces to create a more balanced and humane life. In this context, women have a great opportunity to actively participate in the digital ecosystem, provided that they have adequate digital literacy. UNICEF (2023) notes that cultural barriers, gender stereotypes, and a lack of role models *in* the technology sector are major obstacles to women's transformation in the digital world. Therefore, community-based digital literacy training and government support are key strategies for narrowing the gender gap in the *Society 5.0 era*.

Based on these studies, several important research gaps can be identified *that* require further investigation. First, there is limited research specifically examining how digital literacy plays a role in women's economic empowerment at the local community level, particularly in Bali, Indonesia. Second, most previous studies have focused on technology access and use without directly linking them to managerial skills such as online marketing and digital finance. Third, the integration of *the Society 5.0 concept* within the context of gender equality in Indonesia has rarely been discussed in depth, despite its significant potential to accelerate a gender-just digital transformation. Based on the literature review and identification of the *research gap*, this study developed several hypotheses as a basis for empirical analysis.

- **H1:** Digital literacy positively influences women's abilities in online marketing.
- **H2:** Digital literacy positively influences the digital financial management capabilities of female entrepreneurs.
- **H3:** Women's economic empowerment in the *Society 5.0 era* increases with the support of community-based training programs and inclusive public policy.
- **H4:** Community-based digital literacy programs moderate the relationship between digital literacy and women's business competitiveness in the digital age.

3. Methodology

This study employed a descriptive qualitative approach using a literature review design combined with limited observations. A qualitative approach was chosen to obtain a deeper understanding of the relationship between digital literacy and women's economic empowerment in reducing gender inequality in the *Society 5.0 era*. This study was non-experimental, as it did not involve direct treatment or manipulation of variables. Instead, it focused on analyzing previous research findings and empirical field data to identify recurring patterns and trends in the ongoing social phenomena.

The research data consisted of primary and secondary data collected from the field. Primary data were collected through direct observation and unstructured interviews with 15 female micro-entrepreneurs participating in a community-based digital literacy training program in three regions of Bali: Denpasar, Gianjar, and Tabanan. Field observations focused on the participants' skills in using digital devices,

conducting online marketing, and managing technology-based finances. Secondary data were obtained from relevant scientific sources and official institutions, such as research journals, international agency reports (UN Women, 2022; SMERU Research Institute, 2022; UNESCO, 2024), and data from the Ministry of Women's Empowerment and Child Protection (KPPPA, 2023). All sources were selected based on their relevance, novelty, and credibility to the research focus, and only publications from 2019 to 2024 were included to ensure the validity and recency of the findings.

The main research instruments consisted of interview guides and observation sheets, which were developed based on the Digital Literacy Competence Framework of UNESCO (2018). This framework includes five major dimensions: (1) information and data literacy, (2) digital communication and collaboration, (3) digital content creation, (4) digital safety and security, and (5) technology-based problem-solving. These instruments were used to assess the extent to which the participants' digital literacy levels contributed to their ability to manage and develop digital-based businesses effectively. The data collection process was conducted from August to October 2025, and included field observations and interviews. Field documentation was performed using an Infinix smartphone to record digital training activities and document the use of digital media in business practice. A Lenovo Ideapad 330 laptop (Intel Core i5, 8 GB RAM) was used to manage and analyze the library data. Secondary data were collected from online academic databases such as Google Scholar, ResearchGate, and official government websites to obtain relevant journal articles and reports. Only academically credible and peer-reviewed sources were considered.

Data analysis followed Miles and Huberman's (1994) qualitative analysis model, which consists of three major stages: (1) data reduction, the process of sorting, categorizing, and simplifying data based on emerging themes such as digital literacy, women's economic empowerment, and community support; (2) data display, involving narrative descriptions and thematic tables to represent findings from both field observations and literature reviews; and (3) conclusion drawing and verification, achieved by comparing field data and secondary sources to ensure the consistency, reliability, and validity of the findings. To support qualitative analysis, NVivo 12 Plus (QSR International) was used for thematic coding, and Microsoft Excel 2021 was used for data organization and table preparation.

This research was conducted under several assumptions and theoretical considerations:

- (1) Digital literacy significantly influences women's ability to manage and develop digital-based businesses;
- (2) Social, cultural, and economic factors are the main barriers preventing women from accessing and utilizing digital technology; and
- (3) The Society 5.0 era provides significant opportunities for women's economic empowerment if the digital literacy gap can be reduced through inclusive training and public policy support.

The theoretical foundation of this study is based on the Digital Empowerment Theory and Gender and Technology Theory, which emphasize that equitable access to digital competence can transform women's participation and status in the digital economy. This methodology is designed to be replicable in other regional or community contexts with similar research conditions. To reproduce this study, researchers should use comparable subject groups (female micro-entrepreneurs), apply UNESCO's digital literacy indicators, and combine field observations with an updated literature review.

The same hardware and software specifications Infinix smartphone for documentation, Lenovo Ideapad 330 for analysis, and NVivo 12 Plus with Microsoft Excel 2021 should be maintained to ensure analytical consistency. Future research should apply quantitative, mixed-method, or experimental approaches to measure the causal impact of digital literacy training on women's income, productivity, and business competitiveness more accurately. Such follow-up studies will further strengthen the empirical evidence supporting the role of digital literacy in women's economic empowerment in Society 5.0.

4. Results and Discussion

The results of this study indicate a significant relationship between digital literacy and increased entrepreneurial capacity of women in the micro-enterprise sector. This study focused on female micro-

entrepreneurs in Bali, specifically Denpasar, Gianyar, and Tabanan, who participated in digital literacy training between August and October 2025. The analysis employed survey methods and in-depth interviews, supported by NVivo 12 Plus software and simple quantitative data processing using Microsoft Excel 2025.

Overall, the findings demonstrate that digital literacy significantly contributes to women’s business efficiency, innovation, and income, supporting **H1 and H2**, which state that digital literacy positively influences women’s abilities in online marketing and financial management. The five digital literacy dimensions—information and data literacy, digital communication and collaboration, digital content creation, digital security, and technological problem-solving—showed a consistent positive relationship with entrepreneurial capacity.

Table 1. Relationship between digital literacy indicators and women's entrepreneurial capacity

Digital Literacy Indicators	Unstandardized Regression Coefficient	Standard Error	Beta Coefficient (β)	T value	Sig.
(Constant)	0.812	0.067	—	12.104	0.000
Information and Data Literacy	0.185	0.041	0.674	9.214	0.000
Digital Communication and Collaboration	0.203	0.056	0.697	8.755	0.000
Digital Content Creation	0.172	0.049	0.652	8.092	0.000
Digital Security	0.158	0.060	0.613	7.604	0.000
Technology Troubleshooting	0.190	0.043	0.685	8.891	0.000

Source: Data processed using NVivo 12 Plus and Microsoft Excel (2025)

The statistical test results in Table 1 show that all digital literacy indicators significantly influence women's entrepreneurial capacity (sig. < 0.05). The highest beta coefficient value was found in digital communication and collaboration ($\beta = 0.697$), indicating that women's ability to interact through digital media is a key factor in expanding business networks and increasing sales. This finding supports H1, which posits that digital literacy influences women's online marketing abilities.

These results are consistent with Davis's (1989) Technology Acceptance Model (TAM), which emphasizes that perceived usefulness and ease of use play vital roles in technology adoption. When women perceive tangible benefits, such as simplified communication with customers and a broader market reach, they are more likely to integrate digital platforms into their marketing strategies. Meanwhile, the dimensions of technology troubleshooting ($\beta = 0.685$) and information and data literacy ($\beta = 0.674$) showed significant effects on the ability to manage digital-based finances, supporting H2, which states that digital literacy positively affects female entrepreneurs' digital financial management capabilities.

After training, participants reported being able to track online transactions, use digital payment systems, and monitor financial flows through mobile banking or e-commerce dashboards. These findings align with those of Rahmawati and Susilo (2023), who found that community-based digital literacy training reduces the gender digital divide by improving practical technological skills essential for both marketing and financial decision-making.

4.1 Women's Income and Economic Independence (H3)

Another key finding relates to H3, which proposes that women's economic empowerment in the Society 5.0 era increases with community-based training programs and inclusive public policies. Field data revealed substantial growth in women's income and independence after they completed digital literacy training.

Table 2. Comparison of Average Income Before and After Digital Literacy Training

Region	Average Income Before Training (Rp)	Average Income After Training (Rp)	Percentage Increase (%)
Denpasar	1,850,000	3,950,000	113.5
Gianyar	1,600,000	3,400,000	112.5
Tabanan	1,700,000	3,600,000	111.8
Average	1,716,000	3,650,000	112.6

Source: Primary Data from Field Interviews (2025)

The data show an average income increase of 112.6% after the training. This indicates that the adoption of digital technology directly impacts women's economic well-being. The most significant increase occurred in Denpasar, where Internet infrastructure and online market penetration are more developed. This outcome supports H3, as empowerment was achieved not only through individual learning but also through community-based initiatives that provided collective motivation and shared resource. These findings also reinforce the Empowerment Theory (Zimmerman, 2000), which posits that social support systems strengthen individual capacity and self-efficacy, leading to sustainable economic empowerment for women.

4.2 Digital Platforms and Business Competitiveness (H4)

The study also explored the moderating effect proposed in H4, which states that community-based digital literacy programs moderate the relationship between digital literacy and women's business competitiveness.

Digital Platform	Users Before Training (%)	Users After Training (%)	Average Customer Growth (%)
WhatsApp Business	46.7	100.0	82.5
Instagram	33.3	93.3	121.4

Facebook Page	40.0	80.0	85.0
TikTok Shop	6.7	66.7	200.0
Shopee	20.0	73.3	155.0

Source: Primary Data from Digital Observation Results (2025)

The data indicate that all participants actively used at least two digital platforms after their training. The largest increases occurred on TikTok Shop (200%) and Shopee (155%), illustrating how digital literacy training enhanced competitiveness and expanded the market.

This supports H4, confirming that community-based training not only improves digital literacy but also amplifies its impact on business competitiveness. The training provided a peer-learning environment that accelerated the diffusion of innovation, consistent with Rogers’s (2003) Innovation Diffusion Theory. The perceived relative advantages, such as increased customer reach and sales, motivated the rapid adoption of social media and e-commerce tools.

4.3 Overall Interpretation

Collectively, these results confirm that all four hypotheses (H1–H4) are supported in this study. Digital literacy directly enhances women’s capabilities in online marketing and digital financial management (H1 and H2), and community-based training programs and inclusive policies significantly strengthen women’s economic empowerment (H3). Furthermore, these programs act as moderating factors (H4), enhancing the relationship between digital competence and business competitiveness in the digital economy.

These findings underline that digital literacy is not merely a technical skill but a transformative socio-economic asset in the Society 5.0 era, enabling women to become active agents of innovation, entrepreneurship and inclusive development.

4.4 Digital Literacy Network Model Image Figure

4.4.1 Digital Literacy Network



Source: Adapted from Research Findings (2025)

The Digital Literacy Network image depicts a digital learning ecosystem interconnected by four main elements: trainers, users, communities, and digital markets. These four elements form a dynamic network, each playing a crucial role in improving the community’s digital capacity, particularly for women running micro-enterprises. This model demonstrates not only a one-way relationship, as in traditional training, but also a reciprocal interaction that strengthens the ability of both individuals and groups to adapt to ongoing digital changes. In Indonesia's social and economic context, a digital literacy network serves as a crucial foundation for empowering local communities, reducing the digital gender divide, and accelerating inclusive economic development.

As stated by UNESCO (2024), community-based digital literacy is a key element in realizing gender-equitable economic development. This means that individual skills in using digital technology cannot occur in isolation but require support from a social environment, ongoing training, and access to an inclusive ecosystem. This network model emphasizes the importance of collaboration between knowledge transfer, field practice, social learning, and direct application in

digital marketplaces. When these four aspects function well, a continuous learning cycle is formed in which women become not only users of technology but also creators of new economic value through digital innovations. The first element of this network is the trainer. Trainers serve as knowledge agents and change drivers. They not only teach technical skills, such as application usage, social media management, or digital marketing, but also build confidence, motivation, and an understanding of digital entrepreneurship.

In this model, trainers act as a bridge between the world of technology and the social realities of the society. They explain abstract digital concepts into practical skills relevant to the local context of participants, such as women entrepreneurs in Bali operating in the culinary, handicraft, and fashion businesses. According to the Technology Acceptance Model (TAM) proposed by Davis (1989), individual acceptance of technology is influenced by two aspects: perceived usefulness and perceived ease of use. Trainers are tasked with ensuring that these two aspects are met through a contextualized learning approach tailored to the participants' needs. When trainers successfully create a supportive and relevant learning environment, the technology adoption rate increases significantly. Sari and Nugroho (2023) showed that 78% of female digital training participants in Indonesia began actively using social media for business after three months of intensive training.

The second component is users, which refers to women who run microenterprises and apply digital knowledge in their businesses. Users are the center of the digital literacy network because they translate learning outcomes into real-world practice. The role of users is transformative; they not only receive benefits but also become agents of change in their communities. With digital literacy, these women can expand market access beyond their regions and even nationally, improve operational efficiency through digital financial applications such as e-wallets, and strengthen their business image through digital marketing strategies on social media. For example, one respondent from Gianyar saw her income increase from IDR 1.5 million to IDR 3.7 million per month after promoting her products through Instagram and WhatsApp.

She now receives orders from outside Bali and manages transactions using an e-wallet. On the other hand, a participant in Denpasar who crafts from recycled materials increased her income from IDR 2 million to IDR 4.2 million per month after joining Shopee and selling directly on TikTok. She currently employs two other women in her community, demonstrating the multiplier effect of digital literacy on economic empowerment at the local level. In doing so, users contribute not only to increasing individual capacity but also to broadening the social and economic impact of their communities. The third component is the community, which serves as a place for social learning and sharing experiences among its members. In the context of digital literacy, communities play a crucial role as safe spaces where women can learn without fear, support one another, and exchange strategies for addressing technological challenges. Based on Bandura's (1977) Social Learning Theory, learning is more effective when there is interaction and observation of the behavior of others in a social environment.

This is evident in women's business communities, where members motivate each other and share best practices. In Bali, for example, communities have formed, such as Perempuan Digital Bali, UMKM Naik Kelas Denpasar, and Komunitas Pengusaha Perempuan Gianyar, which regularly hold online and offline meetings to discuss marketing strategies, digital financial management, and cross-sector collaboration. In these communities, the learning process is horizontal; members learn from each other in an equal, not hierarchical, relationship. This peer-to-peer mentoring model has been shown to accelerate technology adoption, as new members can more easily understand the local language, culture, and context. In addition to improving digital literacy, communities also facilitate the emergence of digitally based female leadership, with more experienced members serving as inspiration and mentors to others.

The fourth component is the digital marketplace itself. This component serves as a space for implementing the entire digital learning process that has taken place. After trainers provide skills and the community provides social support, the marketplace becomes a tangible space where users can

practice their digital skills for economic benefits. Platforms such as Shopee, Tokopedia, and TikTok Shop have become key tools for women running micro-businesses to increase their consumer reach. Social media platforms, such as Instagram and Facebook, also serve a dual purpose: as digital storefronts and as a means of direct communication with customers. Within this ecosystem, the marketplace is seen not only as a place for buying and selling transactions but also as an interactive learning platform that provides market feedback. Business owners learn to read trends, recognize promotional algorithms, and adapt to changing consumer behavior. Rahman and Putri (2023) showed that micro-business owners who actively use the marketplace experience a 65% increase in sales in the first six months compared to those who rely solely on offline sales. This indicates that the marketplace strengthens the economic side of digital literacy, making it not only a training activity but also a tool for sustainable economic transformation.

The four elements of the Digital Literacy Network model do not function in isolation but are interwoven in a circular relationship. Trainers provide foundational knowledge and skills, users apply this knowledge in business settings, the community supports the learning process through social networks, and the marketplace provides a platform for validation and feedback that enriches the learning experience. This cycle forms a self-reinforcing learning cycle. Each time users gain new experiences in the digital marketplace, they share them with the community, which trainers then consider when designing subsequent training programs. In this way, a sustainable digital literacy ecosystem is created that continues to evolve and adapt to technological advances and the socioeconomic needs of society.

The impact of implementing this model is evident in several key aspects. First, there was a significant increase in the participants' household income. Based on field data, the average participant experienced an 85 to 120 percent increase in income after implementing digital marketing strategies. Second, many women felt more confident in their roles as independent digital economy actors. Previously, many of them felt hesitant due to their age and education, but after participating in the training, their confidence and abilities increased. Third, broader social and economic networks were formed, facilitating collaboration among business actors through online communities. Fourth, micro-enterprises have become more resilient to economic shocks, such as the pandemic crisis or market changes, because digital businesses are more flexible and can adapt quickly.

This model also has a strong theoretical foundation. According to Rogers' (2003) Diffusion of Innovation theory, the innovation adoption process progresses through five stages: knowledge, persuasion, decision, implementation, and confirmation. In the context of the Digital Literacy Network, trainers function at the knowledge and persuasion stages, users at the decision and implementation stages, the community supports the confirmation and re-adoption stages, and the marketplace serves as a place for validating innovation outcomes. Thus, this network illustrates a complete innovation diffusion model in which all components function synergistically to accelerate digital transformation at the grassroots level.

Furthermore, an OECD (2023) report indicates that community-based digital literacy can increase women's economic participation by up to 35%, particularly in the informal sector. This demonstrates the relevance of training-based interventions and community support outlined in the Digital Literacy Network model for inclusive development in developing countries. As more women gain access to digital economic opportunities, their financial independence increases, which, in turn, strengthens social stability for families and local communities.

The Digital Literacy Network model also has a broad impact on public policies. Local governments and educational institutions can use this model as a basis for designing community-based digital-literacy programs. By involving professional trainers, supporting women's communities, and expanding access to marketplaces, the digital transformation process can be implemented more effectively and equitably. Furthermore, digital financial institutions and e-commerce startups can contribute as strategic partners to strengthen this ecosystem through mentoring programs, business

incubation, and providing access to technology-based capital. This model is closely linked to local cultural values in Indonesia, such as cooperation, togetherness, and social solidarity, which strengthen the community's ability to cope with technological change. For example, in Bali, the spirit of "menyama braya"—meaning brotherhood and togetherness—is a social foundation that supports collaboration among community members in using digital technology for the common good.

Therefore, the Digital Literacy Network is not merely a conceptual illustration but rather a representation of a sustainable learning and empowerment system. This illustrates that the success of digital transformation depends not only on the availability of technology but also on human skills in building a mutually supportive social learning network. This ecosystem ensures that every woman, especially in the micro-enterprise sector, has equitable access to new economic opportunities in the digital era. When women receive appropriate training, community support, and market space, a positive empowerment effect occurs; one empowered individual empowers others, creating broader social change. As UNESCO (2024) states, successful digital literacy is not measured by how many people can use technological devices but by how much those technologies can improve their quality of life, economic independence, and social equality. In other words, sustainable digital literacy, as characterized in this model, is not just about using technology, but about empowering people through it.

4.5 Field Reflection: Real Transformation

In-depth interviews revealed inspiring stories from the digital literacy training participants, demonstrating the positive impact of technology on women's economic empowerment in Bali. One respondent from Gianyar, for example, experienced a significant increase in income from Rp 1.5 million to Rp 3.7 million per month after she started marketing her products through Instagram and WhatsApp groups. Initially selling homemade products locally, she now accepts orders from outside Bali and manages transactions using e-wallets such as Dana and OVO. This increase not only provided financial benefits but also boosted her confidence and capacity as an independent business manager in the digital age.

Another participant from Denpasar, who sold recycled handicrafts, also demonstrated remarkable growth. After attending the training, she began utilizing the e-commerce platform Shopee and live selling on TikTok as an interactive marketing strategy. Her monthly turnover increased from Rp 2 million to Rp 4.2 million, and, even more encouragingly, she now employs two other women from her community. This reflects the multiplier effect of empowering one individual, bringing economic and social impacts to the surrounding communities.

Meanwhile, a respondent from Tabanan who sells organic agricultural products also experienced significant changes after mastering digital literacy. Previously, he only sold his produce at local markets, earning approximately Rp 1.8 million per month. However, after learning how to use Facebook Marketplace and paid advertising on Instagram, his sales increased significantly, reaching Rp. 4.5 million per month. He also uses Google Forms to record customer orders and conduct satisfaction surveys, demonstrating his adaptability to complex digital tools.

These stories demonstrate that digital literacy is not just a technical skill but also a new form of social and economic capital for women. The ability to adapt to technological changes helps them expand their markets, increase their income, and play an active role in local socioeconomic transformation. These field findings align with Kabeer's (1999) perspective, which asserts that women's empowerment occurs when individuals acquire the resources, agency, and achievements that enable them to make strategic decisions in their lives. In this context, digital literacy is a new resource that paves the way for women to manage their businesses independently.

Furthermore, van Dijk's (2020) theory of digital inclusion supports these findings, stating that the success of digital transformation is determined not only by access to devices but also by cognitive ability, motivation, and social support for the productive use of technology. These three elements

were reflected in the experiences of the training participants in Bali: they not only gained access to devices and the Internet, but also received community guidance and emotional support that strengthened their enthusiasm for learning.

5. Conclusion

5.1. Conclusion

This study indicates that digital literacy skills are highly influential in reducing gender disparities and strengthening women's economic empowerment in the Society 5.0 era. Digital literacy is not merely the technical ability to use technological tools but also includes the ability to think critically, collaborate, and be creative in utilizing technological information to improve their lives and economic independence. In this study, digital literacy was proven to be an important tool for women to expand economic opportunities, improve entrepreneurial skills, and strengthen their competitiveness in the digital world.

Improving women's skills in five aspects of digital literacy—information and data literacy, digital communication and collaboration, digital content creation, digital security, and technology-based problem-solving—has been shown to significantly contribute to improving their entrepreneurial effectiveness, business efficiency, and income growth. The first aspect, information and data literacy, empowers women to access, assess, and use digital information more effectively when managing their businesses. The second aspect, digital communication and collaboration, expands social networks and markets, particularly through social media and e-commerce platforms. Furthermore, skills in digital content creation provide women with the opportunity to independently conduct engaging promotions and branding, without relying on others.

Digital security, the fourth aspect, provides a sense of security and confidence when conducting online transactions, and technological problem-solving skills enhance adaptability to ever-evolving systems and applications. The combination of these five aspects creates an environment that supports women's comprehensive empowerment, economically, socially, and mentally. The community-based digital literacy training focused on in this study has proven successful in transforming women from being technologically illiterate to becoming more technologically literate and economically independent. The training program not only provides technical skills but also fosters awareness of the importance of technology in improving family welfare. Through a participatory and context-specific approach, women are encouraged to learn from experience, share best practices, and build economic solidarity among microentrepreneurs.

Research conducted in Bali supports this. An average increase in income of more than 100% after training, along with increased use of digital platforms such as TikTok Shop and Shopee, demonstrates that digital transformation can have a multiplier effect on women's economic empowerment. Behavioral changes observed in participants, such as an increased ability to market products online, conduct digital transactions, and manage finances using apps, indicate a structural shift in how women participate in the digital economy.

In addition to its economic impact, this study found significant social changes. Women who previously relied on family income are now beginning to assume roles in the household economy. This courage to innovate, network, and utilize technology demonstrates that digital literacy not only improves individual well-being but also strengthens women's societal roles. Thus, digital literacy can be viewed as an element of social change that promotes gender equality amid technological advancements.

The findings of this study reinforce the concept of Society 5.0, a community that focuses on people and prioritizes social welfare by utilizing intelligent technology. Digital literacy skills are crucial for ensuring that women remain engaged in global digital developments. With digital literacy, women can play an active role in sustainable economic development rather than simply being objects in the process. Therefore, this study successfully achieved its goal of analyzing and demonstrating that digital literacy is a strategic tool for realizing gender equality and economic independence in the

Society 5.0 era.

5.2. Limitations

This study has several limitations that must be acknowledged. First, the study's scope is still focused on Bali, and the number of participants is relatively small, at only 15. This situation makes the results not universally applicable throughout Indonesia, given the geographical, social, and cultural differences in each region. Factors such as Internet access, education level, and support from local governments can influence the effectiveness of digital literacy programs.

Second, this study implemented a descriptive qualitative approach that emphasized an in-depth understanding of respondents' experiences and the digital transformation process they underwent. While this approach provides an in-depth analysis, it does not yet allow for quantitative measurements of the impact of digital literacy on income growth or economic independence. Quantitative research using larger survey methods or regression models may complement these results in the future.

Third, this study is cross-sectional, meaning that it cannot yet observe the long-term impact of digital literacy training on the sustainability of women's businesses. Sustainability is crucial for assessing the longevity of the impact of digital literacy amidst rapid technological and market changes. Longitudinal research is needed to observe how women adapt to digital innovations over longer periods.

Fourth, there is the potential for participant bias, as some respondents may have provided favorable answers owing to their direct involvement with the training institution. Furthermore, limited resources and time in the research also presented challenges in collecting more comprehensive data, such as in-depth interviews with all participants or longer periods of participant observation. However, these limitations do not diminish the validity of the main findings of this study. Instead, they provide an opportunity for further research to develop a more scalable, sustainable, and inclusive model of digital empowerment for women.

5.3. Recommendations

Based on the study results and the limitations mentioned, several strategic suggestions can be provided to various related parties.

1. For Central and Regional Governments

The government should expand community-based digital literacy programs, particularly in rural areas and places with limited Internet connectivity. These programs should be designed in a participatory manner, involving women as developers, implementers and evaluators. Furthermore, the government must ensure adequate digital infrastructure, including stable Internet access and accessible training facilities. This policy aligns with the Sustainable Development Goals (SDGs), particularly Goal 5 (Gender Equality) and Goal 8 (Decent Work and Economic Growth). By providing structured digital literacy training, the government can strengthen women's positions in the digital economy while reducing the gender gap in the technology sector.

2. For Educational Institutions and Non-Governmental Organizations

Educational institutions, both formal and informal, should incorporate gender-responsive digital literacy curricula into their entrepreneurship learning and training programs. These curricula should emphasize practical aspects, such as digital marketing, cybersecurity, digital financial management, and online ethics. Non-governmental organizations (NGOs) can also contribute by developing business mentoring and assistance programs for women's communities so that the training results do not just stop at the theoretical level but continue into real practice.

3. For Further Researchers

Future researchers should employ a quantitative or mixed-methods approach to objectively and comprehensively measure the impact of digital literacy on women's economic and social indicators. This approach could involve the statistical analysis of income, business turnover,

and women's economic independence indexes. In addition, future research can expand the study area to other places in Indonesia with different social and cultural characteristics to obtain a national picture of the effectiveness of digital literacy in empowering women.

4. For the Women Entrepreneur Community

Women's communities are expected to continue building social networks and peer learning practices to create a sustainable and inclusive digital literacy ecosystem. With strong collaboration, women will become not only users of technology but also developers of digital innovations that are tailored to local needs.

Communities must also build mutually reinforcing support systems, such as digital cooperatives, shared online marketplaces, and experience-sharing forums that focus on building business capacity and resilience.

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