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ANALYSIS OF FINANCIAL LITERACY THROUGH THE USE OF SOCIAL MEDIA TOWARD FINANCIAL INCLUSION IN MSMES IN MALANG CITY

ANALISIS LITERASI KEUANGAN MELALUI PENGGUNAAN MEDIA SOSIAL TERHADAP INKLUSI KEUANGAN PADA UKM DI KOTA MALANG

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ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) are a key focus of Indonesia's economic development efforts. In Malang City, while financial inclusion has reached 86.53%, the level of financial literacy remains relatively low at 69.43%. This study explores how both general and digital financial literacy, along with the use of digital payment systems, affect MSMEs' ability to access formal financial services. It also examines the influence of social media in shaping the relationship between financial literacy, digital literacy, digital payment usage, and financial inclusion among MSMEs in the region. Furthermore, the research assesses whether social media acts as a moderating variable in these relationships. Adopting a quantitative research design, data were collected from 380 MSME owners through a structured questionnaire and analyzed using the Smart PLS (Partial Least Squares) method. The findings indicate that general financial literacy, digital financial literacy, and digital payments significantly contribute to enhancing financial inclusion, thereby improving MSMEs' access to formal financial services. However, the moderating role of social media remains limited, suggesting the need for more strategic and effective social media engagement to better integrate digital competencies, financial literacy, and digital payment practices. Ultimately, this research provides valuable insights into strengthening MSMEs and introduces a digital finance framework to advance financial inclusion.

Keywords: *Micro, Small, and Medium Enterprises (MSMEs), Financial Literacy, Digital Financial Literacy, Financial Inclusion*

ABSTRAK

Usaha Mikro, Kecil, dan Menengah (UMKM) di Indonesia menjadi salah satu prioritas utama dalam pembangunan ekonomi nasional. Di Kota Malang, tingkat inklusi keuangan telah mencapai 86,53%, namun tingkat literasi keuangan masih berada pada angka 69,43%. Penelitian ini bertujuan untuk mengevaluasi pengaruh literasi keuangan umum dan digital, serta penggunaan pembayaran digital terhadap kemampuan UMKM dalam mengakses layanan keuangan formal. Penelitian ini juga menelaah peran media sosial sebagai faktor yang memengaruhi hubungan antara literasi keuangan, literasi keuangan digital, pembayaran digital, dan inklusi keuangan pada UMKM di Kota Malang, serta menguji apakah media sosial berperan sebagai variabel moderasi dalam hubungan tersebut. Dengan menggunakan pendekatan kuantitatif, data diperoleh melalui penyebaran kuesioner kepada 380 pelaku UMKM dan dianalisis menggunakan metode Smart Partial Least Square (PLS). Hasil penelitian menunjukkan bahwa literasi keuangan, literasi keuangan digital, dan penggunaan pembayaran digital memiliki pengaruh signifikan terhadap peningkatan inklusi keuangan dan memainkan peranan penting dalam mempermudah akses UMKM terhadap layanan keuangan formal. Namun demikian, peran media sosial dalam memoderasi hubungan tersebut masih belum optimal. Oleh karena itu, diperlukan strategi yang lebih efektif dalam pemanfaatan media sosial agar UMKM mampu menyelaraskan kemampuan digital mereka dengan literasi keuangan dan sistem pembayaran digital, yang pada akhirnya dapat mendorong pertumbuhan dan keberlanjutan ekonomi sektor UMKM. Temuan ini memberikan kontribusi terhadap pengembangan literatur yang ada, sekaligus menawarkan model keuangan digital sebagai upaya mendorong inklusi keuangan yang lebih luas.

Kata Kunci : Usaha Mikro, Kecil, dan Menengah (UMKM), Literasi Keuangan, Literasi Keuangan Digital, Inklusi Keuangan

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are business activities run by individuals or groups with limited capital to gain profit (Azhari Hutabarat et al., 2022). MSMEs play a vital role in Indonesia's economy, particularly in creating jobs and boosting

production (Kartika & Musmini, 2022). The government continues to place strong emphasis on this sector, as MSMEs have proven resilient during global crises. MSMEs contribute around 61% to GDP and absorb 97% of the national workforce, representing 99% of all business units, with approximately 66 million business actors in 2023 (Coordinating Ministry for Economic Affairs of the Republic of Indonesia). On the other hand, the financial inclusion rate in Indonesia increased from 59.74% (2013) to 85.10% (2022), yet financial literacy among MSMEs remains low, mainly due to a lack of understanding of financial management and bookkeeping (Ong et al., 2023; Ratten, 2023).

Social media can serve as an effective tool for financial education, helping MSMEs understand financial and digital literacy, and promoting financial inclusion. However, access to financing remains a major hurdle, with 60–70% of MSMEs not connected to banking services (Hirawati et al., 2021), largely due to limited knowledge of loan procedures and mechanisms (Widyastuti et al., 2023). Financial management skills also remain a challenge, directly impacting the low level of financial inclusion. In fact, access to financial resources is crucial for sustainable economic growth.

In the digital era, Indonesia's digital economy is growing rapidly, with e-commerce projected to reach $124 billion by 2025 (Oratmangun, 2022). However, many MSMEs are still slow in adopting digital marketing (Triwahyuni, 2022). Digital financial literacy has become a vital skill in decision-making (Setiawan et al., 2022). In Malang City, the financial inclusion rate reaches 86.53%, while the financial literacy rate is only 69.43% (OJK, 2022), indicating a gap that needs to be addressed. Low digital literacy can lead to misconceptions about financial products and misuse of digital services (Klapper & Panos, 2011; Abdallah et al., 2024). Digitalization, including digital payments, enables MSMEs to conduct cashless transactions more quickly and securely through digital wallets, cards, or banking apps (Tarantang et al., 2019).

Many MSMEs across regions have adopted digital payment tools such as mobile banking, DANA, OVO, and Gopay for their transactions due to their growing accessibility. This technology significantly helps MSMEs reach more customers and offer diverse payment options (Ayyash Musadad, 2023). Social media also plays a vital role in supporting the growth of MSMEs in Indonesia. Platforms like Facebook, Instagram, and Twitter expand market reach, simplify communication, and help entrepreneurs tailor their products based on customer feedback (Triwardhani et al., 2023; Dirgiatmo et al., 2020; Drummond et al., 2023). However, despite the importance of digital financial literacy, digital payments, and social media, many MSMEs still lack adequate information technology skills (Susanty et al., 2020; Suyanto et al., 2023).

Therefore, this study aims to understand how financial literacy, digital financial literacy, and digital payments influence financial inclusion among MSMEs in Malang City, and whether social media can strengthen these relationships. The research questions posed include:

- Q1: Does financial literacy affect MSMEs' ability to achieve financial inclusion?
- Q2: How does digital financial literacy influence MSMEs' access to financial inclusion?
- Q3: Can social media moderate the relationship between financial literacy, digital literacy, digital payments, and financial inclusion?

This study makes a significant contribution by filling the research gap related to the role of financial literacy in MSMEs in Malang City. The findings are expected to be used as a practical model to enhance financial inclusion through training in financial literacy, digital skills, and social media strategy. These results are important for business actors, policymakers, and financial institutions.

LITERATURE REVIEW

Human Capital Theory (1960)
According to Becker and Schultz, the Human Capital Theory emphasizes that investments in education, training, and health can enhance individual productivity and drive economic growth as well as improve the quality of life in society (Adriani, 2019).

In the context of MSMEs, financial literacy and digital financial literacy represent essential forms of knowledge investment. These literacies help entrepreneurs understand financial systems and financial technologies, making it easier for them to access formal financial services. This theory is used to explain how financial knowledge and skills can strengthen MSMEs' capacity to achieve financial inclusion.

Technology Acceptance Model (TAM) (1989)
The Technology Acceptance Model, developed by Fred Davis (1989), explains why individuals are willing to adopt and use technology. The model identifies two key factors:

1. Perceived usefulness, and
2. Perceived ease of use (Ilmi et al., 2020).

In the context of digital payments, this theory is applied to analyze the factors influencing the use of banking applications and online payment systems (Yuniarti & Ernawati, 2023). When MSME actors perceive digital payments as useful and easy to use, they are more likely to adopt them. Ultimately, this supports financial inclusion and contributes to business efficiency and economic growth (Kamilah et al., 2024).

Resource-Based View (RBV) Theory
The Resource-Based View (RBV) theory, developed by Barney, posits that social media is one of the intangible assets that is valuable and strategic for businesses (Muharam, 2017). Social media can help businesses identify, evaluate, and exploit opportunities that are difficult for competitors to replicate (Fang et al., 2022). Optimal use of social media enables the dissemination of information that supports learning and enhances MSMEs' ability to access financial services.

Moreover, through interactive features such as user feedback and two-way communication, MSMEs can better understand the needs of customers, stakeholders, and other related parties. This capability helps MSMEs maintain strong performance and foster product innovation (Borah et al., 2022).

Conceptual Framework and Hypothesis Development

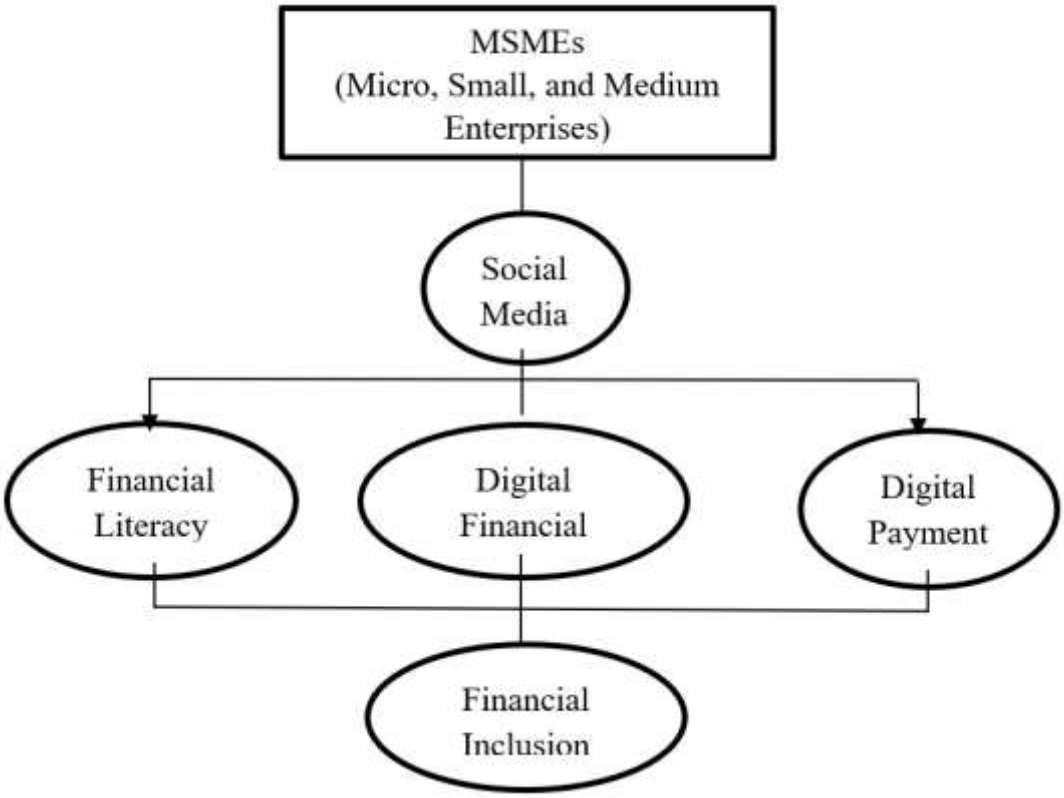

Figure 1. Conceptual Framework

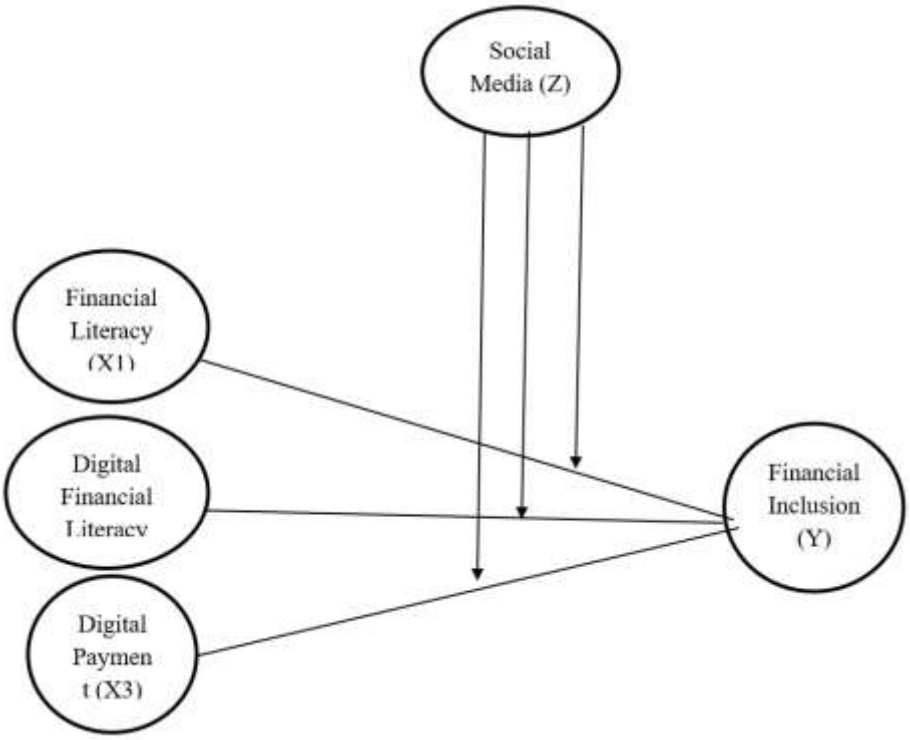

Figure 2. Hypothesis Framework

Research Hypotheses

Financial Inclusion

Financial inclusion is a concept that emphasizes ease and fairness in accessing financial services for all levels of society. In the context of this study, financial inclusion is considered a key element supporting business activities, particularly for MSMEs. Access to adequate financial products and services is essential to support business continuity and development.

One crucial aspect of MSME success is the availability of capital. Limited capital is a common obstacle faced by MSME actors. However, by optimally utilizing financial inclusion facilities, this barrier can be overcome. Financial inclusion opens up opportunities for MSMEs to gain broader access to funding and other financial services needed for business operations.

Financial Literacy

Financial literacy is the knowledge and skill in managing finances, which is vital to support the growth of MSMEs. MSMEs with good financial literacy tend to make better financial decisions and avoid mismanagement (Hasan et al., 2021).

According to the OECD, financial literacy consists of three main components:

1. **Financial knowledge** – a part of human capital that helps manage income, expenses, and savings.
2. **Financial behavior** – reflects how individuals manage their finances in daily life.
3. **Financial attitude** – a combination of understanding, information, and emotions that influence financial decisions (Potrich et al., 2015).

A study in China found that higher financial literacy increases the likelihood of informal MSMEs obtaining bank loans, especially in rural areas with limited credit access (Xu et al., 2020). It is also positively related to account ownership and access to financial information (Xu et al., 2022).

Hypothesis 1 (H1): Financial literacy has a positive and significant effect on financial inclusion.

Digital Financial Literacy

Digital financial literacy is increasingly important in the technological era. The ability to use digital financial services is a key skill for individuals and business actors (Setiawan et al., 2022). Referring to Human Capital Theory (Becker & Schultz, 1960), understanding financial technology can improve productivity and economic growth. Digital financial literacy includes knowledge of digital products, risk awareness, risk management skills, and understanding consumer rights (Lyons & Kass-Hanna, 2021).

The application of digital finance in business can attract more customers and increase sales (Agyapong, 2021). People with strong digital literacy are more prepared to use digital financial services effectively (Frimpong et al., 2022).

Hypothesis 2 (H2): Digital financial literacy has a positive and significant effect on financial inclusion.

Digital Payment

Digital payments make it easier for MSMEs to conduct transactions without using cash. This supports improved financial inclusion and expands the market reach of MSMEs (Ma'rifah et al., 2022).

According to the Technology Acceptance Model (TAM) by Davis (1989), two main factors that drive someone to use technology are perceived usefulness and ease of use. The

development of financial technology facilitates access to financial services (Ainiyah & Yuliana, 2022). Fintech also plays a significant role in promoting digital payment use, enabling MSMEs to access financial services and financial management education (Baroto, 2024).

Research shows that using digital payments improves efficiency and MSME revenue (Annisa et al., 2024). Laut (2019) also stated that digital payments help reach individuals and MSMEs previously untouched by banking services, thus reducing financial access gaps.

Hypothesis 3 (H3): Digital payment has a positive and significant effect on financial inclusion.

Social Media

Social media has rapidly evolved and opened new opportunities for entrepreneurs in various sectors (Song et al., 2021). Based on the Resource-Based View (RBV) theory by Barney, social media is considered a valuable intangible asset for businesses. Platforms such as Facebook, Instagram, and YouTube have transformed how entrepreneurs interact with markets.

Social media facilitates information dissemination, relationship building, brand strengthening, and customer engagement (Tajeddini et al., 2020). MSMEs also use social media for marketing strategies and building customer relationships. In the business ecosystem, these social ties are essential for accessing resources like ideas, knowledge, and capital (Talavera et al., 2012). Research by Okello Candiya Bongomin et al. (2016) states that social media can moderate the relationship between financial literacy, digital payment, digital financial literacy, and financial inclusion.

The proposed hypotheses are as follows:

- **H4:** The use of social media moderates financial inclusion.
- **H5:** The use of social media moderates the relationship between digital financial literacy and financial inclusion.
- **H6:** The use of social media moderates the relationship between digital payment and financial inclusion.
- **H7:** The use of social media moderates the relationship between financial literacy and financial inclusion.

RESEARCH METHODOLOGY

Type of Research

This study employs a quantitative approach using a survey method through the distribution of questionnaires. This method was chosen to obtain data and information related to financial literacy through the use of social media in supporting financial inclusion among MSME actors in Malang City. With this approach, data is systematically and measurably collected from respondents.

Population and Sample

According to Sugiyono, the population refers to the entire group of subjects or objects that possess specific characteristics defined by the researcher as the source of information from which conclusions are drawn. The population in this study comprises all MSMEs in Malang City registered with the Office of Cooperatives and MSMEs, totaling 29,058 business units. Meanwhile, a sample is a portion of the population considered to represent the characteristics of the entire population. Due to the large size of the population, it is not feasible to study all units. Therefore, sampling is conducted using Cochran's formula, which is commonly applied in surveys involving large or undefined populations (Zainuddin Iba,

2021).
With a margin of error of 5%, Cochran's formula is used to determine the minimum number of respondents required in this study so that the results can be accurately generalized to the entire MSME population in Malang City.

Cochran's Formula

Cochran's formula for an unlimited population is:
n0=Z2·p·qe2n_0 = \frac{Z^2 \cdot p \cdot q}{e^2}
Where:

- ZZ = 1.96 (z-score for a 95% confidence level)
- pp = 0.5 (estimated proportion of the population; if unknown, 0.5 is used to maximize variability)
- qq = 1 − pp = 0.5
- ee = 0.05 (margin of error, or the desired level of precision at 5%)

These values are then inserted into the formula:

$$n_0 = \frac{(1{,}96)^2 \,.\, 0{,}5 \,.\, 0{,}5}{(0{,}05)^2}$$

$$n_0 = \frac{(3{,}8416) \,.\, 0{,}25}{0{,}0025}$$

$$n_0 = \frac{0{,}9604}{0{,}0025}$$

$$n_0 = 384{,}16$$

Since the population size is known, it is necessary to adjust the sample size using the following formula:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Substitute the values of n_0 and N into the formula:

$$n = \frac{384{,}16}{1 + \frac{384{,}16 - 1}{29.058}} \approx 379{,}16$$

Thus, the required sample size for a population of 29,058 with a 5% margin of error is rounded to 380 respondents. The operational definition explains the variables in the study, namely financial inclusion as the dependent variable, and financial literacy, digital financial literacy, digital payment, and social media as the independent variables. This explanation includes the indicators and measurement methods for each variable.

Tabel 1. Definisi Operasional

Variable	Indicator	Definition	Source
Financial Literacy	Knowledge of financial management	Understanding how to manage finances	Potrich et al., (2018)
	Skills in financial management	Ability to apply financial knowledge in managing finances	Potrich et al., (2018)
	Ability to make financial decisions	Capability to make informed financial decisions and understand the financial consequences of each decision	Potrich et al., (2018)
Digital Financial Literacy	Knowledge of digital financial management	Understanding how to use digital financial platforms	Frimpong et al., (2022)
	Skills in digital financial management	Ability to apply financial knowledge in managing business finances through digital platforms	Frimpong et al., (2022)
	Awareness and understanding of digital financial risks	Ability to identify and avoid potential risks, and to take action to protect financial information	Frimpong et al., (2022)

Variable	Indicator	Definition	Source
Digital Payment	Influence of digital payments	The impact of using digital payment services	Suryanto, (2020)
	Use of online banking applications	Number of users utilizing digital payment services	Suryanto, (2020)
	Use of e-wallets	Ability to use e-wallets for payments and money transfers	Suryanto, (2020)
	Level of safety and security in using digital payments	Ability to recognize and avoid potential risks such as online fraud or data breaches	Suryanto, (2020)
Financial Inclusion	Access	Ability to access formal financial services	Eton et al., (2021)
	Usage	Actual usage of financial products and services	Eton et al., (2021)
	Quality	Financial products and services meet the needs	Eton et al., (2021)
Social Media	Social media usage	Use of social media to promote MSME products in Malang City	Troise, Dana, et al., (2022)
	Customer interaction	MSMEs in Malang City interact with customers through social media	Troise, Dana, et al., (2022)
	Influence of social media on entrepreneurial interest	Influence of social media in increasing entrepreneurial interest and skills among MSMEs in Malang City	Troise, Dana, et al., (2022)

Data Collection Method and Analysis Technique

Data Collection Method

This study employs a quantitative approach through the distribution of questionnaires using a Likert scale (1–5) to measure the influence of financial literacy, digital financial literacy, digital payment, and social media on the financial inclusion of MSMEs in Malang City.

- Financial literacy is measured using 9 items (Potrich et al., 2018)
- Digital financial literacy with 7 items (Frimpong et al., 2022)
- Digital payment with 5 items (Suryanto, 2020)
- Financial inclusion with 7 items (Eton et al., 2021)
- Social media with 5 items (Troise, Dana, et al., 2022)

Data Analysis Technique

Data processing uses SmartPLS with the Partial Least Squares-Structural Equation Modeling (PLS-SEM) approach. This tool is chosen for its ability to handle ordinal data from the Likert scale.

Stages of Data Analysis

1. Descriptive Statistics:

   Used to present a general overview of the data by grouping and displaying respondents' answer scales from strongly disagree to strongly agree.
2. Evaluation of the Outer Model (Measurement Model):
   - Convergent Validity: Outer loading > 0.70; AVE > 0.50
   - Discriminant Validity: HTMT < 0.90
   - Reliability: Cronbach's Alpha and Composite Reliability > 0.70

3. Evaluation of the Inner Model (Structural Model):
   a) Multicollinearity: VIF < 10
   b) R-Square: Assessing the predictive strength of the model
   c) Significance of relationships: Assessed using T-statistics and P-values via the bootstrapping technique
   d) Effect size (f^2): Measures the strength of influence between variables

Hypothesis Testing:

Conducted through path coefficient testing, T-statistics, P-values, and f-square, to determine whether the relationships between variables are statistically significant.

Analysis Results

Table 1 presents data on respondents' demographic characteristics, including gender, position within the MSME, length of business operation, income level, and type of MSME operated. Of the 380 respondents involved in the study, the majority were female, totaling 220 individuals (58%), while 160 respondents (42%) were male. Most of the respondents held the position of business owner, accounting for 158 individuals (42%). Based on business age, MSMEs that had been operating for 2 to 5 years dominated with 188 units (49%). In terms of income, most MSMEs reported a monthly income of over IDR 11 million, totaling 148 units (39%). The most common business type was in the culinary sector, with 319 MSMEs (84%).

Overall, the majority of MSMEs in this study fall under the micro and small business categories, characterized by monthly earnings above IDR 11 million and a business age between 2 to 5 years.

Descriptive Statistics

Table 2. Descriptive Statistics

Item	STS	TS	N	S	SS	Total
KK1	0 (0,00%)	2 (0,53%)	34 (8,95%)	179 (47,11%)	165 (43,42%)	**380 (100%)**
KK2	0 (0,00%)	0 (0,00%)	5 (1,32%)	126 (33,16%)	249 (66,53%)	**380 (100%)**
KK3	0 (0,00%)	0 (0,00%)	21 (5,53%)	157 (41,32%)	202 (53,16%)	**380 (100%)**
KK4	0 (0,00%)	0 (0,00%)	3 (0,79%)	113 (29,74%)	264 (69,47%)	**380 (100%)**
PK1	0 (0,00%)	4 (1,05%)	39 (10,26%)	194 (51,05%)	143 (37,63%)	**380 (100%)**
PK2	0 (0,00%)	1 (0,26%)	14 (3,68%)	128 (33,68%)	237 (62,37%)	**380 (100%)**
PK3	0 (0,00%)	0 (0,00%)	9 (2,37%)	144 (37,89%)	227 (59,74%)	**380 (100%)**
PK4	0 (0,00%)	0 (0,00%)	4 (1,05%)	106 (27,89%)	270 (71,05%)	**380 (100%)**
PK5	0 (0,00%)	0 (0,00%)	17 (4,47%)	116 (30,53%)	247 (65,00%)	**380 (100%)**
PSD1	1 (0,26%)	5 (1,32%)	44 (11,58%)	151 (39,74%)	179 (47,11%)	**380 (100%)**
PSD2	0 (0,00%)	1 (0,26%)	19 (5,00%)	170 (44,74%)	190 (50,00%)	**380 (100%)**
PSD3	4 (1,05%)	4 (1,05%)	9 (2,37%)	102 (26,84%)	261 (68,68%)	**380 (100%)**
PSD4	0 (0,00%)	0 (0,00%)	7 (1,84%)	124 (32,63%)	249 (65,53%)	**380 (100%)**
PKD1	0 (0,00%)	0 (0,00%)	7 (1,84%)	146 (38,42%)	227 (59,74%)	**380 (100%)**
PKD2	0 (0,00%)	3 (0,79%)	11 (2,89%)	139 (36,58%)	227 (59,74%)	**380 (100%)**
PKD3	0 (0,00%)	6 (1,58%)	41 (10,79%)	120 (31,58%)	213 (56,05%)	**380 (100%)**
PD1	0 (0,00%)	1 (0,26%)	2 (0,53%)	121 (31,84%)	256 (67,37%)	**380 (100%)**
PD2	0 (0,00%)	1 (0,26%)	4 (1,05%)	118 (31,05%)	257 (67,63%)	**380 (100%)**
PD3	0 (0,00%)	0 (0,00%)	4 (1,05%)	111 (29,21%)	265 (69,74%)	**380 (100%)**
PD4	1 (0,26%)	3 (0,79%)	5 (1,32%)	110 (28,95%)	261 (68,68%)	**380 (100%)**
PD5	0 (0,00%)	0 (0,00%)	17 (4,47%)	143 (37,63%)	220 (57,89%)	**380 (100%)**
IK1	0 (0,00%)	0 (0,00%)	2 (0,53%)	138 (36,32%)	240 (63,16%)	**380 (100%)**
IK2	0 (0,00%)	0 (0,00%)	15 (3,95%)	139 (36,58%)	226 (59,47%)	**380 (100%)**
IK3	0 (0,00%)	0 (0,00%)	3 (0,79%)	128 (33,68%)	249 (65,53%)	**380 (100%)**
IK4	0 (0,00%)	1 (0,26%)	3 (0,79%)	129 (33,95%)	247 (65,00%)	**380 (100%)**
IK5	0 (0,00%)	1 (0,26%)	21 (5,53%)	125 (32,89%)	233 (61,32%)	**380 (100%)**
IK6	0 (0,00%)	1 (0,26%)	25 (6,58%)	144 (37,89%)	210 (55,26%)	**380 (100%)**

Item	STS	TS	N	S	SS	Total
IK7	3 (0,79%)	0 (0,00%)	5 (1,32%)	106 (27,89%)	266 (70,00%)	**380 (100%)**
MS1	0 (0,00%)	0 (0,00%)	19 (5,00%)	137 (36,05%)	224 (58,95%)	**380 (100%)**
MS2	0 (0,00%)	1 (0,26%)	13 (3,42%)	156 (41,05%)	210 (55,26%)	**380 (100%)**
MS3	0 (0,00%)	2 (0,53%)	39 (10,26%)	165 (43,42%)	174 (45,79%)	**380 (100%)**
MS4	10 (2,63%)	0 (0,00%)	43 (11,32%)	113 (29,74%)	214 (56,32%)	**380 (100%)**
MS5	0 (0,00%)	2 (0,53%)	27 (7,11%)	111 (29,21%)	240 (63,16%)	**380 (100%)**

Source: Data processed by the researcher (2024)

Notes: STS = Strongly Disagree, TS = Disagree, N = Neutral, S = Agree, SS = Strongly Agree.
KK = Financial Awareness, PK = Financial Behavior, PSD = Digital Purchasing, PKD = Digital Financial Understanding, PD = Digital Payment, IK = Financial Inclusion, MS = Social Media.

Based on the descriptive analysis of the questionnaire responses from MSME actors in Malang City, it appears that the majority of respondents selected "Agree" and "Strongly Agree." The item with the highest number of "Strongly Agree" responses was PK4, with a total of 270 respondents (71.05%), indicating a very strong level of agreement. Meanwhile, PK1 received the highest number of "Agree" responses, totaling 194 respondents (51.05%). For the "Neutral" category, the most frequent response was for PSD1, with 44 respondents (11.58%), indicating a level of uncertainty or neutrality among the MSME actors. The item that received the most "Disagree" responses was PKD3, with 6 respondents (1.58%). The highest number of "Strongly Disagree" responses was recorded for MS4, totaling 10 respondents (2.63%). Measurement Model Evaluation (Outer Model)

Reliability and Validity Test

At the initial stage of the analysis, the constructs used were tested to ensure that the measurement instruments met the standards of validity and reliability. Referring to Hair et al. (2021), a measurement model is considered reliable if it meets the following criteria: outer loading (OL) greater than 0.70, Cronbach's Alpha (CA) above 0.70, Composite Reliability (CR) exceeding 0.70, and Average Variance Extracted (AVE) greater than 0.50. Based on the test results, all constructs in this study demonstrated a good level of reliability. The complete details are presented in Table 3.

Table 3. Outer Loading (OL), Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE)

Variable	Measurement Item	Indicator	OL	CA	CR	AVE
Financial Literacy (X1)	KK1	Financial management knowledge	0.703			
	KK2		0.855			
	KK4		0.845	0.931	0.944	0.678
	PK1		0.748			
	PK2		0.830			
	PK3		0.844			
	PK4		0.878			

Variable	Measurement Item	Indicator	OL	CA	CR	AVE
	PK5		0.868			
Digital Financial Literacy (X2)	PSD1	Digital financial management knowledge, skills, and risk awareness	0.809			
	PSD2		0.813			
	PSD4		0.748	0.909	0.929	0.688
	PKD1		0.876			
	PKD2		0.862			
	PKD3		0.861			
Digital Payment (X3)	PD1	Impact of digital payment, use of online banking apps, e-wallets, and digital payment security	0.905			
	PD2		0.907			
	PD3		0.868	0.924	0.943	0.766
	PD4		0.849			
	PD5		0.847			
Financial Inclusion (Y)	IK1	Access, usage, and quality of financial services	0.880			
	IK2		0.897			
	IK3		0.905			
	IK4		0.893	0.950	0.959	0.771
	IK5		0.900			
	IK6		0.853			
	IK7		0.818			
Social Media (Z)	MS1	Social media usage, customer interaction, influence on entrepreneurial interest	0.847			
	MS2		0.875			
	MS3		0.783	0.855	0.897	0.636
	MS4		0.703			
	MS5		0.770			

Source: Processed by the Researcher (2024)

Explanation: KK = Financial Awareness, PK = Financial Behavior, PSD = Digital Purchase, PKD = Digital Financial Understanding, PD = Digital Payment, IK = Financial Inclusion, MS = Social Media.

Based on the results presented in the table, all variables demonstrate adequate levels of reliability and validity. The variable with the highest reliability is Financial Inclusion, with a Cronbach's Alpha (CA) of 0.950, Composite Reliability (CR) of 0.959, and Average Variance Extracted (AVE) of 0.771. The item with the highest Outer Loading (OL) is found in the PD2 indicator, scoring 0.907 (> 0.70).

Conversely, the variable Social Media recorded the lowest CA value of 0.855, with a CR of 0.897, and an AVE of 0.636. The items with the lowest OL values are KK1 and MS4, each scoring 0.703, which still meet the minimum acceptable threshold (> 0.70).

However, there are two indicators with OL values below the threshold of 0.70: KK3 under the financial literacy construct (OL = 0.683) and PSD3 under the digital financial literacy construct (OL = 0.675). These values indicate that both items are invalid, as they do not adequately represent the intended constructs. Therefore, it is recommended that these two indicators be removed from the model to improve measurement quality.

Discriminant Validity

The assessment of discriminant validity was rigorously conducted using the widely recognized Heterotrait-Monotrait Ratio (HTMT) approach. This evaluation aims to ensure that each construct is truly distinct from the others. The HTMT values are presented in Table 4 below:

Table 4. Heterotrait-Monotrait (HTMT) Results

	IK	LK	LKD	MS	PD	MS x PD	MS x LKD	MS x LK
IK								
LK	0,967							
LKD	0,967	0,975						
MS	0,834	0,882	0,911					
PD	0,946	0,946	0,927	0,825				
MS x LKD	0,470	0,435	0,443	0,431	0,443			
MS x PD	0,524	0,490	0,453	0,389	0,623	0,786		
MS x LK	0,511	0,530	0,444	0,397	0,489	0,870	0,820	

Source: Processed by the Researcher (2024)

Note: IK = Financial Inclusion, LK = Financial Literacy, LKD = Digital Financial Literacy, MS = Social Media, PD = Digital Payment.

According to Hair et al. (2021), the Heterotrait-Monotrait Ratio (HTMT) method is a more accurate approach for assessing discriminant validity. The recommended threshold for achieving discriminant validity is an HTMT value below 0.90. If the HTMT value exceeds 0.90, it suggests that the constructs are not sufficiently distinct and may conceptually overlap.

The analysis results show that some variable pairs have HTMT values above 0.90, such as between IK and LK (0.967) and between IK and LKD (also 0.967). This indicates that these pairs do not exhibit adequate discriminant validity, making them difficult to distinguish clearly, which suggests conceptual or measurement similarity between these constructs.

Conversely, variable pairs with HTMT values below 0.90—such as IK with MS (0.834) or IK with MS x LKD (0.470)—demonstrate good discriminant validity.

These values indicate that the constructs are sufficiently distinct and are measuring unique concepts, avoiding any overlap in meaning among the variables.

Structural Model Evaluation (Inner Model) and Hypothesis Testing

The structural model evaluation is conducted to test hypotheses concerning the relationships among variables in the study. This process involves several stages:

Multicollinearity Check:

This step ensures there is no multicollinearity among variables, indicated by the Variance Inflation Factor (VIF). A VIF value of less than 10 suggests no multicollinearity issues.

R-Square Assessment:

R-square values serve as indicators of explanatory power. Values of 0.19 indicate weak effect, 0.33 moderate effect, and 0.66 strong effect.

Effect Size (f-square):

This measures the impact of independent variables on the dependent variable, with benchmarks as follows: 0.02 = small effect, 0.15 = medium effect, 0.35 = large effect (Hair et al., 2021).

Hypothesis Testing

Hypotheses are tested using the P-value. A P-value < 0.05 indicates a statistically significant relationship between variables. In other words, the smaller the P-value (< 0.05), the stronger the evidence of a significant influence between the tested variables.

Table 5. Variance Inflation Factor (VIF)

Item	VIF	Item	VIF
IK1	3,512	PSD1	2,754
IK2	4,344	PSD2	2,497
IK3	4,447	PSD4	1,906
IK4	4,011	PD1	3,999
IK5	3,954	PD2	4,212
IK6	3,071	PD3	2,890
IK7	2,382	PD4	2,486
KK1	2,042	PD5	2,320
KK2	3,505	PK1	2,252
KK4	2,843	PK2	2,928
MS1	2,941	PK3	3,024
MS2	3,297	PK4	3.891
MS3	1,782	PK5	3,750
MS4	1,493	PKD1	3,058
MS5	1,631	PKD2	2,842
		PKD3	2,927

Source: Processed Data by the Researcher (2024)

Based on the VIF Table above, it can be concluded that most VIF values are below 10. This indicates that there are no significant multicollinearity issues within the model, suggesting that the relationships between variables are not excessively strong and can still be considered independent. In other words, the constructs used in this model are relatively distinct from one another.

However, there are several indicators that show relatively high VIF values approaching 10, such as IK2 (4.344), IK3 (4.447), IK4 (4.011), and PD2 (4.212). Although these values have not exceeded the threshold of 10, their proximity to it suggests a relatively strong correlation between these variables. This may reflect some overlap or similarity in construct measurement, but the values still fall within an acceptable range for further analysis.

Table 6. Coefficient of Determination

Variable	R-square	Adjusted R-square
Financial Inclusion	0.887	0.885

Source: Data processed by the Researcher (2024)

The R-square statistic is used to indicate the proportion of variability in the endogenous variable that can be explained by the exogenous or other

endogenous variables in the model. Referring to the interpretation by Chin (1998), R-square values are qualitatively classified as follows: 0.19 indicates a weak effect, 0.33 indicates a moderate effect, and 0.66 indicates a strong effect. Based on the data analysis results, it can be concluded that the R-square value of 0.887 for the financial inclusion variable indicates a very strong or high level of influence.

Table 7. Hypothesis Testing

Hypothesis	Path Coefficient	P-Value	T-Statistic	f^2 (Effect Size)
H1. Financial Literacy → Financial Inclusion	0.376	0.000	4.727	0.124
H2. Digital Financial Literacy → Financial Inclusion	0.316	0.000	5.264	0.125
H3. Digital Payment → Financial Inclusion	0.296	0.003	2.983	0.096
H4. Social Media → Financial Inclusion	-0.031	0.466	0.728	0.003
H5. Social Media × Digital Financial Literacy → Financial Inclusion	-0.076	0.236	1.184	0.008
H6. Social Media × Digital Payment → Financial Inclusion	0.040	0.642	0.464	0.002
H7. Social Media × Financial Literacy → Financial Inclusion	-0.011	0.865	0.170	0.000

Source: Data processed by the Researcher (2024)

Based on the results of hypothesis testing, the findings are as follows:

The first (H1) and second (H2) hypotheses, namely Financial Literacy and Digital Financial Literacy, are proven to have a positive and significant influence on Financial Inclusion. Financial Literacy shows a path coefficient of 0.376 with a high level of significance (P-value = 0.000) and a medium effect size based on the f-square value of 0.124. Digital Financial Literacy shows a coefficient of 0.316, also with a high significance level and a medium effect size (f-square = 0.125). Meanwhile, Digital Payment also has a positive influence on Financial Inclusion with a path coefficient of 0.296, a P-value of 0.003, and an f-square value of 0.096, indicating a moderate effect. These findings affirm that individuals' ability to manage finances both conventional and digital is a crucial factor in promoting financial inclusion.

Conversely, Social Media does not show a significant effect on Financial Inclusion, as indicated by a negative path coefficient of -0.031 and a P-value of 0.466. The very small f-square value (0.003) suggests that the contribution of social media is still not strong enough to have a direct impact on financial inclusion. Additionally, the interaction of social media with other variables such as Digital Financial Literacy (H5), Digital Payments (H6), and Financial Literacy (H7) also does not provide significant additional influence, as reflected by non-significant P-values and very small effect sizes.

Discussion

The findings of this study depict a complex interaction between financial literacy, digital financial literacy, digital

payment usage, social media, and the level of financial inclusion among MSMEs in Malang City. Table 7 highlights the statistical significance of the path coefficient values, reinforcing the importance of relationships between these variables and explaining how financial inclusion develops within this specific local context.

The Influence of Financial Literacy on Financial Inclusion

The study indicates a positive relationship between financial literacy and financial inclusion. This aligns with findings by S. Xu et al. (2022), who identified that high levels of financial literacy impact the ownership of formal bank and credit card accounts. From the Human Capital Theory perspective, improved financial knowledge and skills can increase individual productivity and facilitate access to financial services. In the context of MSMEs in Malang City, low financial literacy often serves as a key obstacle to obtaining financing from formal institutions. Adequate literacy enables MSME actors to make better financial decisions, manage finances effectively, and understand the terms of financial products. Therefore, it is important for MSME owners, managers, and staff to be equipped with financial knowledge to increase their active participation in the formal financial system.

The Influence of Digital Financial Literacy on Financial Inclusion

This research also finds that digital financial literacy has a significant and positive effect on financial inclusion. This is consistent with the findings of Frimpong et al. (2022), which emphasize that awareness and understanding of digital aspects are critical in enhancing financial engagement and preventing mistakes in using digital financial services. Mastery of financial technology enables MSME actors to access various digital platforms, thereby facilitating and accelerating financial services. According to Human Capital Theory, digital technology understanding and financial awareness are crucial aspects. In Malang City, most MSMEs already possess skills in using digital financial technology, which helps expand access to formal financial services and minimize operational risks in digital transactions.

The Influence of Digital Payment on Financial Inclusion

The research shows that digital payment usage contributes positively to enhancing financial inclusion. This finding aligns with Ma'rifah et al. (2022), who revealed that using digital wallets and electronic payment platforms can accelerate transaction processes, improve operational efficiency, and broaden access to financial services for MSME actors. This is supported by the Technology Acceptance Model (TAM) by Davis (1989), which states that perceived ease of use and usefulness of technology drive its adoption, including in financial services. MSMEs in Malang City that understand digital risks can effectively utilize various payment applications such as e-wallets and mobile banking to reach formal financial services. These systems also help save time and transaction costs, encouraging more business owners to adopt formal financial services. Furthermore, digital payment methods facilitate financial record-keeping and strengthen access to business financing. With their security features and ease of use, digital payments have proven to be an effective means of expanding financial inclusion.

The Role of Social Media as a Moderating Variable

Social media is found to have no significant role in strengthening the relationship between financial literacy, digital financial literacy, or digital payment and financial inclusion. This means, based on respondent data, the moderating role of social media does not support the proposed hypotheses. This result is similar to that of Riski & Sulistianingsih (2020), who stated that social media does not significantly moderate the relationship between financial literacy and financial inclusion. This contradicts the Resource-Based View (RBV) theory by Barney (1991), which views social media as an intangible asset capable of creating competitive advantage. In practice, the utilization of social media by MSMEs in Malang City is still low and not optimal. Many MSME actors view social media merely as an entertainment platform rather than a tool for financial education, business promotion, or network expansion. As a result, social media has not yet been maximized as a platform to support financial inclusion and access to financing from formal institutions.

Practical Contribution

This study outlines a practical approach to improving financial management and maximizing the use of social media among MSMEs in Malang City to enhance financial inclusion. MSME actors, including owners, managers, and staff, can develop financial management skills through proper strategies. First, capacity building can be done through financial literacy training, which aids in making wiser decisions regarding funding and resource management to support sustainable business operations. Second, enhancing digital training for workers is crucial, especially in using digital financial services through online platforms to broaden access to financial services and markets. Third, social media can be strategically utilized by marketing teams through active promotion and engagement with consumers, creating valuable relationships and strengthening business growth. By integrating financial literacy, digitalization, and social media, MSMEs can be empowered to achieve financial stability and long-term business sustainability.

Policy Implications

The results of this study provide important input for policymaking and strategy development for MSMEs in Malang City. First, financial literacy has great potential to shape wise financial behavior and encourage MSME actors to access formal financing. Improving financial insight will enable business actors to manage complex financial systems and enhance stability and growth in the MSME sector. Second, digital financial literacy has become a basic necessity in facing the development of modern financial systems. Digitally skilled MSMEs can more easily reach various financial services, overcome geographical barriers, and reduce operational costs. Third, the adoption of digital payments yields positive impacts such as transaction efficiency, better financial records, and accelerated integration of MSMEs into the formal financial system. Fourth, the low usage of social media as a business tool by MSMEs shows the need for targeted government interventions through more specific education. The development of digital infrastructure and collaboration between the government, financial institutions, and social media platforms should be established to enable MSMEs to maximize social media use. Businesses that are adept at leveraging social media can increase their income and capture broader market

opportunities. Therefore, focused training programs and policy support will be essential in expanding MSME financial inclusion and strengthening national entrepreneurship.

CONCLUSION

Based on the analysis conducted, it was found that financial inclusion is influenced by several factors, such as financial literacy, digital financial literacy, and the use of digital payment systems. However, the use of social media as a connecting factor among these variables remains suboptimal and needs to be improved. The main findings of this study are as follows:

- Financial literacy has a positive impact on financial inclusion, indicating that MSMEs with strong financial understanding are capable of making sound financial decisions, utilizing financing opportunities, and managing resources more efficiently.
- Digital financial literacy also plays a crucial role in helping business actors access financial services, reach digital markets, and strengthen their financial resilience.
- Digital payments have proven to be a supportive solution for structured transaction recording, simplifying the transaction process, and reducing cost and time burdens, which in turn encourages increased participation in formal financial services.
- Meanwhile, social media has not made a significant contribution as a connector between literacy and financial access. Therefore, strategies for utilizing social media need to be enhanced so it can more effectively support MSME financial inclusion.

Suggestions

The research model applied in this study has proven effective in explaining the relationships between the main variables, making it relevant for future similar studies. However, the strategic optimization of social media utilization is still necessary, particularly in integrating MSMEs' digital capabilities with financial literacy and digital payment systems to drive growth and economic stability. These findings recommend the need for more focused interventions, including enhancing the financial capacity of MSME actors and encouraging the use of digital technologies to support sustainable economic development.

The insights from this study can serve as a reference for policymakers, business practitioners, and financial institutions in designing policies and initiatives that support economic inclusion in the digital era. For future research, it is recommended to expand the scope to a wider region or national scale. Researchers may also consider including other variables such as the role of Financial Technology (FinTech) or technology adoption to broaden the analysis. Data collection could be targeted at MSMEs based on more detailed characteristics to ensure a more balanced representation. Additionally, mixed methods such as interviews or focus group discussions (FGDs) may be used to gain deeper insights into financial literacy levels and social media utilization by MSME actors.

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