

MODERATING EFFECTS OF MSME'S OWNERS CHARACTERISTICS ON THE RELATIONSHIP BETWEEN FINANCIAL LITERACY AND MSME INNOVATION

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ABSTRAK

Penelitian ini menguji efek moderasi karakteristik dari pemilik Usaha Mikro, Kecil dan Menengah (UMKM) pada hubungan antara literasi keuangan pemilik UMKM dan inovasi UMKM. Karakteristik pemilik UMKM yang dianalisis adalah umur, gender dan tingkat pendidikan pemilik UMKM. Data yang digunakan pada penelitian ini diambil dari 117 UMKM dan dianalisis menggunakan SEM-PLS. Hasilnya menunjukkan bahwa literasi keuangan pemilik UMKM meningkatkan inovasi UMKM, gender pemilik UMKM memoderasi hubungan antara literasi keuangan dan inovasi UMKM. Sementara itu, umur dan tingkat pendidikan pemilik UMKM tidak dapat memoderasi hubungan antara literasi keuangan dan inovasi UMKM.

Kata Kunci: Literasi Keuangan pemilik UMKM; Inovasi UMKM; Gender Pemilik UMKM; Umur Pemilik UMKM; Tingkat Pendidikan Pemilik UMKM

ABSTRACT

This research examined the moderating effect of Micro, Small, and Medium Enterprise (MSME) owner characteristics on the relationship between MSME owner financial literacy and MSME innovation. The attributes of MSME owners analyzed were age, gender, and education level. The data for this study collected from 117 MSMEs and was evaluated using SEM-PLS. The findings indicate that MSME owners' financial literacy improves MSME innovation, but MSME owners' gender moderates the association between financial literacy and MSME innovation. Meanwhile, MSME owners' age and education level are unable to moderate the relationship between financial literacy and MSME innovation.

Keywords: Financial Literacy; MSMEs Innovation; MSMEs Owners' Gender; MSMEs Owners' Age; MSMEs Owners' Education Level

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are clearly associated with characteristics such as being managed and owned solely by a single owner or a small team of managers (Olughor, 2015). Owners/managers have a strong influence on MSMEs because decision-making is limited to them (Mohammed & Abimiku, 2015). Owner/manager characteristics and top management teams as factors influencing MSMEs' innovation performance (Quazi & Talukder, 2011).

Financing is essential for increasing firm innovation (Fombang & Adjasi, 2018). Access to financial resources can assist organizations in strategically investing in order to develop dynamic capabilities by utilizing available resources and being flexible in purchasing the necessary production factors (McKelvie & Davidsson, 2009). According to the Financial Services Authority, based on the 2019 Financial Literacy Index Survey, Indonesia has an index of 38.03 percent, indicating a lack of financial literacy among Indonesians. MSME owner find it difficult to access the credit market due to financial obstacles, limiting their business development (Canales & Nanda, 2012). Although cash availability is frequently used to support innovation, this financial constraint is a significant impediment to encouraging the company's innovative activities (Malamud & Zucchi 2019). Because every business decision has financial consequences, business actors must be financially literate (Oseifuah, 2010). As a result, qualified financial literacy is required to make good decisions that will not harm their business in order to be more effective. Financial literacy is an important skill that MSME must have in order to grow their businesses. Qualified financial literacy can help to reduce credit market risks (Spinelli & Adams, 2008).

Based on this context, researchers are interested in investigating the moderating effects of age, gender, and education of MSME business owners on the relationship between financial literacy and MSMEs' ability to innovate. According to Garca-Pérez-de-Lema *et al.* (2021), MSMEs with leaders who have high or qualified financial literacy will have better access to credit and the opportunity to invest more in innovation.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theory

Upper Echelon Theory

Upper echelon theory is a theory about company leaders' performance, decision-making, and behavior that is influenced by the leader's background, such as education, work experience, age, gender, years of service, and so on (Hambrick & Mason, 1984). Upper echelons theory in existing research focuses on the characteristics of company leaders and their impact on decision making or company behavior. Karami et al. (2006) discovered the influence of corporate decision-making based on the educational background of the company's leaders. According to Buyl et al. (2011), executive teams with diverse functional backgrounds and CEO characteristics have an interactive effect on firm performance. The upper echelon theory emphasizes the idea that firm executives' perceptions, attributes, and behavior can influence investment and financing decisions, while also implying that company leaders' financial literacy will influence investment decisions and company financing (Tian et al., 2020).

Human Capital Theory

Human capital is defined as an investment in humans to be used as capital in order for humans to gain new skills or knowledge, resulting in increased human productivity, which has been seen to increase rapidly when compared to conventional non-human capital, and can also contribute the majority of

the increase in workers' real income (Schultz, 1961). In general, human capital refers to broad knowledge gained through formal education and work experience (Schultz, 1961). Individual capabilities that can be applied directly to entrepreneurial practices in newly founded businesses are examples of specific human capital (Colombo and Grilli, 2005). According to Protogeu et al. (2017), this study shows that human capital can boost innovation and company performance. Human capital from previous R&D, diversity of functional teams and educational backgrounds, and external firm characteristics such as technology collaborations and university networking are all important.

Literature Review

Micro, Small, and Medium Entrepreneur (MSME)

According to Law No. 20 of 2008, micro, small, and medium-sized businesses are defined as follows:

- a. Micro-enterprises are sole proprietorships that meet the micro-enterprise criteria.
- b. Small enterprises are self-contained businesses run by an individual or group of individuals that are not subsidiaries owned by the parent company and are not a direct part of medium or large businesses.
- c. A medium-sized business, as defined by law, is an independent economic enterprise carried on by a person or corporation that is not a subsidiary, branches of the firm could become a direct or indirect component of a small or large entity.

Based on MSMEs Law Number 20 of 2008, the criteria for MSMEs can be grouped by the amount of turnover they have, which are:

- a. Micro business criteria include a maximum net worth of 50 million rupiah and annual sales of 300 million rupiah.
- b. Small business criteria include a net worth of 50-500 million rupiah and annual sales ranging from 300 million to 2.5 billion rupiah.
- c. Medium business criteria include a net worth of 500 million to 10 billion rupiah and annual sales of 2.5 billion to 50 billion rupiah.

Financial Literacy

According to the OJK (Financial Services Authority), financial literacy is the ability to understand consumers' or the general public's financial knowledge and skills in order to carry out financial management activities and improve the quality of good and correct decision making in order to achieve prosperity (Financial Services Authority, 2020). Financial literacy, according to Mnuchin and Carranza (2019), refers to the skills, knowledge, and tools that enable people to make individual financial decisions and actions in order to achieve their goals. This is also referred to as financial capability, especially when combined with access to financial products and services. Financial literacy, in other words, refers to the abilities and knowledge required to manage one's finances.

Innovation

The introduction and implementation of new ideas, processes, products, or procedures in the workplace, work teams, or organizations with the intention of benefiting the workplace, work team, or organization is referred to as innovation (West, 2000). Innovation is the achievement of new things, such as new ways or updating existing things, in order to significantly transform input and output so that it changes the relationship between usability value and the price offered to buyers, communities, society, or the environment. financial and social success (Fontana, 2009).

Innovation refers to a company's efforts to generate economic value for customers by providing a broadly positive impact between the consumer's perceived value and the company's economic costs (Hamdani & Wirawan, 2012). Companies will have a competitive advantage in the product market if they can produce economic value that is greater than their marginal competitors (Hamdani & Wirawan, 2012). Then, innovation could give you a competitive advantage. There are numerous ways to generate economic value (Fontana, 2009). First, increasing customers' perceived value while

maintaining the firm's economic costs. Second, lowering the firm's economic costs while maintaining customer value perceptions. Third, increasing client perceived value while decreasing firm economic costs.

MSME Owner's Age

Managerial age has been identified as a predictor of firm performance in general and of business strategy formulation in particular. Kakabadse (2006) proposes that when establishing a company's strategy, younger managers have a better awareness of its strategic direction than older senior managers. Younger managers are expected to be better educated and technologically (Bantel and Jackson, 1989).

MSME Owner's Gender

Caplan (1987) defines gender as the distinction between men and women that is established primarily through social and cultural processes and is independent of biological makeup. For many years, academics in entrepreneurship have been interested in the differences in the participation rate and performance of male and female entrepreneurs (Minniti, 2009). The explanation is based on the hypothesis that women entrepreneurs face more constraints than men due to legal, institutional, and cultural constraints such as asymmetry in property rights, family law, and inheritance practices. Another critical issue is household responsibilities. According to Parker (2009), women's proclivity to devote more time to child rearing and home production is a key factor in the disparities between men and women in entrepreneurial activities. This is because social standards that assign women to a limited set of roles may amplify (or even cause) these differences. However, there is no significant, consistent, or quantitative evidence that these constraints/problems are related to women's entrepreneurship or the magnitude and causes of the gender gap in terms of efficiency or company success (Acs et al. 2011).

MSME Owner's Level of Education

Education has the effect of increasing managerial capacity to produce superior general or industry-specific company plans (West and Noel 2009). As a result, resources can be obtained more efficiently, costs can be reduced, and earnings can be increased. Simply put, performance improves. According to human capital theory, education can cultivate specific or generic talents (Szilagyi and Schweiger 1984). Soriano and Castrogiovanni (2010) divide education into two categories: industry-specific knowledge and general business knowledge. Specific skills, insights, and competency suited to a sector, industry, or product market are associated with industry-specific knowledge (Soriano and Castrogiovanni, 2010). Individuals with broad business knowledge are better prepared to lead organizations or work on business projects (Soriano and Castrogiovanni, 2010).

Hypotheses Development

Hypothesis 1 Development

Human capital is defined as an investment in humans that will be used as capital to enable humans to gain new skills or knowledge, resulting in increased human productivity (Schultz, 1961). Firm knowledge is one of the traits thought to be required to build human capital, along with other factors such as skill or capability, which can be translated into productivity and are required to innovate (Protogeus et al., 2017).

Business actors with more human capital, particularly those with good or high financial literacy, have superior organizational skills (Chaston et al., 2001). With these capabilities, the company's performance will improve (Eniola and Entebang, 2015). According to Tian et al. (2020), corporate executives' financial literacy can significantly boost firm innovation. Financial resources enable businesses to strategically invest in the exploitation of physical resources and production variables required for technological innovation (Garca-Pérez-de-Lema et al, 2021). Financial literacy

enables business actors to integrate the informal finance sector into the formal finance sector, creating new opportunities for innovation (Wellalage et al, 2020).

According to the above analysis, financial literacy of business actors can influence company funding decisions, implying that financial literacy of MSME owner will influence investment and corporate funding decisions, while financial literacy of MSME owner will affect firm innovation. As a result, the following hypothesis is proposed:

H₁ Financial literacy increases firm innovation.

Hypothesis 2 Development

The Upper Echelon Theory states that a company executive's background has a significant impact on the company he leads and can predict how well the company will perform in the future (Hambrick & Mason, 1984). Age is one of the executive backgrounds mentioned in the upper echelons theory. Younger CEOs, according to Hambrick and Mason (1984), are more likely to pursue riskier strategies.

According to Cressy (1996), the age of business owners benefits company survival in the United Kingdom. According to Ng and Feldman (2008), older workers are often decent citizens eager to go above and beyond to help their companies. Binnewies et al. (2008) discovered a positive relationship between age and generating new ideas, in a condition where occupations needs a high level of decision-making authority. Managers could use older workers more effectively to spread innovation throughout a company (Ng and Feldman, 2012).

Personal characteristics of MSME actors, such as age, can improve financial literacy and innovation, according to the findings of the preceding analysis stated above. As a result, the following hypothesis is proposed:

H₂. Age moderates the relationship between financial literacy and firm innovation.

Hypothesis 3 Development

Caplan (1987) defines gender as the distinction between men and women that is established primarily through social and cultural processes and is independent of biological makeup. Women and men are not equally represented in the entrepreneurial population, due to differences in risk perception and the difficulty in obtaining financing for business creation (Gicheva and Link, 2013).

According to Miller and Triana (2009), there is a beneficial relationship in carrying out innovation in order to broaden ideas and information by supporting the relationship between executives' gender diversity and business creativity. When a company's strategy is centered on innovation, female inclusion on top management teams boosts success (Dezso and Ross, 2012). According to Wu et al. (2021), there is a significant and positive relationship between executive gender and innovation, and the impact of female executives on innovation is concentrated in companies with a robust company innovation-supportive culture, female executives, and more powerful top management.

Personal characteristics of MSME actors, such as gender, can improve financial literacy and innovation, according to the findings of the preceding analysis, discussed above. As a result, the following hypothesis is proposed:

H₃. Gender moderates the relationship between financial literacy and firm innovation

Hypothesis 4 Development

Human capital refers to an individual's knowledge, skills, abilities, and personality traits that enable personal, societal, and economic well-being (Keeley 2007). As a result, human capital refers to the knowledge and abilities that employees bring to the organization (Dimov and Shepherd, 2005). Professional experience/skills (specific human capital) and education (generic human capital) can both contribute to the company's explicit and implicit knowledge. Prior to becoming an entrepreneur, a person's level of education was discovered to be critical to a firm's productivity (Roberts, 1991), profitability (Jo and Lee, 1996), and growth (Baum et al., 2000).

Previous research has shown that manager education can help develop favorable attitudes toward an innovation (Quazi & Talukder, 2011). According to Koellinger (2008)'s research, the educational backgrounds of managers, business owners, and entrepreneurs are critical in understanding small business innovation. Entrepreneurs with a higher level of education are more likely to start new businesses (de Mel et al. 2009). Higher education, according to research, has a positive impact on corporate innovation (Olivari, 2016). A stronger educational foundation fosters an entrepreneurial management style, with numerous energizing initiatives that encourage innovation (Romero & Martnez-Román, 2012).

Personal characteristics of MSME actors, such as education, can improve financial literacy and innovation, according to the findings of the preceding analysis, discussed above. As a result, the following hypothesis is proposed:

H₄. Education moderates the relationship between financial literacy and firm innovation

Research Model

Based on the previously described background, problem formulation, literature review, and development of hypotheses, the following are the thoughts of this research:

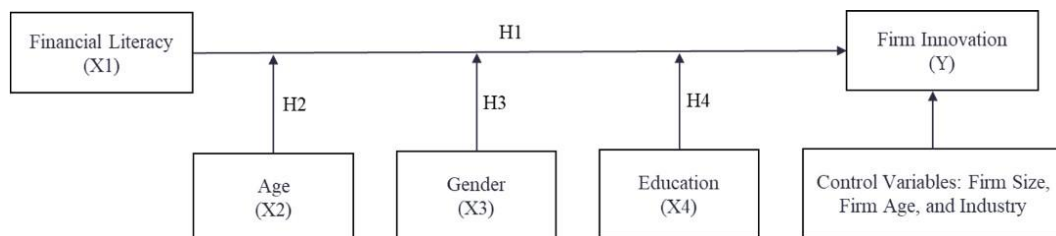


Figure 1: Research Model

Sources: data processed

RESEARCH METHOD

Primary data collecting and processing

The data used is data collected by researchers or primary data. Researchers obtained this information from Indonesian MSME owners. It was done in 2022. The researcher used the questionnaire method to collect data of age, gender, and education of MSME owners, financial literacy and innovation. To facilitate completion of the questionnaire, Indonesian and English will be used. The questionnaire is built with Google Forms and will be distributed via social media.

The researcher used the Hair et al. (2010) method to determine the number of samples by adjusting the number of question indicators on the questionnaire with the assumption of n x 5 observed variables up to n x 10 observed variables. This research used n x 5 observed variables so that the minimum sample required is 110 (from 22 questions multiplied by 5). Purposive sampling was used, and the criteria were MSMEs that apply financial literacy to their business.

To test the hypothesis, Structural Equation Modeling (SEM) with a Partial Least Squares (PLS) technique is used. This is because the variables in this study cannot be observed or measured directly. SEM is a component of a multivariate technique for testing latent variables. The Smart-PLS version 3.3.5 application was used to process data in this study. As a result, the researcher incorporates latent factors into our SEM model before connecting them to all indicators or observed variables.

Variable and Measurement

Variable

The researchers used independent variables, moderating variables, and dependent variables in this study. The variables used are as follows:

❖ Independent variables

Independent variables are variables that influence other variables and will eventually explain the dependent variable. The independent variables in this study are financial literacy (X1), age (X2), gender (X3), and education (X4).

❖ Dependent variable

The dependent variable is the one that is affected by the independent variable. In this study, the dependent variable is innovation (Y).

❖ Control variable

The control variable is controlled in the sense that unobserved external influences have no effect on the independent variable's influence on the dependent variable. The function of the control variable is to prevent skewed calculation results. In this study, the control variables are firm size, firm age, and firm industry.

Measurement

Each indicator was measured using a Likert scale in this study. The following describes the variable size that will be used:

❖ Financial Literacy

The responses to each indicator are measured using a Likert scale of 1-5 in the following assessments:

- Prepare budget
- When purchasing products, consider the prices of competitors.
- Collect information to improve financial knowledge
- Have mastered recordkeeping
- The profit or loss of a business is determined by the difference between income and expenses.
- Profit and loss are calculated using the Income Statement/Profit and Loss Account.
- A balance sheet summarizes a company's financial situation as of a specific date.
- Well-prepared for potential threats (Already taken an insurance policy)
- Typically, a portion of one's income is set aside for savings.
- Often talk about business with close friends.

The questionnaire used in this study was organized according to the research variables by using a measure based on the variable's intent. This study's instrument refers to previous research conducted by Menike (2018).

❖ Age

Respondents in this study were asked to select their age group. This variable is measured as follows:

- Less than 25 years is 1
- 25 – 34 years is 2
- 35 – 44 years is 3
- More than 45 years is 4

❖ Gender

Respondents in this study were asked to choose between male and female. This variable is

measured as '1' for males and '0' for females.

❖ Education

Respondents in this study were asked to choose based on their educational level. This variable is measured as follows:

- Senior high school is denoted by 1
- Diploma is denoted by 2
- Bachelor's degree is denoted by 3
- Master’s degree is denoted by 4

❖ Innovation

The following assessments use a Likert scale of 1-5 from very bad to very good to measure the responses to each indicator:

- The number of new products or services introduced by the company each year
- The company's pioneering spirit comes into play when introducing a new product or service.
- Quick response to new products or services
- Company-implemented process changes
- The innovative nature of new processes
- Fast response to new processes

The questionnaire used in this study was organized according to the research variables by using a measure based on the variable's intent. The instrument used in this study is based on previous research by Garca-Pérez-de-Lema et al. (2021).

RESULTS AND DISCUSSIONS

Respondents Demography

The table below describe the respondents demography:

Table 1: Respondents Demography

	Description	Frequency	% Respondent
Firm Age	< 3 Years	42	35.9
	3 - 5 Years	59	50.4
	6 - 10 Years	13	11.1
	> 10 Years	3	2.6
	Total	117	100
Firm Size	< 5 Employees	41	35
	5 - 10 Employees	55	47
	11 - 20 Employees	17	14.5
	> 20 Employees	4	3.4
	Total	117	100
Industry	Culinary	18	15.4
	Fashion	31	26.5
	Creative Production	37	31.6
	Agribusiness	8	6.8
	Service	23	19.7
	Total	117	100
Age	< 25 Years	39	33.3
	25 - 34 Years	70	59.8
	35 - 44 Years	5	4.3
	> 45 Years	3	2.6
	Total	117	100
Gender	Male	37	31.6
	Female	80	68.4
	Total	117	100
Education	Senior High School	29	24.8
	Diploma	11	9.4
	Bachelor's degree	74	63.2
	Master's degree	3	2.6
	Total	117	100.0

Sources: data processed

Among the 117 questionnaires collected, 42 respondents have MSME businesses that have been in operation for less than three years, 59 respondents have MSME businesses that have been in operation for three to five years, 13 respondents have MSME businesses that have been in operation for six to ten years, and three respondents have MSME businesses that have been in operation for more than ten years. In terms of employee numbers, 41 respondents have fewer than five employees, 55 have five to ten employees, 17 have eleven to twenty employees, and four have more than twenty employees. In terms of the industry in which the respondents work, there are 18 respondents in the culinary industry, 31 respondents in the fashion industry, 37 respondents in the creative production industry, 8 respondents in the agribusiness industry, and 23 respondents in the service industry. The ages of the respondents range vastly: 39 are under the age of 25, 70 are between the ages of 25 and 34, 5 are between the ages of 35 and 45, and 3 are over 45. The majority of respondents in this study were female (80 in total), with the remainder being male (37 in total). In this study, 29 respondents were high school graduates, 11 were diploma graduates, 74 were undergraduate graduates, and 3 were master's degree graduates.

Table 2. First Outer Loading of the Measurement Model

	Description	Loading
FA	Firm Age	0.586
FS	Firm Size	0.828
FI	Firm Industry	-0.529
OA	Owner Age	1.000
OG	Owner Gender	1.000
OE	Owner Education	1.000
FL1	I prepare budget	0.634
FL2	I consider competitors prices when purchasing products	0.622
FL3	I collect information to improve my financial knowledge	0.769
FL4	I have learned recordkeeping	0.753
FL5	Profit or loss of the business is ascertained as the difference between income or expenses	0.77
FL6	The statement which is prepared to calculate Profit and Loss is Income Statement/Profit and Loss Account	0.806
FL7	The balance sheet shows the financial position of a business on a date	0.77

FL8	I am well prepared for the future risk such as already taken an insurance policy	0.465
FL9	I usually save a part of my income	0.671
FL10	I always prefer to talk about business matters with my close friends	0.403
I1	The number of new products or services introduced by your company per year	0.778
I2	The pioneering character of your company when introducing new products or services	0.712
I3	The speed in response to the introduction of new products or services by other companies in the industry	0.718
I4	The number of changes in the processes introduced by your company per year	0.814
I5	The pioneering character of your company when introducing new processes	0.771
I6	The speed in response to the introduction of new processes by other companies in the industry	0.759
X1 * X2	Moderating effect X2	1.031
X1 * X3	Moderating effect X3	1.007
X1 * X4	Moderating effect X4	1.056

Sources: data processed

According to the results of data processing with SmartPLS, which are presented in Table 2, the majority of indicators in each variable in this study have a loading factor value greater than 0.70 and are declared to be genuine. Furthermore, 7 indicators have a loading factor value of less than 0.70, including 2 indicators in the control variable, firm age at 0.586 and firm industry at -0.529. There are five indicators in the financial literacy variable, with FL1 showing 0.634, FL2 showing 0.622, FL8 showing 0.465, FL9 showing 0.671, and FL10 showing 0.403. This demonstrates that the indicator variable has a high level of validity with a loading factor greater than 0.70, indicating that it meets convergent validity. In contrast, the variable indicator with a loading value less than 0.70 has a low level of validity and should be discarded or removed from the model. Table 3 displays the loading factor value after removing the indicator.

Following that, the reliability and validity will be examined. The reliability test was evaluated using Cronbach's alpha and composite reliability from the indicator block that tested the construct. The construct is considered reliable if the composite reliability value is greater than 0.70. A composite reliability rating of greater than 0.70 is recommended as a good criterion.

To test the validity of the data in this study, the Outer Model of the SmartPLS program was used, specifically Convergent Validity, which is determined by the Average Variance Extracted (AVE) value of each construct, which must be greater than 0.50 to be considered good discriminant validity. This indicates that the construct's overall validity value for each indication is high.

Table 3. Second Outer Loading of the Measurement Model

	Description	Loading
FS	Firm Size	1.000
OA	Owner Age	1.000
OG	Owner Gender	1.000
OE	Owner Education	1.000
FL3	I collect information to improve my financial knowledge	0.781
FL4	I have learned recordkeeping	0.76
FL5	Profit or loss of the business is ascertained as the difference between income or expenses	0.81
FL6	The statement which is prepared to calculate Profit and Loss is Income Statement/Profit and Loss Account	0.847
FL7	The balance sheet shows the financial position of a business on a date	0.853
I1	The number of new products or services introduced by your company per year	0.78
I2	The pioneering character of your company when introducing new products or services	0.713
I3	The speed in response to the introduction of new products or services by other companies in the industry	0.715
I4	The number of changes in the processes introduced by your company per year	0.814
I5	The pioneering character of your company when introducing new processes	0.775
I6	The speed in response to the introduction of new processes by other companies in the industry	0.753
X1 * X2	Moderating effect X2	1.017
X1 * X3	Moderating effect X3	0.965
X1 * X4	Moderating effect X4	1.044

Sources: data processed

Table 4. Reliability and Convergent Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CV	1.000	1.000	1.000
Moderating Effect X2	1.000	1.000	1.000
Moderating Effect X3	1.000	1.000	1.000
Moderating Effect X4	1.000	1.000	1.000
X1	0.869	0.906	0.658
X2	1.000	1.000	1.000
X3	1.000	1.000	1.000
X4	1.000	1.000	1.000
Y	0.853	0.891	0.576

Sources: data processed

All numbers in the reliability test are greater than 0.7 when measured by Cronbach's alpha and composite reliability. As a result, the results can be considered reliable. The Average Variance Extracted then shows that the indicator is worth more than 0.5, indicating that the results are valid.

The next step is the discriminant validity test. Discriminant validity is determined by using the concept measurement's cross-loading value. The cross-loading value indicates the degree of correlation that exists between each construct and its indicators as well as indicators from other block constructions. A measurement model has good discriminant validity if the construct and its indicators have a stronger correlation than the indicators from other block constructs. After the data were processed with SmartPLS 3.3.5, the results of cross-loading are presented in Table 5.

Table 5. Discriminant Validity

	CV	Moderating Effect X2	Moderating Effect X3	Moderating Effect X4	X1	X2	X3	X4	Y
FL3	0.218	0.017	-0.105	-0.159	0.781	0.212	0.314	0.436	0.554
FL4	0.277	0.023	-0.017	-0.338	0.760	0.206	0.136	0.406	0.514
FL5	0.164	-0.075	0.082	-0.212	0.810	0.277	0.220	0.361	0.459
FL6	0.203	-0.018	0.006	-0.237	0.847	0.320	0.236	0.429	0.510
FL7	0.204	-0.013	0.098	-0.223	0.853	0.200	0.086	0.369	0.500
FS	1.000	0.258	-0.033	-0.102	0.265	0.322	-0.048	0.232	0.258
I1	0.229	0.138	-0.112	-0.123	0.516	0.182	0.103	0.423	0.78
I2	0.181	0.003	-0.161	-0.133	0.454	0.203	0.192	0.200	0.713
I3	0.138	0.010	-0.089	-0.035	0.397	0.221	0.077	0.208	0.715
I4	0.274	0.068	-0.125	-0.235	0.573	0.140	0.126	0.316	0.814
I5	0.214	0.029	-0.089	-0.078	0.474	0.347	0.250	0.250	0.775
I6	0.098	0.063	-0.185	-0.076	0.417	0.059	0.138	0.265	0.753
OA	0.322	-0.031	-0.081	0.112	0.299	1.000	0.061	0.269	0.254
OE	0.232	0.114	0.056	-0.346	0.496	0.269	0.003	1.000	0.372
OG	-0.048	-0.076	-0.203	0.052	0.247	0.061	1.000	0.003	0.195
X1 * X2	0.258	1.000	0.039	0.217	-0.014	-0.031	-0.076	0.114	0.072
X1 * X3	-0.033	0.039	1.000	-0.051	0.011	-0.081	-0.203	0.056	-0.165
X1 * X4	-0.102	0.217	-0.051	1.000	-0.288	0.112	0.052	-0.346	-0.158

Sources: data processed

The cross-loading data in Table 5 indicate that the construct's correlation value with its indicators is greater than its correlation value with other constructs. All constructs or latent variables have strong discriminant validity as a result, with the indicators in the construct indicator block performing better than those in the other blocks.

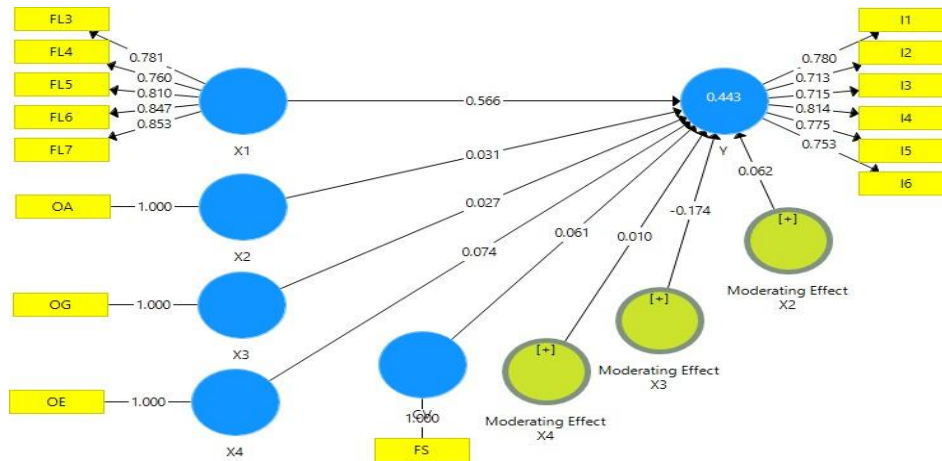
After measuring the reliability test and the validity construct in the measurement model analysis, the researcher will then test the R square analysis. The value of the R square, which is used to figure out how the independent variable affects the dependent variable, is shown in Table 6.

Table 6. Output R Square

	R Square
Y	0.443

Sources: data processed

The R-square value in Table 6 indicates that MSME owners’ education, MSME owners’ age, MSME owners’ gender, and financial literacy account for 44.3 percent of MSME innovation, while the remaining 55.7 percent is explained by factors that this study did not investigate. The following are the outcomes of the PLS model used to test the hypothesis in this investigation.



Sources: Data processed
Figure 1. PLS Results

The test of hypotheses using the path coefficient comes next. The path coefficient test results are significant if the P value is less than 0.05, and the test results are positive if the t-statistics value is higher than the t-table.

Table 7. Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X1 -> Y	0.566	0.571	0.084	6.728	0.000
Moderating Effect X2 -> Y	0.062	0.076	0.101	0.612	0.541
Moderating Effect X3 -> Y	-0.174	-0.187	0.075	2.306	0.021
Moderating Effect X4 -> Y	0.01	0.014	0.08	0.119	0.905

Sources: data processed

The first hypothesis investigates the effect of financial literacy to company innovation. The test results indicate a p-value of 0.000 and a t-statistic value of 6.728. With a p-value of 0.05, the first hypothesis is accepted. These findings demonstrate that literacy has a significant and positive impact on firm innovation.

This result is in line human capital theory developed by Becker (1964). Human capital bring by MSME owner will benefit the company. In this study, the human capital meant is financial literacy. The findings of this study also supported research carried out by Buyl *et al.* (2011), who discovered that executive traits influence company performance. Protogeu *et al.* (2017) argue that human capital can improve innovation and firm performance, so that the greater the quality of human capital, the greater the impact of firm innovation on firm

performance. Financial literacy can assist business actors in integrating the informal and formal financial sectors, creating new opportunities for business innovation (Wellalage et al., 2020). The findings of this study are also in line with those of Tian et al. (2020), in which executive financial literacy can significantly boost company innovation.

The second hypothesis examines whether MSME owners' age moderates the relationship between financial literacy and firm innovation. The results indicate a t-statistic value of 0.612 and a p-value of 0.541. Because the t-statistic is more than 1.96 and the p-value is greater than 0.05, the results do not support the second hypothesis. According to these findings, age has no effect on the relationship between financial literacy and firm innovation.

The majority of respondents are under the age of 34, implying that age cannot moderate the relationship between financial literacy and firm innovation because young executives still have limited experience, which causes younger business actors to make riskier decisions, which can have an impact on innovation. This is consistent with Hambrick and Mason's (1984) belief that younger CEOs are more likely to pursue riskier strategies.

The third hypothesis investigates whether MSME owners' gender influences the relationship between financial literacy and firm innovation. The test yields a p-value of 0.021 and a t-statistic of 2.306. The t-statistic and p-value are significant because t-statistic is greater than 1.96 and a p-value that is lower than 0.05. This indicates that the third hypothesis is accepted. According to these findings, gender moderate the relationship between financial literacy and firm innovation.

According to upper echelons theory, manager's characteristics can affect the firm outcome (Hambrick & Mason, 1984). Gender is one of the factors that can influence organizational performance. Gender differences in creating an idea to innovate have a positive relationship with firm innovation (Miller and Triana, 2009). Female executives and more powerful top management can help female executives focus on firm innovation with a stronger corporate innovation-supportive culture (Wu *et al.*, 2021). The findings of this study are also consistent with the findings of a study conducted by Dezso and Ross (2012), which found that female executives can improve firm performance when innovation is prioritized.

The fourth hypothesis investigates whether MSME owners' education influences the relationship between financial literacy and firm innovation. The examination results indicate that the t-statistic value is 0.119 and the p-value is 0.905. Because the p-value was greater than 0.05 and the t-statistic was less than 1.96, the results reject the fourth hypothesis. According to these findings, the relationship between financial literacy and firm innovation is not moderated by education.

The rejected hypothesis (h4) is not supported by human capital theory and previous researches. Education measured on this study is general education achieved by the level of education. Maybe industry specialized education is more needed than general education. As Soriano and Castrogiovanni (2010) argued that education can be divided into two categories: industry-specific knowledge and general business knowledge. Industry-specific knowledge is associated with specific skills, insights, and competency suited to a sector, industry, or product market (Soriano and Castrogiovanni, 2010). Business owners' who have a broad understanding of business are better prepared to lead organizations or work on business projects (Soriano and Castrogiovanni, 2010).

CONCLUSIONS

Conclusions

The purpose of this study is to see if MSME owners' age, gender, and education have any moderating effect on the relationship between financial literacy and MSME innovation. Based on the findings, it is possible to conclude that:

- a. The first hypothesis is accepted. Financial literacy can boost firm innovation. This demonstrates that the greater MSME participants' financial literacy, the greater the firm's innovation.
- b. The second hypothesis is rejected. The relationship between financial literacy and firm innovation is not moderated by age.
- c. The third hypothesis is supported. Gender influences the relationship between financial literacy and firm innovation.
- d. The fourth hypothesis is rejected. Level of education can not moderate the relationship between financial literacy and firm innovation.

Implications

This study has implications for policymakers or government agencies, as well as business professionals. This study demonstrates that government agencies must implement policies to improve the financial literacy of MSME owners. This is necessary to encourage MSME owners to expand their businesses effectively with sound financial knowledge, so that they can create new innovations to expand their businesses and indirectly promote the creation of new jobs in the local community. In addition, the increase in MSME actors' financial literacy will improve banking operations. Increased financial literacy will increase access to capital and encourage innovation among SME actors. Government or policy makers can also open opportunities to women entrepreneurs to expand their business, because women entrepreneur can boost firm innovation.

Limitations

The limitations of this study include:

- This study utilizes only the variables of age, gender, education, and financial literacy.
- Only small number of respondents are participated in this study.

Suggestions

Based on the study's shortcomings, the following recommendations for future research are made:

- Future studies should include other characteristics besides age, gender, and education level in order to produce better findings.
- Future study should include more respondents to improve generality.

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