

The Influence of Education and Business Experience on MSME Financial Literacy in Dolok Masihul District, Mediated by Income

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ABSTRACT

Financial literacy plays an essential role in improving the sustainability and competitiveness of Micro, Small, and Medium Enterprises. Limited financial literacy constrains entrepreneurs in managing business finances, accessing formal financial institutions, preparing business plans, and making appropriate investment decisions. This study aims to examine the influence of education and business experience on MSMEs' financial literacy with income serving as a mediating variable among MSME owners in Dolok Masihul District, Serdang Bedagai Regency. The study employed a quantitative explanatory research approach. Data were collected through questionnaires distributed to MSME owners and analyzed using Structural Equation Modeling–Partial Least Squares. The findings indicate that education has a positive and significant effect on financial literacy and income. Business experience also has a positive and significant influence on both income and financial literacy. Furthermore, income positively affects financial literacy and mediates the relationship between education and financial literacy as well as business experience and financial literacy.

Keywords: Education, Business Experience, Income, Financial Literacy, MSMEs

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economic development. They contribute to national economic growth, foster more equitable income distribution, and generate a significant number of jobs. Beyond being a major contributor to the Gross Domestic Product, MSMEs have also demonstrated considerable resilience in the face of various economic dynamics (Ariningrum and Alansori 2021). According to the 2025 National Financial Literacy and Inclusion Survey conducted by the Financial Services Authority in collaboration with Statistics Indonesia, the national financial literacy index stands at 66.46%, while the financial inclusion index has reached 80.51%. North Sumatra Province is home to a substantial number of MSMEs that contribute significantly to the regional economy (Khavidah et al. 2021). Data from the North Sumatra Provincial Office of Cooperatives and SMEs indicates that there are over 1.2 million MSME units distributed across various regencies and cities. However, low financial literacy remains a major challenge for MSME operators (Allvin Habibi and Maharani 2022). In the Dolok Masihul District of Serdang Bedagai Regency, many business owners still face limitations regarding financial record-keeping, the preparation of business reports, and the use of formal financial services, all of which impact their business growth. Education is considered a key factor capable of improving the financial literacy of MSME operators; through education,

individuals acquire the knowledge, analytical capabilities, and skills necessary to understand economic concepts and financial management (Rialdy and Hasibuan 2023).

Financial Literacy

Financial literacy is an individual's ability to understand, manage, and utilize financial information to make sound decisions. It encompasses not only knowledge of financial concepts but also the skills, attitudes, and behaviors required to manage financial resources effectively (Ayu 2023).

Education

Education is a learning process aimed at developing an individual's intellectual capabilities, skills, and character, thereby enabling them to engage in life's activities productively. From the perspective of Human Capital Theory, education is an investment that enhances the quality of human resources, resulting in increased productivity and well-being (Amaliyah and Nugroho 2022).

Business Experience

Business experience is the accumulation of knowledge, skills, and abilities acquired through direct involvement in conducting business activities. Such experience is not measured solely by the duration of business operations; it also reflects the learning process derived from the various problems, challenges, and opportunities encountered while running the business (Tirtayasa, Khair, and Yusri 2021).

Income

Revenue represents the total income generated by a business from its operational activities over a specific period. It reflects the business's ability to generate profit, which can subsequently be used to meet operational needs, make investments, or expand the business (Gunawan, Fradya, and Fauziah 2023).

METHOD

This study employs a quantitative approach specifically explanatory research aimed at explaining the causal relationships between variables through hypothesis testing (Sugiyono 2022). The quantitative approach was selected because the study focuses on measuring the influence of education and business experience on financial literacy, with income serving as a mediating variable. Through this approach, both direct and indirect relationships between variables can be empirically tested using statistical analysis. The study utilizes a cross-sectional design, wherein data collection was conducted at a single point in time by distributing questionnaires to MSME owners in Dolok Masihul District (Joseph F. Hair et al. 2023). Population is a generalization area consisting of objects or subjects possessing specific quantities and characteristics as determined by the researcher that are to be studied prior to drawing conclusions (Sugiyono 2018). The population for this study comprises Micro, Small, and Medium Enterprises (MSMEs) in the culinary sector located in Dolok Masihul District, totaling 1,059 culinary MSME units. Sampling was conducted using a probability sampling technique, wherein every member of the population had an equal chance of being selected. The specific approach employed was simple random sampling selecting the sample randomly without a fixed pattern, such as through a lottery or random numbers. Slovin's formula was used to determine the sample size, ensuring the results were representative of the population and allowed for generalized conclusions (Purwanto and Sudargini 2021).

RESULTS AND DISCUSSION

Path Analysis

Path analysis is used to describe the patterns of relationships between variables in a model, thereby allowing for the determination of the magnitude of both direct and indirect effects of independent variables on the dependent variable.

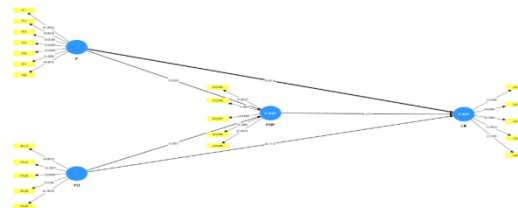


Figure 1. Path Analysis

Dirrect Effect

The criteria for testing the direct effect hypothesis are as follows:

1. If the path coefficient is positive, the influence of one variable on another is in the same direction; that is, if the value of one variable increases, the value of the other variable also increases.
2. If the path coefficient is negative, the influence of one variable on another is in the opposite direction; that is, if the value of one variable increases, the value of the other variable decreases. Regarding the significance value (P-value): if the P-value is < 0.05 , the result is significant, whereas if the P-value is > 0.05 , it is not significant (Juliandi, 2018).

Table 1. Hypotheses Regarding Direct Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. Education -> Y. Financial Literacy	0,338	0,327	0,137	2,471	0,014
X1. Education -> Z. Income	0,356	0,363	0,170	2,093	0,036
Z. Income -> Y. Financial Literacy	0,171	0,171	0,156	1,097	0,273
X2. Business Experience -> Y. Financial Literacy	0,254	0,269	0,161	1,578	0,115
X2. Business Experience -> Z. Income	0,392	0,390	0,139	2,827	0,005

Source: Data processed using SmartPLS 2026

Based on Table 1 regarding the Direct Effect hypotheses, the following results were obtained:

1. The direct effect of Education on Financial Literacy has a path coefficient of 0.338 (positive) and a p-value of 0.014, where $0.014 < 0.05$.
2. The direct effect of Education on Income has a path coefficient of 0.356 (positive) and a p-value of 0.036, where $0.036 < 0.05$.
3. The direct effect of Income on Financial Literacy has a path coefficient of 0.171 (positive) and a p-value of 0.273, where $0.273 > 0.05$.
4. The direct effect of Business Experience on Financial Literacy has a path coefficient of 0.254 (positive) and a p-value of 0.115, where $0.115 > 0.05$.
5. The direct effect of Business Experience on Income has a path coefficient of 0.392 (positive) and a p-value of 0.005, where $0.005 < 0.05$.

4.1.3 Hypothesis Testing of the Indirect Effect

Hypothesis testing regarding indirect effects aims to verify hypotheses concerning the indirect influence of one variable on another (via an intermediary).

1. If the indirect effect coefficient is greater than the direct effect coefficient, then it mediates the relationship between the variables.
2. If the indirect effect coefficient is less than the direct effect coefficient, then it does not mediate the relationship between the variables (Utami & Kussudyarsana, 2024).

Table 2. Hypotheses Regarding Indirect Effects

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. Education -> Z. Income -> Y. Financial Literacy	0,061	0,071	0,078	0,782	0,434
X2. Business Experience -> Z. Income -> Y. Financial Literacy	0,067	0,063	0,064	1,057	0,291

Source: Data processed using SmartPLS 2026

Based on the table above, the following results were obtained:

1. The indirect effect of Education on Financial Literacy, mediated by Income, has a path coefficient of 0.061 and a p-value of 0.434 (where $0.434 > 0.05$).
2. The indirect effect of Business Experience on Financial Literacy, mediated by Income, has a path coefficient of 0.067 (positive) and a p-value of 0.291 (where $0.291 > 0.05$).

4.1.4 Total Effect

The total effect is the sum of the direct effect and the indirect effect (Hair et al., 2017)..

Table 3. Total Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. Education -> Y. Financial Literacy	0,400	0,398	0,132	3,028	0,002

X1. Education -> Z. Income	0,356	0,363	0,170	2,093	0,036
Z. Income -> Y. Financial Literacy	0,171	0,171	0,156	1,097	0,273
X2. Business Experience -> Y. Financial Literacy	0,322	0,332	0,136	2,366	0,018
X2. Business Experience -> Z. Income	0,392	0,390	0,139	2,827	0,005

Source: Data processed using SmartPLS 2026

Based on Table 3 (Total Effect), the results obtained are as follows:

1. The total effect of Education on Financial Literacy has a path coefficient of 0.400 (positive), with a T-Statistic of 3.028 (> 1.96) and a P-value of 0.002 (< 0.05).
2. The total effect of Education on Income has a path coefficient of 0.356 (positive), with a T-Statistic of 2.093 (> 1.96) and a P-value of 0.036 (< 0.05).
3. The total effect of Income on Financial Literacy has a path coefficient of 0.171 (positive), with a T-Statistic of 1.097 (< 1.96) and a P-value of 0.273 (> 0.05).
4. The total effect of Business Experience on Financial Literacy has a path coefficient of 0.322 (positive), with a T-Statistic of 2.366 (> 1.96) and a P-value of 0.01 (< 0.05).
5. The total effect of Business Experience on Income has a path coefficient of 0.392 (positive), with a T-Statistic of 2.827 (> 1.96) and a P-value of 0.005 (< 0.05).

Measurement Model Analysis (Outer Model)

The first stage of model evaluation involves assessing the measurement model (outer model). Convergent validity and discriminant validity are components of construct validity assessment in PLS-SEM (Amora 2021).

The evaluation of the outer model includes assessing loading factor values and outer weights. Test results indicate that, in the first-order model, there are construct indicators that do not yet meet validity criteria. Therefore, a construct is considered valid if it has a loading factor value greater than 0.7, thereby qualifying the model to proceed to the next testing stage.

Validity Konvergen

Convergent validity indicates the extent to which indicators measuring the same construct exhibit a high level of correlation. To determine whether an indicator of a construct is valid, its outer loading value is examined. An indicator is considered to satisfy convergent validity if it has an outer loading value (loading factor) greater than 0.70 (Hair et al. 2021).

Construct Realibility and Validity

Construct reliability and validity assessments ensure that a construct or latent variable accurately (validity) and consistently (reliability) measures the intended concept. Criteria for satisfactory construct reliability and validity are indicated by a Composite Reliability (rho c) value greater than 0.6 and an Average Variance Extracted (AVE) value greater than 0.5 (Juliandi 2018).

Discriminant Validity

Discriminant validity is a test used to ensure that each construct in a research model is truly distinct from the others (i.e., the construct is unique). In SmartPLS software, discriminant validity is typically assessed using the Heterotrait-Monotrait Ratio (HTMT) value; a construct is considered to possess good discriminant validity if the HTMT value is less than 0.90 (Juliandi 2018).

Structural Model Analysis (Inner Model)

The structural model (inner model) is used to evaluate the relationships between latent constructs based on research theory. The inner model illustrates how exogenous variables influence endogenous variables in accordance with the formulated theory and hypotheses (Nurhalizah, Kholijah, and Gusmanely 2023).

R-Square

In evaluating the structural model, the standard used is the R-square value, which indicates how well an independent variable explains a respective dependent variable. An R-square value of 0.75 indicates a strong (substantial) model, a value of 0.50 indicates a moderate model, and a value of 0.25 indicates a weak (poor) model (Ningsih, Kasnawin, and Muhammad 2023).

Furthermore, the influence of Education (X1) and Business Experience (X2) on Income (Z) yielded an R-square value of 0.446. This indicates that the variables of Education and Business Experience explain 44.6% of the variation in Income, while the remaining 55.4% is influenced by other variables not included in the study. Thus, this model falls into the moderate category.

F-Square

The f-square test is conducted to assess the model's goodness. In this test, an f-square value of 0.02 indicates a small effect, a value of 0.15 indicates a medium effect, and a value of approximately 0.35 indicates a large effect (Ningsih et al. 2023).

Table 4. F-Square

	X1. Education	X2. Business Experience	Y. Financial Literacy	Z. Income
X1. Education			0,113	0,147
X2. Business Experience			0,062	0,179
Y. Financial Literacy				

Z. Income			0,029	
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Source: Data processed using SmartPLS 2026

Based on the table above, the F-square test results are as follows:

1. Education (X1) on Financial Literacy (Y) has an F-square value of 0.113; the effect falls into the weak category.
2. Education (X1) on Income (Z) has an F-square value of 0.147; the effect falls into the weak category.
3. Business Experience (X2) on Financial Literacy (Y) has an F-square value of 0.062; the effect falls into the weak category.
4. Business Experience (X2) on Income (Z) has an F-square value of 0.179; the effect falls into the moderate category.
5. Income (Z) on Financial Literacy (Y) has an F-square value of 0.029; the effect falls into the weak category.

F Test (Simultaneous Significant Test)

The F statistical test was carried out to test whether the independent variable (X) simultaneously has a significant relationship or not with the dependent variable (Y). Based on the results of data processing with the SPSS version 24 program, the following results are obtained:

The Impact of Education on the Financial Literacy of MSMEs.

The research results indicate that the influence of education on financial literacy has a path coefficient of 0.338 (positive). A positive path coefficient demonstrates a direct relationship between education and financial literacy; this implies that the higher the level of education attained by MSME owners, the higher their level of financial literacy. In other words, an increase in education is accompanied by an improvement in MSME owners' ability to understand financial concepts, manage business finances, formulate financial plans, and make sound financial decisions. Furthermore, the p-value is 0.014, which is less than the 0.05 significance level. A p-value below 0.05 indicates that the observed effect is statistically significant; this means the relationship between education and financial literacy is not merely coincidental but is supported by empirical evidence from the data analysis. Thus, it can be concluded that education has a positive and significant impact on the financial literacy of culinary MSME owners in Dolok Masihul District. This finding aligns with the respondents' characteristics: the majority (79.1%) hold a high school or vocational high school (SMA/SMK) diploma or equivalent and fall within the productive age range of 21–30 years (50.5%), suggesting they generally possess sufficient formal education to comprehend basic business financial information and concepts. The results of this study are also consistent with previous research conducted by (Mas'adah and Astuti 2022) and (Arianti and Azzahra 2020), which indicate that education has a positive effect on the financial literacy of MSME owners. Both studies confirm that the financial awareness of business owners is significantly influenced by their level of education; thus, the higher an individual's level of education, the higher their level of financial understanding.

Consequently, it can be concluded that the first hypothesis (H1) is accepted, as education has been proven to have a positive and significant effect on the financial literacy of MSME owners in Dolok Masihul District.

The Influence of Business Experience on the Financial Literacy of MSMEs

The research results indicate that the influence of business experience on financial literacy has a path coefficient of 0.254 (positive). This positive path coefficient signifies a direct relationship between business experience and financial literacy; specifically, the more extensive the business experience possessed by MSME owners, the greater the tendency for their financial literacy levels to increase. However, the obtained p-value is 0.115, which exceeds the 0.05 significance level. A p-value greater than 0.05 indicates that the influence is not statistically significant; thus, there is insufficient empirical evidence to conclude that business experience affects financial literacy in this study. Consequently, it can be stated that business experience has a positive but insignificant effect on the financial literacy of MSME owners in the culinary sector in Dolok Masihul District. The results of this study align with previous research by (Azikin et al. 2023), which indicates that the influence of business experience on financial literacy is not consistently significant across the entire MSME population; the magnitude of this influence depends heavily on the duration and type of business, as well as the intensity of the business owner's interaction with formal financial institutions. In other words, business experience contributes meaningfully to financial literacy only when accompanied by the MSME owner's active engagement in continuous financial record-keeping and business capital management.

Thus, it can be concluded that the second hypothesis (H2) is rejected, as business experience was not found to have a significant effect on the financial literacy of MSME owners in Dolok Masihul District.

The Influence of Income on the Financial Literacy of MSMEs

The research results indicate that the influence of income on financial literacy has a path coefficient of 0.171 (positive). This positive coefficient suggests a direct relationship: as the income earned by MSME operators increases, there is a tendency for their financial literacy levels to rise slightly. However, the obtained p-value is 0.273, which exceeds the 0.05 significance level. This p-value, being well above the 0.05 threshold, indicates that the influence of income on financial literacy is not statistically significant. Thus, it can be concluded that income has a positive but insignificant effect on the financial literacy of culinary MSME operators in Dolok Masihul District. This situation suggests that income is not the primary factor determining the financial literacy levels of culinary MSME operators in the area. Even though some business owners earn higher incomes than others, this does not necessarily translate into improved abilities to understand financial concepts, create financial plans, manage cash flow, or make sound financial decisions. In other words, the level of income merely reflects a business owner's economic capacity, whereas financial literacy relates more to cognitive abilities, knowledge, and skills regarding financial management.

According to the Financial Literacy Theory proposed by (Lusardi and Mitchell 2014) and cited in research by (Kaiser and Lusardi 2024), financial literacy is a component of human capital investment developed through education, learning, and

experience in financial management. Consequently, a person's level of financial literacy is not determined solely by the magnitude of their income, but rather by the extent to which they have acquired knowledge and are able to apply it to financial decision-making. Consistent with this theory, without a financial learning process, an increase in income does not automatically lead to a significant improvement in the financial literacy of MSME owners.

Based on these findings, it is evident that efforts to enhance the financial literacy of MSME owners cannot rely on income growth alone; they must be accompanied by sustainable financial education programs, business management mentoring, and improved access to information and formal financial services. In this way, improvements in financial management skills will progress alongside the development of human resource capacity, thereby supporting more effective financial decision-making and the long-term sustainability of MSMEs.

Thus, it can be concluded that the third hypothesis (H3) is rejected, as income was not found to have a significant effect on the financial literacy of MSME owners in Dolok Masihul District.

The Impact of Education on Income

The research results indicate that the influence of education on income has a path coefficient of 0.356 (positive). A positive path coefficient signifies a direct relationship between education and income; specifically, the higher the education level of MSME operators, the greater their likelihood of achieving higher business income. Furthermore, the p-value of 0.036 is less than 0.05, indicating that the effect is statistically significant. Thus, it can be stated that education has a positive and significant impact on the income of culinary MSME operators in Dolok Masihul District. This significance is supported by field data showing that the largest proportion of respondents falls within the monthly income range of IDR 1,000,000 – IDR 3,000,000 (37.4%); however, there is also a group of respondents earning over IDR 10,000,000 per month (7.7%), many of whom hold Diploma or Bachelor's degrees, thereby illustrating a link between educational attainment and business income levels. These findings align with previous studies conducted by (Aprilia et al. 2023) and (Nonilla, Nona, and Sagajoka 2025), which also found that education has a positive and significant impact on income. Both studies demonstrate that individuals with higher levels of education have a greater chance of earning higher incomes. Consequently, it can be concluded that the fourth hypothesis (H4) is accepted, as education has been proven to have a positive and significant effect on the income of MSME operators in Dolok Masihul District.

The Effect of Business Experience on Income

The research results indicate that the influence of business experience on income has a path coefficient of 0.392 (positive), representing the highest coefficient value among all direct influence relationships in this study. This positive and relatively large path coefficient demonstrates a strong, positive relationship between business experience and income; specifically, the more extensive the business experience possessed by MSME operators, the higher the business income they generate.

Furthermore, a p-value of 0.005 (< 0.05) was obtained, indicating that this influence is statistically significant. Thus, it can be stated that business experience has a

positive and significant effect on the income of culinary MSME operators in Dolok Masihul District. These findings are consistent with field data, where the majority of respondents (39.6%) had operated their businesses for 4–6 years, and another 19.8% had been operating for 7–10 years; this suggests that the accumulated business experience over these periods has sufficiently shaped the MSME operators' ability to increase their business income. These results also align with previous studies conducted by (Idhoh, I, and Susanti 2026) and (Aprilia et al. 2023), which demonstrated that business experience has a positive and significant impact on income. The greater an individual's business experience, the higher their potential to earn greater business income. Consequently, it can be concluded that the fifth hypothesis (H5) is accepted, as business experience has been proven to have a positive and significant effect on the income of culinary MSME operators in Dolok Masihul District.

The Influence of Education on MSME Financial Literacy with Income as a Mediating Variable

The research results indicate that the indirect effect of education on financial literacy, mediated by income, has a path coefficient of 0.061 (positive). This relatively small coefficient suggests that the indirect effect operating through the income mediation variable contributes only minimally to explaining the relationship between education and financial literacy. Furthermore, the p-value is 0.434, which exceeds the 0.05 significance level; consequently, it can be concluded that education does not have a significant effect on financial literacy through income as a mediating variable (Wahyuni et al. 2022). Thus, the sixth hypothesis (H6) is rejected. This is because the significance value of the indirect effect exceeds 0.05, rendering the effect statistically insignificant. This indicates that the income variable fails to bridge or strengthen the relationship between education and financial literacy.

The Influence of Business Experience on MSME Financial Literacy with Income as a Mediating Variable

The research results indicate that the indirect effect of Business Experience on Financial Literacy, with Income serving as a mediating variable, has a path coefficient of 0.067 (positive). Consistent with the previous mediation result, this coefficient value is relatively low, suggesting that the contribution of Income as a mediating variable in explaining the relationship between Business Experience and Financial Literacy remains very limited. Furthermore, the p-value is 0.291 (> 0.05), indicating that this indirect effect is not statistically significant. Thus, it can be stated that Business Experience does not have a significant effect on Financial Literacy through Income as a mediating variable. This can also be explained by the characteristics of the research respondents; the majority of MSME owners had been operating their businesses for 4–6 years (39.6%), and 19.8% even possessed 7–10 years of business experience. Although this experience successfully increased business income, the majority of respondents remained in the IDR 1,000,000–IDR 3,000,000 monthly income bracket; consequently, the income earned was primarily prioritized for meeting business operational costs and household needs. This situation meant that the additional income was not significantly utilized to enhance financial knowledge whether through training, business consulting, or the use of

formal financial services that could strengthen financial literacy (Ardila, Febriaty, and Astuti 2021). Therefore, it can be concluded that the seventh hypothesis (H7) is rejected, as Income was not proven to mediate the effect of Business Experience on the Financial Literacy of MSME owners in Dolok Masihul District

CONCLUSION

Education has an influence on the financial literacy of MSME owners; this is evidenced by a path coefficient of 0.338 (positive) and a p-value of 0.014 (< 0.05). These results indicate that education has a positive and significant effect on financial literacy. The higher the education level of MSME owners, the higher their level of financial literacy. Business experience does not influence the financial literacy of MSME owners; this is evidenced by a path coefficient of 0.254 (positive) and a p-value of 0.115 (> 0.05). These results indicate that although the relationship is positive, the effect is very weak and statistically insignificant. Income does not influence the financial literacy of MSME owners; this is evidenced by a path coefficient of 0.171 (positive) and a p-value of 0.273 (> 0.05). These results indicate that although the relationship is positive, the effect is very weak and statistically insignificant. Education has an influence on income; this is evidenced by a path coefficient of 0.356 (positive) and a p-value of 0.036 (< 0.05). These results indicate that education has a positive and significant effect on income. The higher the education level of MSME owners, the greater their opportunity to earn higher business income. Business experience has an influence on income; this is evidenced by a path coefficient of 0.392 (positive) and a p-value of 0.005 (< 0.05). These results indicate that business experience has a positive and significant effect on income. The more extensive the business experience possessed by MSME owners, the higher the business income they earn. There is no indirect effect of education on the financial literacy of MSMEs mediated by income; this is evidenced by an indirect effect coefficient of 0.061 and a p-value of 0.434 (greater than 0.05). These results indicate that income does not mediate the relationship between education and financial literacy. There is no indirect effect of business experience on financial literacy mediated by income; this is evidenced by a path coefficient of 0.067 (positive) and a p-value of 0.291 (greater than 0.05). These results indicate that income does not mediate the relationship between business experience and financial literacy.

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