

Human capital development and SME growth: The mediating role of business productivity

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Abstract

Sustainable growth in small and medium-sized enterprises (SMEs) is not determined solely by access to capital and markets, but also by the quality of the human resources managing the business. This study aims to analyse the role of human resource development in promoting SME growth through business productivity. Human resource development is represented by HR training and the SME operator competence. This study employed an explanatory quantitative approach involving 180 SME operators in North Kalimantan. Data were collected through a Likert-scale questionnaire and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings show that HR training and the SME operator competence have a positive and significant relationship with business productivity and SME growth. Business productivity is also positively associated with SME growth and mediates the relationship between HR training, SME operator competence, and SME growth. These findings emphasise that SME strengthening strategies should be directed towards improving practical skills, entrepreneurial competence, operational efficiency, innovation, and productivity so that business growth can become more adaptive and sustainable, particularly in developing regions that require local resource-based economic competitiveness.

Keywords: HR Training, SME Operator Competence, Business Productivity, SME Growth.

Abstrak

Pertumbuhan Usaha Kecil dan Menengah (UKM) yang berkelanjutan tidak hanya ditentukan oleh akses modal dan pasar, tetapi juga oleh kualitas sumber daya manusia yang mengelola usaha. Penelitian ini bertujuan menganalisis peran pengembangan sumber daya manusia dalam mendorong pertumbuhan UKM melalui produktivitas usaha. Pengembangan sumber daya manusia direpresentasikan melalui pelatihan SDM dan kompetensi pelaku UKM. Penelitian menggunakan pendekatan kuantitatif eksplanatori dengan melibatkan 180 pelaku UKM di Kalimantan Utara. Data dikumpulkan melalui kuesioner berbasis skala Likert dan dianalisis menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM). Hasil penelitian menunjukkan bahwa pelatihan SDM dan kompetensi pelaku UKM berhubungan positif dan signifikan dengan produktivitas usaha serta pertumbuhan UKM. Produktivitas usaha juga berhubungan positif dengan pertumbuhan UKM dan terbukti memediasi hubungan antara pelatihan sumber daya manusia dan kompetensi pelaku UKM terhadap pertumbuhan usaha. Temuan ini menegaskan bahwa strategi penguatan UKM perlu diarahkan pada peningkatan keterampilan praktis, kompetensi kewirausahaan, efisiensi operasional, inovasi, dan produktivitas agar pertumbuhan usaha dapat berlangsung lebih adaptif dan berkelanjutan, khususnya di wilayah yang sedang berkembang dan membutuhkan daya saing ekonomi berbasis sumber daya lokal.

Kata Kunci: Pelatihan SDM, Kompetensi Pelaku UKM, Produktivitas Usaha, Pertumbuhan UKM

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1. Introduction

Small and medium-sized enterprises (SMEs) play a crucial role in economic development by absorbing labour, expanding business opportunities, and supporting local economic growth. In the Indonesian policy context, the term more commonly used is Micro, Small, and Medium Enterprises (MSMEs). Law Number 20 of 2008 regulates MSMEs in relation to empowerment, business criteria, business climate development, business growth, financing, partnerships, and coordination of empowerment (Government of the Republic of Indonesia, 2008). In addition, Government Regulation Number 7 of 2021 emphasizes that the central and local governments have a role in providing convenience, protection, and empowerment for MSMEs through coaching and facilities (Government of the Republic of Indonesia, 2021). Thus, SME development is not only related to capital and market access, but is also closely related to improving the quality of the human resources who manage these businesses.

Nationally, MSMEs make a major contribution to the Indonesian economy. The Cabinet Secretariat of the Republic of Indonesia (2024) reported that MSMEs contribute around 61 percent to gross domestic product and absorb around 97 percent of the national workforce. The magnitude of this contribution shows that SMEs have a strategic position in creating jobs and maintaining community economic sustainability. Therefore, efforts to encourage SME growth need to be carried out in a directed manner, including through strategies to improve the quality of human resources among business actors.

In the context of North Kalimantan, SME development has a strong relevance to regional development conditions. BPS North Kalimantan Province noted that North Kalimantan's economy in 2025 will grow by 4.56 percent, with Gross Regional Domestic Product on the basis of prevailing prices reaching Rp156.03 trillion (Badan Pusat Statistik Provinsi Kalimantan Utara, 2025). In addition, North Kalimantan's Human Development Index in 2025 will reach 74.04 and increase compared to the previous year (Badan Pusat Statistik Provinsi Kalimantan Utara, 2025). In terms of employment, the number of North Kalimantan's labor force in August 2025 will reach 395,803 people, with a working population of 380,572 people (Badan Pusat Statistik Provinsi Kalimantan Utara, 2025). This data shows that regional economic growth needs to be followed by strengthening human capacity, including SMEs, so that local economic activities can develop sustainably.

One of the important issues in SME development is the quality of human resources. SMEs are not only required to produce goods or services, but also need to have business management, marketing, financial management, innovation, and technology utilization skills. Rauch and Hatak (2016) explain that human resource development practices focusing on skills improvement, motivation, and empowerment are related to the performance of small and medium-sized businesses. Their meta-analysis of 56 studies showed that human resource improvement practices were correlated with small firm performance (Rauch & Hatak, 2016). These findings reinforce the view that

the quality of human resources is an important factor in improving the ability of SMEs to survive and develop.

Human resource training is one of the important strategies for improving the quality of SMEs. Training can help business actors gain new knowledge, skills, and abilities needed to manage their businesses. Idris et al. (2023) found that training has a positive and significant relationship with SME performance. The study also showed that workplace training and out-of-the-workplace training were both positively related to performance, and the relationship was stronger when the two forms of training were implemented simultaneously (Idris et al., 2023). In the context of Indonesian policy, the Ministry of Micro, Small, and Medium Enterprises of the Republic of Indonesia (2025) also places training, mentoring, and digitalization capacity building as part of strategic steps to strengthen MSME human resource capacity.

In addition to training, SME operator competence is also an important factor in encouraging business growth. The competence of business actors can be understood as the ability to organize a business, lead, learn, build relationships, remain committed, and make business decisions. Sakib et al. (2022) show that several entrepreneurial competencies, such as organizational and leadership skills, learning skills, relationship-building skills, and commitment, have a meaningful influence on SME performance. In line with this, Pulka et al. (2021) also found that entrepreneurial competence affects the performance of SMEs. Thus, SME operator competence can be an important capital for increasing competitiveness and business growth.

SME growth can be seen from various indicators, such as increased turnover, a larger number of customers, market expansion, increased production, additional labour, and business sustainability. Timothy (2022) shows that managers' human capital, especially education and experience, is related to SME innovation and productivity. This research confirms that the quality of the people who manage a business plays a role in driving productivity, both directly and through marketing innovation. Therefore, SME growth cannot be separated from the ability of business actors to manage knowledge, skills, and innovation in a sustainable manner.

Although previous studies have examined the role of HR training and entrepreneurial competence in SME performance, limited attention has been given to the mediating role of business productivity, particularly in developing regional economies such as North Kalimantan. This limitation is important because training and competence do not always translate directly into growth without improvements in efficiency, product quality, and operational output. This study addresses this gap by examining how HR training and SME operator competence contribute to SME growth through business productivity.

Based on this description, the strategy of improving the quality of human resources is important in encouraging SME growth. In this study, improving the quality of human resources is focused on two main aspects, namely human resource training and SME operator competence. HR training is seen as a planned effort to improve the knowledge and skills of business actors, while the competence of SME actors is seen as the ability

of business actors to manage, develop, and maintain their businesses. These two aspects are expected to encourage SME growth through increased turnover, market expansion, increased productivity, and business sustainability. Therefore, this study examines human resource development as a key driver of SME growth by focusing on HR training and SME operator competence, with business productivity positioned as a mediating mechanism.

2. Literature Review

Theoretical Framework

This research is built on three main theoretical frameworks, namely Human Capital Theory, Resource-Based View (RBV), and Competency Theory. *First*, Human Capital Theory developed by Becker (1964) explains that education, training, knowledge, and skills are forms of investment that can increase individual productivity and generate economic benefits. In the context of SMEs, HR training and business actor competencies can be understood as a form of human capital that enables business actors to manage their business more effectively, efficiently, and sustainably (Becker, 1964). Becker specifically emphasized that formal education and on-the-job training contribute to improving the economic performance of individuals and organizations.

Second, the Resource-Based View (RBV) developed by Barney (1991) states that a company's competitive advantage is determined by its ability to manage internal resources that are valuable, rare, difficult to imitate, and not easily substituted. In the context of SMEs, the competencies of business actors, such as managerial, marketing, production, and innovation skills, are strategic resources that can create sustainable competitive advantage. This perspective is relevant because SMEs often compete not only through financial resources, but also through the knowledge, skills, and adaptive capacity of their operators (Barney, 1991).

Third, McClelland's (1973) Competency Theory asserts that individual performance is more accurately explained by competence than by intelligence alone. Competencies include aspects of knowledge, skills, motives, attitudes, and work behaviors that directly affect performance. Therefore, in the context of SMEs, the competence of business actors is an important factor in determining business productivity and growth (McClelland, 1973). The integration of the three theories shows that human resource training plays a role in increasing human capital, competence becomes a strategic resource, and both contribute to increasing productivity and SME growth.

HR Training and Business Productivity

HR training is a systematic process for improving the knowledge, skills, and abilities of business actors in carrying out business activities. In the context of SMEs, training covers various aspects such as entrepreneurship, financial management, digital marketing, product innovation, and technology utilization. These training activities are expected to help SME operators improve daily operational practices and respond more effectively to market changes.

Based on Human Capital Theory, training is an investment that can increase productivity and work efficiency (Becker, 1964). SMEs that receive training tend to be better able to reduce operational errors, improve product quality, and adapt to market changes. Empirical findings support this relationship. Jalil et al. (2021) found that training has a positive effect on the innovative behaviour of SME employees. Hernita et al. (2021) show that strengthening human resource capacity contributes significantly to increasing the productivity and sustainability of SMEs in Indonesia. In addition, UNIDO (2025) emphasized that training plays a role in increasing productivity, technology adoption, and SME business performance.

Thus, HR training not only increases individual capacity, but also has an impact on business operational efficiency. Training enables SME operators to apply better managerial, financial, marketing, and technological practices in their businesses. Therefore, the following hypothesis is formulated:

H1: HR training has a positive effect on business productivity

SME Operator Competence and Business Productivity

SME operator competence reflects their ability to manage and develop their business, including managerial skills, marketing, innovation, and strategic decision-making. According to Competency Theory, competence is the main determinant of individual performance (McClelland, 1973). Meanwhile, from the perspective of RBV, competence is a strategic resource that can create competitive advantage (Barney, 1991).

Various empirical studies support this relationship. Sakib et al. (2022) found that entrepreneurial competence affects SME performance in developing countries. Gunawan (2024) shows that entrepreneurial competence contributes to improving business performance in the creative industry sector in Indonesia. In addition, Dinku et al. (2024) found that human capital and managerial competence affect SME performance through innovation. Thus, SME operator competence plays an important role in increasing business efficiency and effectiveness. Therefore, the hypothesis proposed is:

H2: SME operator competence has a positive effect on business productivity.

Business Productivity and SME Growth

Business productivity reflects the ability of SMEs to produce output efficiently through optimal resource utilization. High productivity shows that businesses are able to improve the quality and quantity of production in a more cost-efficient manner. OECD (2025) emphasizes that productivity is a key indicator in assessing company performance. Hernita et al. (2021) also show that increasing human resource capacity has an impact on productivity, which then contributes to business sustainability. UNIDO (2025) added that productivity is closely related to business growth, including workforce growth and market expansion.

Thus, business productivity is an important mechanism that connects the quality of human resources with SME growth. When productivity improves, SMEs can convert

skills, competence, and training outcomes into better output, service quality, and market responsiveness. Therefore, the hypothesis proposed is:

H3: Business productivity has a positive effect on SME growth

Direct Influence on SME Growth

In addition to productivity, human resource training and SME operator competence can also have a direct influence on SME growth. HR training helps business actors improve managerial, marketing, and technology utilization skills (Hernita et al., 2021; Jalil et al., 2021; UNIDO, 2025). Meanwhile, SME operator competence allows for more appropriate strategic decision-making and increased business competitiveness (Barney, 1991; Gunawan, 2024; Sakib et al., 2022). These direct effects are important because some improvements in knowledge and competence can immediately support market expansion, customer growth, and better business sustainability. Thus, the following hypotheses are formulated:

H4: HR training has a positive effect on SME growth.

H5: SME operator competence has a positive effect on SME growth.

The Role of Business Productivity Mediation

Business productivity plays a role as a mediating variable because HR training and SME operator competence do not always directly result in business growth. These two variables first increase work efficiency, product quality, and innovation ability, which then drive SME growth. Hernita et al. (2021) show that increasing human resource capacity affects productivity, which then has an impact on business sustainability. Dinku et al. (2024) also emphasized the existence of a mediation mechanism through improved business performance. Thus, the following hypotheses are formulated:

H6: Business productivity mediates the influence of HR training on SME growth

H7: Business productivity mediates the relationship between SME operator competence and SME growth.

Research Model

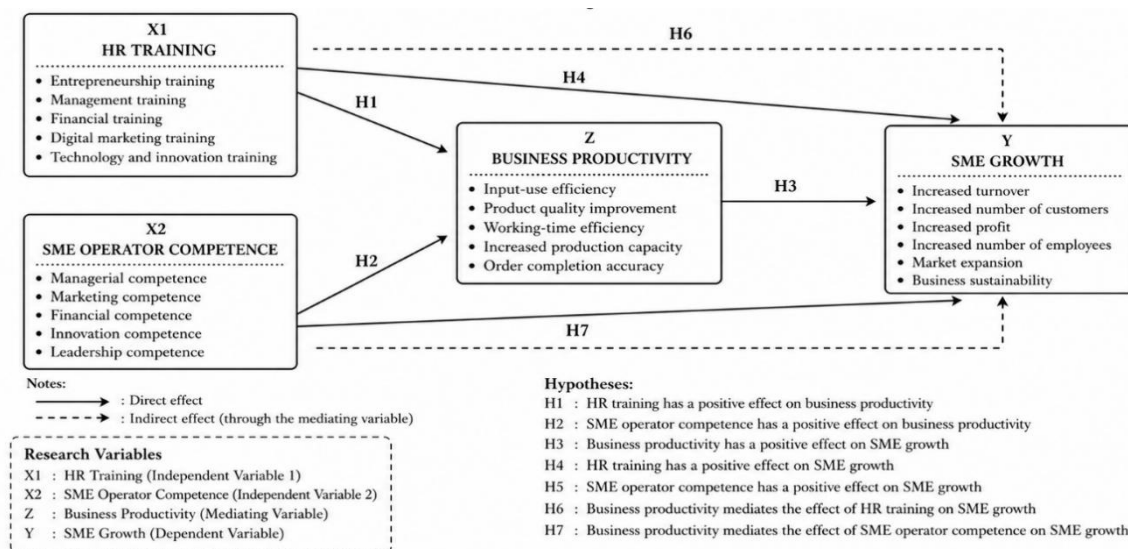


Figure 1. Conceptual model linking human resource development, business productivity, and SME growth

A conceptual model describing the relationships among the variables in this study is presented in the following figure. The model includes both direct effects and indirect effects through business productivity as a mediating variable. This model is used as the basis for developing and testing the research hypotheses.

3. Research Method

This study uses a quantitative approach with an explanatory design to test the causal relationship between variables. The quantitative approach was chosen because it allows objective testing of theories through variable measurement and statistical analysis (Creswell & Creswell, 2018). The explanatory design is used to explain the cause-and-effect relationship between research variables and to examine the mediating role of business productivity (Sekaran & Bougie, 2019).

The study population comprised SME operators in North Kalimantan who had operated or actively managed their businesses for at least one year. In this study, SME operators refer to owners, managers, and individuals who are directly involved in managing SME activities, whether as their primary occupation or as an additional business activity. The occupational categories reported in Table 1 therefore describe the respondents' main occupational status and do not indicate that respondents outside the owner/manager category were excluded from the SME sample. Respondents classified as private employees, students, online merchants, civil servants, or others were included only when they also operated or actively managed an SME and met the minimum one-year business operation criterion. The purposive sampling technique was used with these criteria to ensure that respondents had relevant experience in managing a business, participating in training, and assessing productivity and business growth (Sekaran & Bougie, 2019).

This study involved 180 SME operators. This sample size is considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM) because it meets the minimum sample consideration for models with several latent constructs and structural paths (Hair et al., 2019). In addition, the larger sample size improves estimation stability and statistical strength in structural model testing (Hair et al., 2019). Data were collected through the distribution of questionnaires on a Likert scale of 1-5, ranging from strongly disagree to strongly agree. The Likert scale was used to measure respondents' perceptions, attitudes, and assessments of research constructs (Creswell & Creswell, 2018). In addition, observation and documentation were used as supporting data to strengthen the research context.

This study involved four main variables: HR training and SME operator competence as independent variables, business productivity as a mediating variable, and SME growth as the dependent variable. HR training is measured through entrepreneurship, management, finance, digital marketing, and technology and innovation training indicators. SME operator competence is measured through managerial, marketing, finance, innovation, and leadership competencies. Business productivity is measured through input use efficiency, product quality, work time efficiency, production capacity, and order completion accuracy. Meanwhile, SME growth is measured through

increased turnover, customers, profit, workforce, market expansion, and business sustainability.

Data analysis used Structural Equation Modeling based on Partial Least Squares (SEM-PLS), which is suitable for research with complex models, latent variables, and predictive objectives (Ghozali, 2014; Hair et al., 2019). Model evaluation is carried out through two stages, namely the measurement model (outer model) and the structural model (inner model). Convergent validity was assessed based on the values of outer loading (>0.70) and Average Variance Extracted (AVE >0.50), while reliability was measured using Cronbach's Alpha and Composite Reliability (>0.70) (Hair et al., 2019). The VAF value is interpreted as follows: less than 20% indicate the absence of mediation, 20-80% indicate partial mediation, and more than 80% indicate full mediation (Hair et al., 2019).

Hypothesis testing was carried out using the bootstrapping technique. The hypothesis was stated to be significant if the t-statistic value was greater than 1.96 or the p-value was less than 0.05 at a significance level of 5%. In addition, the direction of the relationship was determined based on the path coefficient sign (Hair et al., 2019). With this approach, the research is expected to provide empirical evidence on the influence of HR training and SME operator competence on SME growth, both directly and through business productivity as a mediating variable.

4. Results and Discussion

4.1. Results

Respondent Profile

This study involved 180 respondents who were SME operators in North Kalimantan. Respondents were selected based on the criterion that they had been running or actively managing a business for at least one year. The characteristics of the respondents in this study included gender, age, education level, main occupational status, use of digital technology, and participation in training. A summary of respondent profiles is presented in Table 1. This classification refers to respondents' main occupational status, while all respondents were still required to have operated or actively managed an SME for at least one year. Therefore, respondents in categories such as private employees, students, civil servants, online merchants, and others were treated as SME operators when they met the inclusion criteria.

In general, respondents were dominated by women (61.7%) and were of productive age, especially in the 18-25 years group (48.3%). In terms of education, the majority had a secondary education background (SMA/SMK), accounting for 63.9% of respondents. This educational background indicates that most respondents have sufficient basic capacity to receive training, understand business development materials, and improve their entrepreneurial competencies.

In terms of main occupational status, 50.0% of respondents identified SME ownership or management as their primary occupation, while the remaining respondents were private employees, students, online merchants, civil servants, or other workers who also actively managed SME activities. This composition reflects the

dual role of SME in North Kalimantan, where business activities are often conducted alongside primary occupations, indicating that SME function both as primary livelihoods and as supplementary sources of income.

Table 1. Profile of Research Respondents

Characteristics	Categories	Frequency	Percentage (%)
Gender	Male	69	38.3
	Female	111	61.7
Age	18-25 years old	87	48.3
	26-35 years old	38	21.1
	36-45 years old	31	17.2
	> 46 years old	24	13.4
Education	Elementary/Equivalent	10	5.6
	Junior High School/Equivalent	17	9.4
	High School/Vocational School	115	63.9
	Diploma (D1-D3)	4	2.2
	Bachelor (S1)	32	17.8
	Postgraduate	2	1.1
Main Occupational Status	SME owner/manager as primary occupation	90	50
	Private employee with SME activity	34	18.9
	Student with SME activity	30	16.7
	Online merchant	12	6.7
	Civil servant with SME activity	6	3.3
	Other SME operator	8	4.4
Use of Digital Technology	Yes	127	70.6
	No	53	29.4
Training Participation	Yes	42	23.3
	No	138	76.7

Note: The "Main Occupational Status" category describes the respondents' primary occupational status. Respondents in non-owner/manager categories were included because they also operated or actively managed SMEs and fulfilled the study inclusion criteria.

However, participation in training was still relatively low, with only 23.3% of respondents taking part in training in the past two years. This finding indicates that access to human resource capacity development remains limited. Such limited training participation is important because training is part of human capital investment that can contribute to increased productivity and business performance (Becker, 1964).

Measurement Model

Evaluation of the measurement model was carried out to ensure that the indicators used met the criteria of construct validity and reliability. The assessment was carried out through convergent validity and internal reliability tests using outer loading, Composite Reliability (CR), and Average Variance Extracted (AVE) values. According to Hair et al. (2019), an indicator meets convergent validity when the outer loading value is greater than 0.70 and the AVE is greater than 0.50, while a construct is declared reliable when the CR value is greater than 0.70.

Based on Table 2, all indicators have an outer loading value above 0.70, which indicates that each indicator is able to adequately represent its construct. Thus, all indicators are declared valid in a convergent manner (Hair et al., 2019). The Composite

Reliability (CR) value in all constructs is also above the threshold of 0.70, namely HR Training (0.913), SME Operator Competence (0.904), Business Productivity (0.918), and SME Growth (0.927). These results show that each construct has a high level of internal consistency.

Table 2. Construct Validity and Reliability Test Results

Construct	Indicator	Outer Loading	CR	AVE
HR Training	Entrepreneurship training	0.812	0.913	0.677
	Management training	0.835		
	Financial training	0.821		
	Digital marketing training	0.846		
	Technology & innovation training	0.799		
SME operator competence	Managerial abilities	0.803	0.904	0.654
	Marketing competence	0.812		
	Financial management	0.785		
	Product/service innovation	0.828		
	Leadership & decision making	0.817		
Business Productivity	Input use efficiency	0.824	0.918	0.692
	Improved product quality	0.846		
	Working time efficiency	0.819		
	Production capacity	0.837		
	Order completion accuracy	0.833		
SME Growth	Increased turnover	0.814	0.927	0.679
	Number of customers	0.827		
	Increased profits	0.819		
	Increase in employees	0.798		
	Market expansion	0.841		
	Business sustainability	0.844		

In addition, the AVE value for the entire construct is above 0.50, which ranges from 0.654 to 0.692. This indicates that the variance of the indicators that can be explained by the construct is greater than the variance of error, so that the model has met the criteria of convergent validity. Overall, the results of the evaluation of the measurement model show that the research instrument used is valid and reliable, so it is suitable for use in structural model analysis (inner model).

Discriminant Validity

Discriminant validity aims to ensure that each construct in the model has adequate conceptual differences from the other constructs. The test was carried out using the Heterotrait-Monotrait Ratio (HTMT). According to Fornell and Larcker (1981), discriminant validity is fulfilled if the square root of AVE in each construct is greater than the correlation between constructs. Meanwhile, the HTMT value is stated to meet the criteria if it is below 0.90 (Hair et al., 2019; Henseler et al., 2015).

Based on Table 3, the diagonal value representing the square root of AVE in each construct is greater than the correlation value between constructs in the same row and column. These values are 0.823 for HR Training, 0.809 for SME Operator Competence, 0.832 for Business Productivity, and 0.824 for SME Growth. These

findings suggest that each construct has a stronger ability to explain the variance of its own indicators compared to other constructs. Thus, the model has met the criteria of discriminant validity based on the Fornell-Larcker approach (Fornell & Larcker, 1981; Hair et al., 2019).

Table 3. Results of the Discriminant Validity Test (*Fornell-Larcker Criterion*)

Construct	HR Training	SME Operator Competence	Business Productivity	SME Growth
HR Training	0.823			
SME Operator Competence	0.642	0.809		
Business Productivity	0.651	0.695	0.832	
SME Growth	0.617	0.668	0.721	0.824

To reinforce these results, discriminant validity was also assessed using HTMT values. The HTMT approach is considered useful because it provides a more sensitive assessment of whether constructs are empirically distinct from one another. All values below the 0.90 threshold indicate that discriminant validity has been met (Henseler et al., 2015).

Table 4. Results of the Discriminant Validity Test (HTMT)

Construct	HR Training	SME Operator Competence	Business Productivity	SME Growth
HR Training	-			
SME Operator Competence	0.728	-		
Business Productivity	0.742	0.781	-	
SME Growth	0.704	0.756	0.819	-

Based on Table 4, the entire value of the Heterotrait-Monotrait Ratio (HTMT) was below the threshold of 0.90. The highest value was found in the relationship between Business Productivity and SME Growth, at 0.819, but it was still within acceptable limits (Hair et al., 2019; Henseler et al., 2015). This result indicates that the constructs in the model are empirically distinct from one another.

These results show that each construct in the model has adequate conceptual differences and that there is no problem of multicollinearity between constructs. Thus, discriminant validity has been established based on the HTMT criterion. Overall, the results of the discriminant validity test through the Fornell-Larcker and HTMT approaches show that the measurement model in this study has met the required criteria and is feasible to continue in the evaluation of the structural model.

Structural Model

The structural model evaluation was conducted to examine the relationships among latent variables and the predictive ability of the model. Model assessment is carried out using the *R-square* (R^2), *Q-square* (Q^2), and *Standardized Root Mean Square Residual* (SRMR). The R^2 value indicates the ability of the exogenous variable to explain the endogenous variable, Q^2 is used to assess the predictive relevance of the model, while the SRMR is used to evaluate the overall suitability of the model (Hair et al., 2019; Henseler et al., 2015).

Table 5. Structural Model Evaluation

Endogenous Variable	R-square	Q-square	SRMR
Business Productivity	0.602	0.386	0.073
SME Growth	0.684	0.421	

Based on Table 5, the R^2 value for Business Productivity of 0.602 shows that HR Training and SME Operator Competence are able to explain 60.2% of the variance in Business Productivity. Meanwhile, the R^2 value for SME Growth of 0.684 shows that HR Training, SME Operator Competence, and Business Productivity are able to explain 68.4% of the variance in SME Growth. Referring to the criteria of Hair et al. (2022), these values are included in the moderate to strong category, so the model has good explanatory power. The Q^2 value for Business Productivity is 0.386 and for SME Growth is 0.421. Since both values are greater than zero, the model has good predictive relevance, which indicates that the model is able to adequately predict observational data.

In addition, the SRMR value of 0.073 indicates that the model has a good level of suitability because it is below the threshold of 0.08 recommended by Hu and Bentler (1999) and Henseler et al. (2015). This indicates that the proposed model has met the goodness-of-fit criterion. Overall, the results of the structural model evaluation show that the research model has adequate explanatory and predictive capabilities and is suitable for hypothesis testing.

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure in PLS-SEM. A hypothesis was considered supported when the t-statistic exceeded 1.96 and the p-value was below 0.05. This criterion follows the common significance threshold used in PLS-SEM analysis (Hair et al., 2019).

Direct Effect

Table 6. Direct Effect Results

Hyp.	Pathway	Coeff.	t-statistic	p-value	Remarks
H1	HR Training → Business Productivity	0.348	5.912	<0.001	Supported
H2	SME Operator Competence → Business Productivity	0.472	7.604	<0.001	Supported
H3	Business Productivity → SME Growth	0.431	6.881	<0.001	Supported
H4	HR Training → SME Growth	0.214	3.247	0.001	Supported
H5	SME Operator Competence → SME Growth	0.286	4.198	<0.001	Supported

Based on Table 6, all direct relationships show a t-statistic value of > 1.96 and a p-value of < 0.05 , so that the entire direct influence hypothesis is declared supported. Substantively, SME operator competence has the strongest influence on Business Productivity ($\beta = 0.472$), followed by HR Training ($\beta = 0.348$). This shows that although training is important, the competencies possessed by SME operators are a more dominant factor in increasing productivity.

Furthermore, Business Productivity had a significant effect on SME Growth ($\beta = 0.431$), confirming its role as a key mechanism in encouraging business performance. Meanwhile, HR Training ($\beta = 0.214$) and SME Operator Competence ($\beta = 0.286$) also had direct influences on SME Growth, although their direct effects were lower than the effect of Business Productivity. This pattern suggests that productivity is an important pathway through which human resource development contributes to business growth.

Indirect Effect

Table 7. Indirect Effect Results

Hyp.	Pathway	Coeff.	t-statistic	p-value	Remarks
H6	HR Training → Business Productivity → SME Growth	0.150	4.382	<0.001	Supported
H7	SME Operator Competence → Business Productivity → SME Growth	0.203	5.219	<0.001	Supported

The test results showed that both indirect pathways were significant (p -value < 0.05), so Business Productivity was proven to mediate the relationship between the independent variables and SME Growth. Comparatively, the indirect influence of SME Operator Competence ($\beta = 0.203$) was greater than that of HR Training ($\beta = 0.150$), which indicates that improving competence has a stronger impact on business growth through increased productivity. These findings confirm that Business Productivity plays an important role as a mediating mechanism in explaining how training and competence translate into SME growth.

4.2. Discussion

The results of the study show that HR Training has a positive and significant effect on Business Productivity. These findings confirm that the training received by SMEs contributes to improving operational capabilities, such as financial management, marketing, technology use, and product innovation. Relevant and applicable training allows business actors to work more efficiently, reduce errors, and improve the quality of business output. These results are consistent with the Human Capital Theory put forward by Becker (1964), which states that investment in training increases individual productivity. Empirically, these findings are also in line with Idris et al. (2023), who show that training has a positive relationship with improving SME performance.

Furthermore, SME Operator Competence has been proven to have a positive and significant effect on Business Productivity, with a greater coefficient than HR Training. This indicates that competence is a more dominant internal factor in determining the level of productivity. Business actors who have managerial, marketing, finance, innovation, and leadership competencies tend to be more effective in managing business resources. These findings support McClelland's (1973) Competency Theory, which emphasizes that individual performance is determined more by competence than by mere cognitive aspects. These results are also consistent with the studies of Pulka et al. (2021) and Sakib et al. (2022), who found that entrepreneurial competence plays a significant role in improving the performance and efficiency of SMEs.

This study also found that Business Productivity has a positive and significant effect on SME Growth. This shows that improving efficiency and output quality is the main mechanism in encouraging business expansion. Productive SMEs have better ability to increase production volume, maintain quality, meet market demand, and optimize operational costs. Thus, productivity is an important determinant in increasing turnover, profit, number of customers, and business sustainability. These findings are in line with Timothy (2022) and Hernita et al. (2021) who affirm that productivity is a key factor in the sustainability and SME growth. In addition, HR training also has a direct effect on SME growth. This shows that training not only has an impact through increasing productivity, but is also able to make a direct contribution to business development. The training provides access to new knowledge, business strategies, and the use of digital technologies that support market expansion. These results reinforce the findings (Rauch & Hatak, 2016) which states that human resource development practices have a significant relationship with the performance and SME growth.

On the other hand, SME Operator Competence has a positive and significant effect on SME Growth. These findings confirm that competence is a strategic resource that determines business success. From the perspective of the Resource-Based View, Barney (1991) explains that internal resources that are valuable, rare, difficult to imitate, and not easily substituted can form the basis of competitive advantage. Competent SME operators are better able to read market opportunities, manage risks, develop innovations, and maintain business sustainability, thereby contributing directly to business growth.

The results of the mediation test showed that Business Productivity mediated the influence of HR Training on SME Growth. This means that the effectiveness of training in encouraging business growth depends on the extent to which the training is able to increase productivity. Training that is practical and based on business needs has proven to be more effective in increasing operational efficiency and business output, which ultimately drives growth. This reinforces the role of training as an investment in human capital (Becker, 1964) that works through increased productivity.

Furthermore, Business Productivity also mediates the influence of the SME Operator Competence on SME Growth. These findings suggest that competencies do not automatically lead to growth, but need to be converted first into increased productivity. The competencies possessed by business actors such as managerial skills, innovation, and decision-making will increase the efficiency of resource use, which then has an impact on business growth. Thus, productivity plays a key mechanism in bridging the relationship between human resource quality and business performance.

Overall, this study emphasizes that SME growth is not only determined by external factors such as capital and the market, but is greatly influenced by the quality of human resources. HR training and SME operator competence have proven to be the main determinants in increasing productivity and business growth. In this context, business

productivity plays a role as a strategic variable that connects HR investment with business outcomes.

In terms of practical implications, these findings show that SME empowerment programs need to be focused on strengthening human resource capacity in a sustainable manner. Local governments, training institutions, and educational institutions need to design training programs that are more applicable, based on business needs, and equipped with continuous assistance and evaluation. In addition, the development of entrepreneurial competencies, financial literacy, and the adoption of digital technology need to be priorities in increasing the competitiveness and SME growth, especially in the North Kalimantan region.

5. Conclusion

This study examines the relationship between human resource (HR) training, SME operator competence, and SME growth, with business productivity as a mediating variable. Using the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach, this study contributes to the literature on human resource management and SME development by providing empirical evidence from North Kalimantan, a region that continues to face limitations in capacity, access, and business development support. All hypotheses in this study are empirically supported, thus providing a comprehensive understanding of how SME growth is formed through the interaction between human capital investment and business operational performance.

The results of the study show that HR training and SME operator competence are key factors that encourage business productivity and SME growth. Both variables have a significant direct influence on productivity and growth, with SME operator competence showing a stronger influence on productivity. In addition, business productivity has been proven to have a significant effect on SME growth, which confirms its role as the main mechanism in converting internal capacity into real business performance.

Furthermore, the results of this study show that business productivity partially mediates the relationship between HR training and SME operator competence to SME growth. This indicates that investment in training and competency development will be more effective in encouraging growth if it is able to improve work efficiency, output quality, and business operational performance. Thus, business productivity serves as a key link between human capital development and SME growth.

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