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The Impact of the COVID-19 Pandemic as a Mediator of Factors Influencing Business Digitalization on SMEs in East Java, Indonesia

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Abstract

This study aims to determine the direct influence of factors that can drive business digitalization among SMEs (Small, and Medium Enterprises) and the indirect influence using the COVID-19 pandemic as a mediator in East Java, Indonesia. These factors include experience, education, and digital literacy. This research is quantitative, with samples taken from the northern, southern, western, and eastern regions of East Java Province. The sample size consists of 120 respondents selected using purposive sampling. Data were analyzed using the Smart PLS-4 application, following stages of outer model testing, inner model testing, and hypothesis testing. The results indicate that experience does not have a direct positive effect on business digitalization, while education and digital literacy both have a direct positive impact on business digitalization. In the indirect effect test with the COVID-19 pandemic as a mediating variable, it was found that experience, education, and digital literacy all have a significant positive impact on business digitalization when mediated by the COVID-19 pandemic. These findings can be utilized by policymakers to promote increased business digitalization, which will foster the growth of SMEs in East Java.
Keywords: Business Digitalization, Digital Literacy, Education

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Introduction

Small, and Medium Enterprises (SMEs) play an important role in supporting the national economy, both in Indonesia and in several other countries ("Global Entrepreneurship Monitor 2020/2021," 2021). In the World Bank report of 2020, it is evident that SMEs in several countries, such as the United States, Japan, and South Korea, absorb around 70-80% of the total workforce. It is also reported that SMEs play a significant role in supporting the economic empowerment of the community, reducing poverty, and improving community welfare (Global Economic Prospects, June 2020: A World in Crisis, 2020). In Indonesia, SMEs play a vital role in developing the national economy. According to data from the Ministry of Cooperatives and SMEs, in 2020 there were around 64 million SMEs in Indonesia, contributing about 60% of the total GDP (Gross Domestic Product) and absorbing approximately 97% of the total workforce ("Laporan Tahunan Kementerian Koperasi Dan UKM Tahun 2020," 2021). Given this strategic role (Widayanto, 2022), efforts to continuously strengthen the SME sector need to receive serious attention from all stakeholders.

One of the challenges currently emerging is related to the development of digital technology, which is also penetrating the business world. The level of business competition in the current era, marked by the increasingly widespread adoption of digital technology, can be said to be higher compared to the era before the development of digital technology. The widespread adoption of digital technology has enabled companies to reach consumers globally and offer products and services more efficiently and effectively. In implementing digitalization in their businesses, there are several issues faced by SMEs in Indonesia, including limited digital knowledge and skills. Most SMEs have low digital skills and are less capable of operating digital technology effectively (Setiawan, 2020). In line with these developments, business digitalization is also expanding among SME players. Several studies have shown that implementing business digitalization in SMEs can improve their performance (Abu Hasan et al., 2022). In 2019, the COVID-19 pandemic spread worldwide. Efforts to prevent the pandemic through restrictions on community activities resulted in reduced physical activities, which also affected the demand for products produced by SMEs (Rahmadan et al., 2021). On the other hand, the restriction of physical activities led to a shift from offline to online activities. Indirectly, business actors were encouraged to optimize their business reforms to adapt to these conditions. Given the importance of business digitalization, this study aims to determine the factors influencing business digitalization and examine the impact of the COVID-19 pandemic in driving business digitalization among SMEs in East Java, Indonesia. Factors suspected to influence business digitalization include Digital Literacy, Education Level, and Work Experience.

Several studies have already been conducted regarding business digitalization. Business digitalization has been proven to improve business performance in the SME sector (Mahmudova, 2023). Research in India also shows the role of business digitalization in improving SME performance (Kampoowale et al., 2023). Considering the urgency of business digitalization in enhancing SME

performance, it is necessary to investigate the factors that can influence business digitalization in SMEs. Mohammadian's research analyzes the role of education in enhancing SME competencies (Mohammadian & Rezaie, 2020), while Rahayu's research shows that perception and education level have a positive impact on technology adoption in SMEs (Rahayu et al., 2020). Franco's research analyzes the influence of Digital Literacy on Digital Management (Franco et al., 2021). Atli's research found that Literacy affects business performance (Sadik Tatli et al., 2023). In other aspects, the research by Amirullah (Amirullah et al., 2020) and Wibowo (Wibowo & Rahayu, 2020) shows that education level and experience positively influence the use of digital applications and technology adoption. Regarding the impact of the COVID-19 pandemic on digitalization, several studies have also been conducted. Penco's research (Penco et al., 2023) found that the COVID-19 pandemic has indeed pushed digitalization in SMEs. Meanwhile, Winarsih's research analyzes the impact of the COVID-19 pandemic on digital transformation in SMEs (Winarsih et al., 2021). In this study, the issues to be addressed can be formulated as follows: a) How do Digital Literacy, Education Level, and Work Experience affect business digitalization among SMEs in terms of the level of Business Digitalization Implementation in SMEs in East Java?, and b) How does the COVID-19 pandemic mediate the factors that can influence business digitalization in SMEs in East Java?

Theoretical Studies

Business Digitalization

Business digitalization is the process of utilizing information and communication technology to optimize production, management, and marketing processes, thereby achieving greater profits and higher efficiency (Rahmadan et al., 2021). Business digitalization has played a very important role in business development, especially for Micro, Small, and Medium Enterprises (SMEs) in Indonesia. It helps SMEs expand their market through various online platforms such as marketplaces, e-commerce, and social media. This allows SMEs to reach new customers in different regions, even abroad. Business digitalization also helps SMEs improve their operational efficiency. By leveraging technology, SMEs can automate their business processes, increase productivity, and reduce operational costs. Furthermore, digitalization helps SMEs access the resources and information needed to grow their businesses. Through online platforms, SMEs can obtain information about market trends, competition, and business opportunities.

Experience

Work experience refers to the amount of experience gained by individuals during their employment, including knowledge, skills, abilities, and values related to the job (Amirullah et al., 2020). Experience is an important factor in the adoption of digital technology by businesses. Businesses with more experience in using digital technology tend to adopt new technology more quickly. This experience can be gained from daily activities within the business or from training or courses previously attended. Additionally, businesses with experience in using digital

technology also have higher confidence in adopting new technology. Conversely, businesses lacking sufficient experience tend to be more reluctant to adopt digital technology because they do not know how to use it or fear the difficulties of learning it.
H1: Experience has a significant positive effect on Business Digitalization.

Education

Education level refers to the skills and knowledge possessed by individuals, encompassing both formal and non-formal qualifications (Sadik Tatli et al., 2023). Education level also plays an important role in the adoption of digital technology by businesses. Businesses owned by individuals with higher levels of education tend to adopt digital technology more quickly. Higher education levels provide the knowledge and skills needed to effectively use digital technology. Moreover, individuals with higher education levels are generally more open to trying new things and more confident in adopting new technologies.
H2: Education has a significant positive effect on Business Digitalization.

Digital Literacy

Digital literacy is the ability to use digital technology, communication, and information networks to acquire, evaluate, and use information with the necessary skills and awareness to effectively participate in social, cultural, and economic life (Franco et al., 2021). With digital literacy, SME actors can utilize various digital platforms such as e-commerce, social media, and websites to market their products. Digital literacy helps SMEs understand and use digital tools to manage inventory, orders, and finances more efficiently. It also enables SMEs to continuously learn and adapt to the latest market trends. By improving digital literacy, SMEs can leverage technology to enhance efficiency, expand their market, and provide better services, ultimately driving the growth and sustainability of their businesses.
H3: Digital Literacy has a significant positive effect on Business Digitalization.

COVID-19 Pandemic

The COVID-19 pandemic is an outbreak that has affected almost all regions of the world, impacting social activities. Social restrictions, such as those implemented during the COVID-19 pandemic, have significantly impacted small businesses in Indonesia (Muditomo & Wahyudi, 2021). Overall, social restrictions pose significant challenges for small businesses in Indonesia. The social restrictions due to the COVID-19 pandemic have accelerated business digitalization for Micro, Small, and Medium Enterprises (SMEs) in Indonesia. Although this situation presents various challenges, many SMEs have adopted digital technology to adapt to changing conditions. Overall, the social restrictions due to the COVID-19 pandemic have acted as a catalyst for accelerating business digitalization among SMEs in Indonesia. Despite the challenges, digitalization has opened up new opportunities for SMEs to improve operational efficiency, expand their markets, and innovate in their products and services. In the long term, this digitalization can

serve as a foundation for the growth and sustainability of SMEs in the post-pandemic era.

H4: The COVID-19 pandemic mediates the influence of Experience on Business Digitalization.

H5: The COVID-19 pandemic mediates the influence of Education on Business Digitalization.

H6: The COVID-19 pandemic mediates the influence of Digital Literacy on Business Digitalization

Methodology

This study uses a structural model for testing causality, specifically testing the research hypotheses using a predictive model with Smart PLS version 4 software. The study analyzes the factors influencing Business Digitalization, with the COVID-19 Pandemic as a mediating variable.

As stated in the title, the population of this study is SMEs (Micro, Small, and Medium Enterprises) in East Java Province. To obtain a sample that represents the population, samples are taken from areas geographically distributed across East Java, specifically from the northern, southern, eastern, and western regions, as well as the provincial capital. Thus, samples will be taken from five regencies/cities: Bangkalan Regency, Malang, Madiun, Banyuwangi, and Surabaya. Each sample area will have 24 respondents, resulting in a total sample size of 120 respondents. According to Hair et al. (Hair et al., 2019), the minimum sample size should be 100 or more. Considering that equal sampling is needed, the quota sampling method is used in this research and in order to meet the appropriate respondents, several criteria were established. The criteria used in this study are : a) The business has been in operation for more than 3 years, and b) The business turnover is above 20 million IDR per month.

Data collection was conducted by distributing questionnaires to selected respondents. The questionnaires were designed based on research indicators for each variable. Each variable was measured with five questions. A five-point Likert scale, ranging from 1 = very low to 5 = very high, was used to measure respondents' perceptions. The 5-point interval scale was adopted to increase data reliability and reduce social desirability bias.

Statistical analysis was performed using Smart PLS-4, preceded by an analysis of the outer model, inner model, and hypothesis testing.

Variable Operational Definition

The various variables to be analyzed in this study include independent variables (independent/exogenous), dependent variables (dependent/endogenous), and intervening variables (mediation)

Table 1. Variables Indicators

Variables/Construct	Indicators/Items
Business Digitalization (BD)	BD1: Level of digital technology adoption
(Rahmadan et al., 2021)	BD2: Digital technology capabilities in business processes

Variables/Construct	Indicators/Items
	BD3: Readiness of SME to use digital technology
	BD4: Use and analysis of data for decision-making
	BD5: Integration of digital technology with existing systems
Education (ED)	ED1: Level of formal education
(Sadik Tatli et al., 2023)	ED2: Participation in digital education
	ED3: Level of participation in advanced education and training
	ED4: Problem-solving skills
	ED5: Educational environment
Experience (EX)	EX1: Duration of work experience
(Amirullah et al., 2020)	EX2: Type of previous job
	EX3: Size of the organization in previous employment
	EX4: Previous job level
	EX5: Number of tasks performed in previous job
Digital Literacy (DL)	DL1: Ability to search, evaluate, and utilize digital information
(Franco et al., 2021)	DL2: Ability to use digital technology for communication and collaboration
	DL3: Ability to use digital technology for problem-solving and decision-making
	DL4: Ability to understand and use digital applications and platforms
	DL5: Ability to securely manage and protect data and information
COVID Pandemic (CP)	CP1: Large-Scale Social Restrictions (PSBB)
(Muditomo & Wahyudi, 2021)	CP2: Working from home (work from home)
	CP3: Enforcement of Community Activity Restrictions (PPKM)
	CP4: Restrictions on business and economic activities
	CP5: Tightening of travel and transportation permits

These indicators/items as shown in Table 1 are used to measure the variables in the study and provide a comprehensive understanding of how each construct influences business digitalization, particularly within the context of SMEs in East Java during the COVID-19 pandemic.

Reseach Framework

Figure 1 illustrates the research framework utilized in this study. The arrows indicate direct relationships between variables and also indicate indirect relationships with mediation among the variables used in this study, and the hypotheses being tested are already stated.

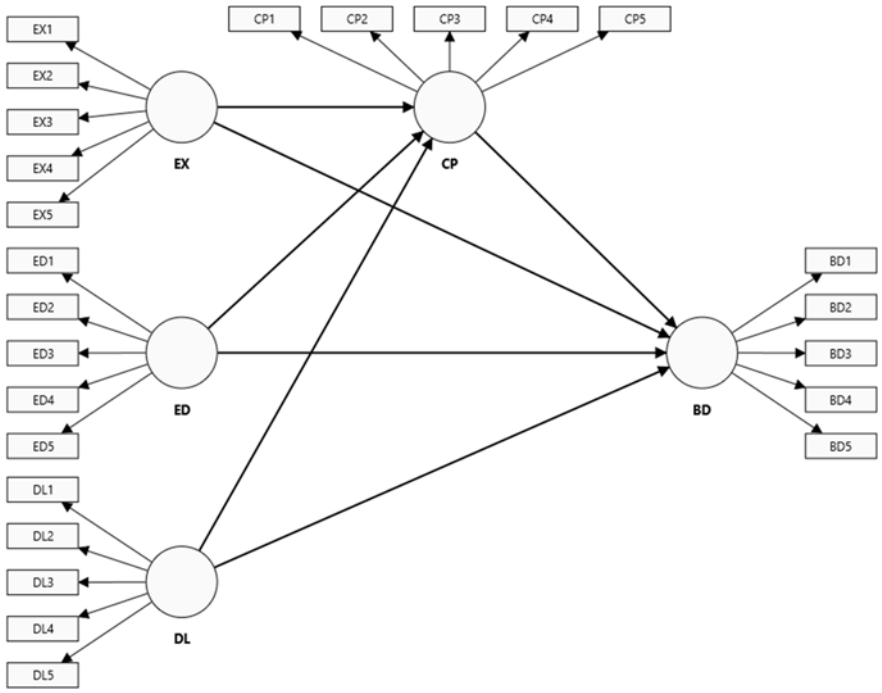

Figure 1. Research Framework

Result and Discussion

Descriptive and Normality Statistics

Table 2 provides the descriptive statistics of all constructs at the item level, including the mean, standard deviation, skewness, and kurtosis figures. All question items were coded with numerical values. Variable distributions were inspected using skewness and kurtosis statistics and the values smaller than the absolute value of 2 and 7, respectively, demonstrate sufficient normality (Curran et al., 1996).

Table 2. Descriptive Statistics

Construct	Item Code	Min	Max	Mean	Std Error	Excess kurtosis	Skewness
EX	EX1	2	5	4.192	0.687	-0.227	-0.427
	EX2	2	5	4.192	0.699	-0.330	-0.434
	EX3	2	5	4.058	0.699	-0.453	-0.229
	EX4	2	5	4.050	0.693	0.083	-0.371
	EX5	1	5	4.225	0.701	1.069	-1.083
ED	ED1	2	5	4.192	0.636	0.271	-0.386
	ED2	3	5	4.167	0.582	-0.222	-0.038
	ED3	3	5	4.217	0.673	-0.809	-0.292
	ED4	3	5	4.192	0.662	-0.749	-0.235

	ED5	3	5	4.300	0.600	-0.593	-0.239
DL	DL1	3	5	4.108	0.668	-0.759	-0.129
	DL2	2	5	4.167	0.711	-0.457	-0.397
	DL3	3	5	4.133	0.657	-0.699	-0.149
	DL4	2	5	4.050	0.693	-0.413	-0.219

Construct	Item Code	Min	Max	Mean	Std Error	Excess kurtosis	Skewness
	DL5	2	5	4.167	0.675	-0.143	-0.381
CP	CP1	2	5	4.000	1.095	-0.759	-0.770
	CP2	2	5	3.942	1.082	-0.700	-0.761
	CP3	2	5	4.083	0.988	-0.200	-0.904
	CP4	2	5	4.025	1.020	-0.356	-0.861
	CP5	2	5	4.175	0.919	0.427	-1.075
BD	BD1	2	5	4.092	0.730	-0.246	-0.405
	BD2	3	5	4.117	0.661	-0.713	-0.132
	BD3	2	5	4.258	0.701	-0.258	-0.558
	BD4	2	5	4.233	0.739	-0.568	-0.531
	BD5	1	5	4.308	0.716	3.084	-1.228

Figure 2 shows the PLS path model with loadings and weights in a visual format. The numbers on the path relationships represent the loadings in reflective measurement models, whereas the numbers on the path relationships represent the weights in formative measurement models.

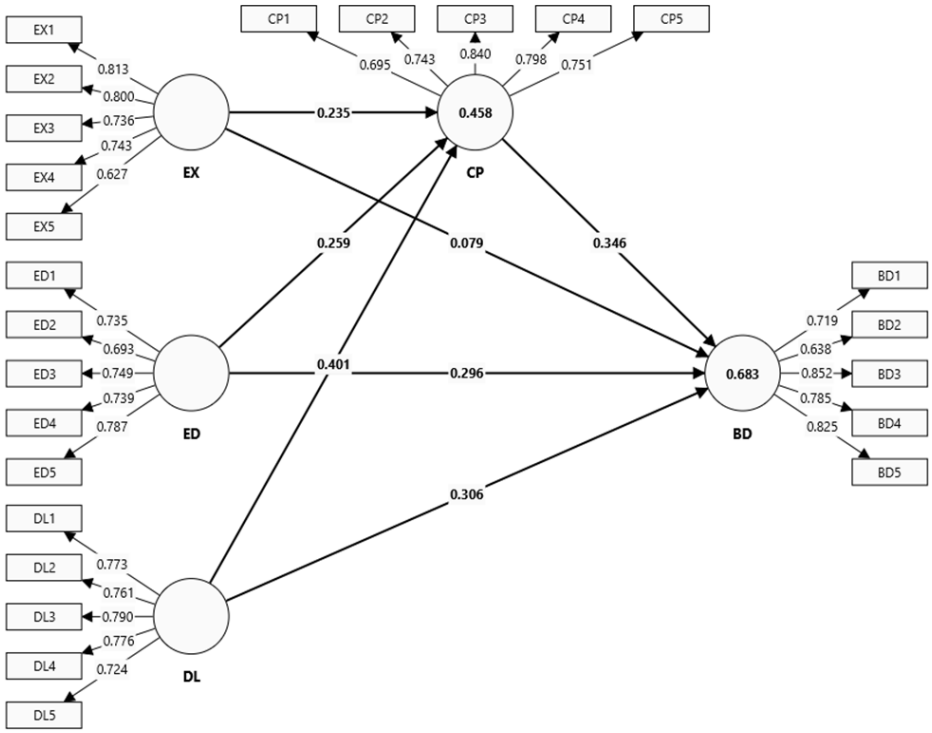

Figure 2. Path-PLS Model

Convergent Validity

Convergent validity is an indicator that measures the magnitude of the correlation between the construct and the latent variable in the evaluation of convergent validity of the examination of individual item reliability. The expected value is > 0.7, but the outer loading value between 0.5 - 0.6 is considered sufficient to meet the requirements for convergent validity (Hair et al., 2019). The validity test of the AVE value of the entire variables shows an AVE value of > 0.50. The results of the Convergent Validity and Internal Consistency Reliability test can be seen in Table 3 which shows that each indicator is valid.

Table 3. Convergent Validity and Internal Consistency Reliability

Construct	Item Code	Outer loadings	AVE	Cronbach's alpha	CR rho_a	CR rho_c
BD	BD1	0.719	0.589	0.822	0.829	0.877
	BD2	0.638				
	BD3	0.852				
	BD4	0.785				
	BD5	0.825				
CP	CP1	0.695	0.589	0.824	0.825	0.877
	CP2	0.743				
	CP3	0.840				
	CP4	0.798				
	CP5	0.751				
DL	DL1	0.773	0.585	0.823	0.825	0.876
	DL2	0.761				
	DL3	0.790				
	DL4	0.776				
	DL5	0.724				
ED	ED1	0.735	0.549	0.799	0.827	0.859
	ED2	0.693				
	ED3	0.749				
	ED4	0.739				
	ED5	0.787				
EX	EX1	0.813	0.557	0.800	0.811	0.862
	EX2	0.800				
	EX3	0.736				
	EX4	0.743				
	EX5	0.627				

Discriminant Validity

A discriminant validity test can be seen by comparing the loading value on the intended construct must be greater than the loading value with other constructs. If the cross-loading value of each indicator of the variable concerned is greater than the cross-loading value of other latent variables, it is said to be valid. Based on Table 4, it is known that the cross-loading value of the indicator that measures the variable concerned is greater than that of the indicator measuring other variables,

It's mean that the results of this research instrument meet discriminant validity.

Table 4. Discriminant Validity: Fornell Larcker Criterion

	BD	CP	DL	ED	EX
BD	**0.768**				
CP	0.721	**0.767**			
DL	0.715	0.615	**0.765**		
ED	0.671	0.529	0.592	**0.741**	
EX	0.331	0.376	0.263	0.140	**0.747**

Note: Diagonal values are the square root of AVE, off-diagonals are the correlation coefficient

Structural model (Inner Model)

Structural model testing (inner model) serves to determine the relationship between constructs, R-Square value, and significance value of the research model Hypotheses. The results of the inner model testing can be seen in Figure 3.

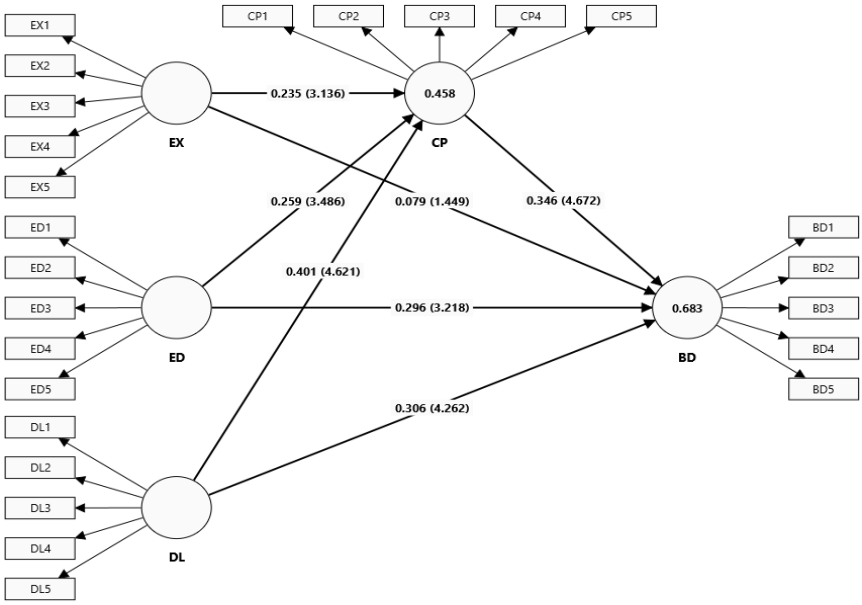

Figure 3. Hypothesized PLS-Path Model

The Summary of research hypothesis testing was carried out through the results of SmartPLS analysis, which are shown in the following table 5

Table 5. Summary of Hypotheses Testing

Hypotheses	Path	Std Beta	Std Error	t-value	p-value	f-square	Adj. R-square	Decision
Direct-Effect								
H1	EX -> BD	0.079	0.055	1.449	0.074	0.017	0.683	Not-Accepted
H2	ED -> BD	0.296	0.092	3.218	0.001	0.172		Accepted
H3	DL -> BD	0.306	0.072	4.262	0.000	0.159		Accepted
Indirect-Effect								
H4	EX -> CP -> BD	0.081	0.030	2.687	0.004			Accepted

H5	ED -> CP -> BD	0.090	0.035	2.537	0.006	Accepted
H6	DL -> CP -> BD	0.139	0.043	3.242	0.001	Accepted

Adjusted R-Square

The measurement of the model's predictive precision was done by using R^2, which is a representation of the variance percentage of the dependent variables, as specified through the model of the independent variables (Hair et al., 2019). In the inner model, the description of the R^2 values was as follows: 0.67 is substantial, 0.33 is moderate, and 0.19 is weak for endogenous latent constructs. Referring to Table 5: the findings indicate a substantial model of R2 (Adjusted R-Square) = 0.683 or 68.3%

Hypothesis Testing

Based on the data that has been done, the results can be used to answer the hypothesis in this study. The hypothesis test in this study was carried out with a combination of t-statistics values and p-values. The effect between variables is significant if the calculated t-value is greater than 1.96 (t-table significant 5%). The hypothesis can be declared accepted if the P-value value <0.05.

Direct Effect

Based on Table 5 shows the results of testing directly between variables, which are as follows:

a. Experience has a t-statistic value of 1.449 < 1.96, and the p-value is 0.074 or > 0.05 this shows Experience does not have a direct effect on Business Digitalization.
   H1 Not-Accepted, so it can be concluded that Experience does not have a significant positive effect on Business Digitalization.
b. Education has a t-statistic value of 3.219 > 1.96, and the p-value is 0.001 or < 0.05 this shows Experience has a direct effect on Business Digitalization.
   H2 Accepted, so it can be concluded that Education has a significant positive effect on Business Digitalization.
c. Digital Literacy has a t-statistic value of 4.262 > 1.96, and the p-value is 0.000 or < 0.05 this shows Digital Literacy has a direct effect on Business Digitalization.
   H3 Accepted, so it can be concluded that Digital Literacy has a significant positive effect on Business Digitalization.

Indirect Effect

Based on Table 5 shows the results of testing the indirect effect between variables, which are as follows:

a. There is a mediating effect between Experience on Business Digitalization through the COVID-19 pandemic mediation variable. This is indicated by the t-statisti c value of 2.687 > 1.96 and the p-value of 0.004 < 0.05.
   H4 is accepted, so it can be concluded that there is a relation indirectly (through mediation) the COVID-19 pandemicvariable between Experience and

Business Digitalization, this is a full mediation effect, because in direct testing (H1) there is no effect of Experience on Business Digitalization.

b. There is a mediating effect between Education on Business Digitalization through the COVID-19 pandemic mediation variable. This is indicated by the t-statisti c value of 2.537 > 1.96 and the p value of 0.006 < 0.05.
   H5 is accepted, so it can be concluded that there is a relation indirectly (through mediation) COVID-19 pandemic variable between Education and Business Digitalization, this is a Complementary mediation effect, because in direct testing (H2) there is an effect of Education on Business Digitalization in the same direction.
c. There is a mediating effect between Digital Literacy on Business Digitalization through the COVID-19 pandemic mediation variable. This is indicated by the t-statisti c value of 3.242 > 1.96 and the p value of 0.001 < 0.05.
   H6 is accepted, so it can be concluded that there is a relation indirectly (through mediation) COVID-19 pandemic variable between Digital Literacy and Business Digitalization, this is a Complementary mediation effect, because in direct testing (H3) there is an effect of Education on Business Digitalization in the same direction.

Discussion

Based on Table 5, conclusions can be drawn from the analysis of the influence of Experience, Education, and Digital Literacy on Business Digitalization with the COVID-19 pandemic as mediating variables, as follows:

The Influence of Experience on Business Digitalization.

Based on the statistical tests conducted, it was found that there is no significant positive influence of experience on business digitalization. This finding differs from previous studies that indicated a significant influence of experience on business digitalization (Rahayu et al., 2020). Experience may not always be relevant when technology evolves so rapidly. SMEs that have been operating for a long time might have deep experience in their field, but traditional experience may not be sufficient or even relevant in the context of digitalization. Long-standing experience often forms habits and mindsets that are hard to change. SMEs with many years of experience in traditional ways of working may show resistance to change, including digitalization because they feel comfortable with existing practices.

The Influence of Education on Business Digitalization

Based on the statistical tests conducted, it was found that education has a significant positive effect on business digitalization. This finding aligns with previous studies (Wibowo & Rahayu, 2020). Both formal and informal education can enhance the implementation of digitalization among SME owners and employees. With better education, they are more likely to understand digital technology such as the use of software, e-commerce, social media, and digital marketing tools. Education fosters a more open and creative mindset, which is essential for innovation and adaptation. SMEs with a strong educational

background tend to be more prepared to explore and adopt new technologies that can enhance their business and quickly adapt to market changes and technological trends. Overall, education has a significant impact on facilitating business digitalization among SMEs in Indonesia. With adequate education, SMEs can more easily adapt to new technologies, understand their benefits, and implement effective digital strategies to improve their business performance.

The Influence of Digital Literacy on Business Digitalization

Based on the statistical tests conducted, it was found that digital literacy has a significant positive effect on business digitalization. This finding is consistent with previous studies (Sadik Tatli et al., 2023), (Franco et al., 2021). With adequate digital literacy, SME owners and employees can more easily understand various digital technologies that can be applied to their business, such as management software, e-commerce platforms, and digital marketing tools. Understanding how these technologies work is crucial to fully leveraging their potential to improve operational efficiency and sales. Digital literacy enables SMEs to use data analysis tools to understand customer behavior, market trends, and business performance. It also allows SMEs to utilize various online resources for learning and development, such as online courses, webinars, and tutorials. This enables them to continually improve their skills and stay up-to-date with the latest technologies and strategies in the business world.

The Influence of Experience on Business Digitalization with COVID-19 Pandemic as a Mediating Variable

Based on the statistical tests conducted, it was found that experience affects business digitalization with the COVID-19 pandemic as a mediating variable, in a full mediation category. It is stated as full mediation because the direct influence of experience on business digitalization is not significant, whereas the influence through the mediation of the COVID-19 pandemic is significant. The results of this study reinforce the findings of previous research, which emphasized the impact of the COVID-19 pandemic in driving business digitalization (Penco et al., 2023). This study shows that the COVID-19 pandemic, with its various social activity restrictions, has driven business digitalization. The COVID-19 pandemic, which caused various negative impacts in health, economy, and social aspects, has, in other aspects, had a positive impact in promoting business digitalization. With social restrictions implemented during the pandemic, many consumers turned to online shopping to meet their needs. This forced SMEs to adjust their business models to stay relevant and reach customers. Many SMEs experienced a sharp decline in sales in their physical stores due to mobility restrictions and strict health protocols. To overcome this decline, SMEs were forced to find alternative ways to sell their products, and digitalization became an obvious solution. Many SMEs began using online platforms to sell their products, giving them firsthand experience of the benefits of digitalization.

The Influence of Education on Business Digitalization with COVID-19 Pandemic as a Mediating Variable

Based on the statistical tests conducted, it was found that education affects business digitalization with the COVID-19 pandemic as a mediating variable, in a

complementary mediation category. It is stated as complementary mediation because the direct influence of education on business digitalization is positively significant, and through the mediation of the COVID-19 pandemic, it also has a similar positive significant influence. The results of this study reinforce the findings of previous research, which emphasized the impact of the COVID-19 pandemic in driving business digitalization (Winarsih et al., 2021). Social restrictions due to the COVID-19 pandemic have driven many educated individuals to digitize their businesses. This happened due to several factors related to their educational background and the need to adapt to new conditions. Educated individuals generally have a better understanding of digital technology and its potential benefits. When social restrictions were imposed, they were quicker to recognize the importance of digitalization to keep their business operations running. Education enables them to understand and use digital tools such as e-commerce platforms, social media, and digital marketing tools to maintain or even increase business revenue. During social restrictions, this education was crucial as it allowed them to quickly learn and implement new technologies needed for business digitalization. Educated individuals tend to have better analytical skills and the ability to make data-driven decisions. They can quickly assess the risks and benefits of digitalization, prompting them to adopt digital technology to ensure business sustainability and growth.

The Influence of Digital Literacy on Business Digitalization with the COVID-19 Pandemic as a Mediating Variable

Based on the statistical tests conducted, it was found that digital literacy affects business digitalization with the COVID-19 pandemic as a mediating variable, in a complementary mediation category. It is stated as complementary mediation because the direct influence of digital literacy on business digitalization is positively significant, and through the mediation of the COVID-19 pandemic, it also has a similar positive significant influence. The results of this study reinforce the findings of previous research, which emphasized the impact of the COVID-19 pandemic in driving business digitalization (Penco et al., 2023). Individuals with high digital literacy are better able to adapt to market changes that occurred during the pandemic. Social restrictions reduced physical interaction and mobility, prompting many consumers to switch to online shopping and services. Individuals with digital literacy were able to quickly identify these changes and adjust their business models by leveraging digital technology. Social restrictions forced businesses to find alternative ways to remain operational. Those with high digital literacy were already accustomed to using digital tools for business development. With digital literacy, individuals find it easier to innovate with new business models and products relevant to the pandemic situation. Those with high digital literacy know how to effectively utilize social media and digital marketing to reach new customers and maintain relationships with existing customers. During social restrictions, online activity increased, and social media became a major platform for interaction. Individuals with digital literacy use this opportunity to promote their businesses, run marketing campaigns, and increase their online visibility.

Conclusion

Based on the analysis conducted, there are several findings: experience does not have a positive direct effect on business digitalization; education has a positive direct effect on business digitalization, while digital literacy also has a positive direct effect on business digitalization. In testing the indirect effects of the COVID-19 pandemic as a mediating variable, it was found that experience, education, and digital literacy all have a significant positive effect on business digitalization with the COVID-19 pandemic as a mediator.

This study found that the COVID-19 pandemic has driven the factors influencing business digitalization among SMEs in East Java. For the government, efforts to promote digitalization in SMEs must continue, particularly efforts to improve digital literacy among SME practitioners. Several studies have already shown that business digitalization is a suitable strategy for developing SMEs in the current era of information technology.

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