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The Influence of Relational Behavior and Relational Communication on Supplier Performance with Collaborative Communication Quality as a Mediating Variable on Brown Sugar Farmers in the Supply Chain

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ABSTRACT

In Indonesia, the brown sugar industry plays a significant role in the rural economy, with thousands of farmers involved in its production and supply chain. However, challenges in communication and relationships between suppliers and buyers often hinder optimal performance of farmers. This is evident in Cipaku Village, Purbalingga Regency, where the decline in the quality of brown sugar products has become a significant problem, mainly due to the lack of effective communication regarding standards and expectations between suppliers and buyers. This study aims to analyze the effect of relational behavior and relational communication on supplier performance, with the quality of collaborative communication as a mediating variable on brown sugar farmers in the supply chain. This study uses a quantitative method with a Simple Random Sampling (SRS) approach, involving 36 brown sugar farmer respondents in Cipaku Village, Purbalingga Regency. Data were collected through a questionnaire designed to measure the research variables. This study not only aims to answer the problems that occur in the field, especially in Cipaku Village, but also to contribute to the literature and new insights in agricultural supply chain management. The findings and implications of this study will be discussed in more depth in this article.

Keywords: Relationnal Behavior; Relational Communication; Supplier Performance; Quality Collaborative Communication; Brown Sugar Farmers; Supply Chain Management

1. Introduction

The brown sugar industry plays an important role in the economy of many countries, especially in developing countries. In Cipaku Village, Purbalingga Regency, the majority of the population works as sugar farmers. As a natural product that is widely used in the food and beverage industry, brown sugar is a commodity that has high economic value. Farmers in this village contribute significantly to the production of brown sugar, which not only meets local needs but also has the opportunity to be marketed more widely. However, this industry faces various

challenges, especially in terms of supplier performance which is often inconsistent and less than optimal.

One of the key factors that affect supplier performance is the relationship between suppliers and buyers (Nyaga et al., 2010). Quality suppliers not only provide good products but also play a role in developing social capital with client companies, including buyers as corporate buyers (Krause et al., 2007). Because the attitude of relational behavior, relational communication, and collaborative quality are taken from the buyer's side and assessed by the supplier, the relationship between them is very important. In this context, relational behavior refers to actions taken by both parties to build and maintain mutually beneficial relationships (Palmatier et al., 2006). Meanwhile, relational communication relates to the way information is exchanged and managed in the business relationship (Mohr & Nevin, 1990), namely through active interaction between suppliers and buyers. In addition, the quality of collaborative communication between suppliers and buyers is also thought to have an important role in moderating the influence of relational behavior and relational communication on supplier performance (Cao & Zhang, 2011).

Based on the background and problems, this study aims to examine "The Influence of Relational Behavior and Relational Communication on Supplier Performance with Collaborative Communication Quality as a Mediating Variable on Brown Sugar Farmers in the Supply Chain". Specifically, this study aims to address the problems that occur in the field, especially in Cipaku Village, Purbalingga Regency, where there is still a decline in product quality due to ineffective communication regarding standards and expectations between suppliers and buyers.

2. Literature Review

2.1 Social Exchange Theory

Supply chain relationships involve not only economic aspects regulated in contracts, but also elements of social exchange (Rousseau, 1998; Johnston et al., 2004). SET is based on the idea that social interactions contain exchangeable value (Calhoun et al., 2007). Social Exchange Theory (SET) states that the development of relational social capital can generate both tangible and intangible benefits in the relationship between buyers and suppliers (Carey et al., 2011; Nyaga et al., 2010; Sweeney and Webb, 2007). In the context of brown sugar suppliers, relational behavior and relational communication can be seen as forms of social exchange that affect supplier performance.

2.2 Relational Behaviour

Relational behavior is an important concept in the study of interpersonal relationships, encompassing the actions and interactions that individuals undertake to build and maintain relationships with others. Relational behavior, characterized by flexibility, information sharing, and solidarity, is an important element in building effective relationships (Heide and John, 1992; Heide and Miner, 1992; Lusch and Brown, 1996).

2.3. Relational Communication

Communication has long been recognized as an essential element in organizational life, both by academics and practitioners in the fields of communication and management. Research has shown that the quality, adequacy, and frequency of information exchange are closely related to increased collaboration in the supply chain and overall performance (Eckerd et al., 2016; Fischer, 2013).

2.4 Quality Collaborative Communication

Effective communication between companies is essential to formulate strategies that can increase revenue in a highly competitive business environment (Chamidah et al., 2020). Thus, collaborative communication is one of the competitive resources that companies need to develop in a dynamic market. In the context of the relationship between manufacturers and suppliers, collaborative communication is defined as the degree to which manufacturers communicate with their suppliers routinely, formally, and reciprocally, while using a rational approach to influence them.

2.5 Supplier Performance

The concept of supplier performance describes various efforts by manufacturers to improve the performance of their suppliers (Dorsch et al., 1998). Supplier development is defined as all efforts made by the purchasing company to improve the performance and capabilities of their suppliers in meeting the company's supply needs (Wilson, 1995).

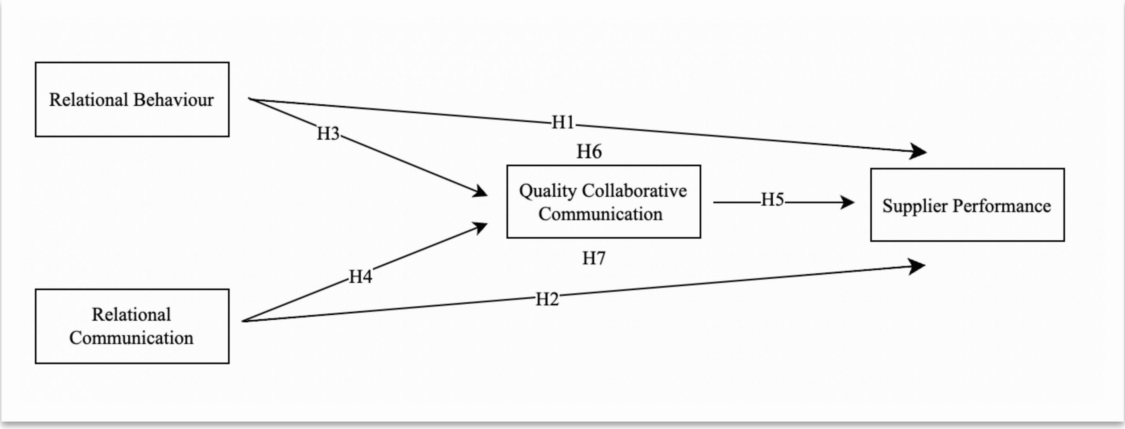

Figure 1. Conceptual Framework

Hypothesis
H1 : Relational Behavior has a positive effect on Supplier Performance
H2 : Relational Communication has a positive effect on Supplier Performance
H3 : Relational Behavior has a positive effect on Quality Collaborative Communication
H4 : Relational Communication has a positive effect on Quality Collaborative Communication
H5 : Quality Collaborative Communication has a positive effect on Supplier Performance
H6 : Quality Collaborative Communication mediates the relationship between Relational Behaviour and Supplier Performance

H7 : Quality Collaborative Communication mediates the relationship between Relational Communication and Supplier Performance

3. Research Methodology

3.1 Sample and Data Collection

This study used a sample of 36 respondents who were brown sugar makers/farmers in Cipaku Village, Purbalingga Regency. Using a simple random sampling method, namely selecting samples randomly from the population of brown sugar makers/farmers in the village. Data collection was carried out using a survey method with a questionnaire instrument using a Likert scale.

3.2 Data Analysis Techniques

Data analysis was conducted using SPSS (Statistical Package for the Social Sciences) software. Data analysis techniques used include:

3.2.1 Instrument Test

The first stage of analysis includes instrument testing, which consists of validity and reliability tests. Validity testing is carried out to ensure the validity of each question item, while reliability testing is used to test the internal consistency of variables.

3.2.2 Classical Assumption Test

Next, a classical assumption test is carried out which includes normality, multicollinearity, and heteroscedasticity tests. The normality test uses the Kolmogorov-Smirnov method to ensure normal distribution of data. The multicollinearity test is carried out by examining the Tolerance and VIF (Variance Inflation Factor) values to detect whether there is a correlation between independent variables. The heteroscedasticity test uses the Glejser method to test the equality of residual variances between observations.

3.2.3 Regression Test

The main analysis uses multiple linear regression to test the effect of independent variables on the dependent variable. Hypothesis testing is carried out through the t-test to test the significance of the influence of each independent variable partially, and the F-test to test the significance of the influence of all independent variables simultaneously.

3.2.4 Coefficient of Determination (R^2)

Finally, the coefficient of determination (R^2) is calculated to measure how well the model is able to explain the variation in the dependent variable.

4. Results and Discussion

The output results above are used in the path analysis model:

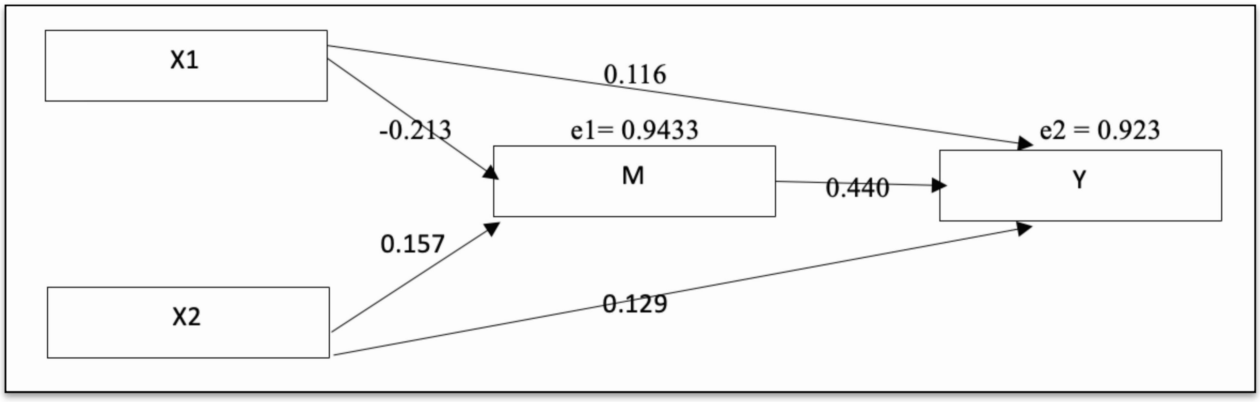

Figure 2. Results Model

4.1 Descriptive Statistics Results

Table 1. Descriptive Statistic Results

	N	Minimum	Maximum	Mean	Std. Deviation
Relational Behaviour	36	4.00	4.00	4.0000	.00000
Relational Behaviour	36	3.00	5.00	4.5556	.60684
Relational Behaviour	36	3.00	5.00	4.3611	.63932
Relational Behaviour	36	3.00	5.00	4.1389	.59295
Relational Behaviour	36	3.00	5.00	4.2222	.54043
Relational Behaviour	36	3.00	5.00	4.2778	.70147
Relational Communication	36	4.00	5.00	4.0833	.28031
Relational Communication	36	3.00	5.00	4.3056	.66845
Relational Communication	36	3.00	5.00	4.1944	.57666
Relational Communication	36	3.00	5.00	4.2500	.50000
Relational Communication	36	3.00	5.00	4.1389	.68255
Relational Communication	36	3.00	5.00	4.2500	.64918
Relational Communication	36	4.00	5.00	4.3056	.46718
Relational Communication	36	3.00	5.00	4.1944	.57666
Relational Communication	36	3.00	5.00	4.2778	.56625
Supplier Performance	36	3.00	5.00	4.0556	.41019
Supplier Performance	36	3.00	5.00	4.3611	.54263
Supplier Performance	36	3.00	5.00	4.4167	.55420
Supplier Performance	36	3.00	5.00	4.1944	.62425
Supplier Performance	36	3.00	5.00	4.4167	.60356
Valid N (listwise)	36				

4.2 Classical Assumption Test

4.2.1 Normality Test Results

Table 2. Normality Test Results

		Unstandardized Residual
N		36
Normal Parameters[a,b]	**Mean**	.0000000
	Std. Deviation	.97446837
Most Extreme Differences	**Absolute**	.126
	Positive	.068
	Negative	-.126
Test Statistic		.126
Asymp. Sig. (2-tailed)		.162[c]

		Unstandardized Residual
N		36
Normal Parameters[a,b]	**Mean**	.0000000
	Std. Deviation	.85587639
Most Extreme Differences	**Absolute**	.090
	Positive	.055
	Negative	-.090
Test Statistic		.090
Asymp. Sig. (2-tailed)		.200[c,d]

Source: SPSS Data Processing 26

Based on the normality test, the Asymp. Sig value is > 0.05, so it is said that the data is normally distributed.

4.2.2 Multicollinearity Test Results

Table 3. Multicollinearity Test Results

	Collinearity Statistic		
Model	**Tolerance**	**VIF**	**Keterangan**
Persamaan 1			
X1	0.998	1.002	There is no multicollinearity
X2	0.998	1.002	There is no multicollinearity
Persamaan 2			
X1	0.952	1.050	There is no multicollinearity
X2	0.973	1.038	There is no multicollinearity
Z	0.933	1.072	There is no multicollinearity

Source: SPSS Data Processing 26

The tolerance value for all variables > 0.1 and the VIF value < 10 means that there is no multicollinearity.

4.2.3 Heteroscedasticity Test Results

Table 4. Heteroscedasticity Test Results

Coefficients[a]				
Model	Unstandardized Coefficients	Standardized	t	Sig.

				Coefficients		
		B	Std. Error	Beta		
1	(Constant)	.308	3.503		.088	.930
	Total X1	-.029	.089	-.057	-.330	.744
	Total X2	.032	.072	.078	.448	.657
a. Dependent Variable: ABS_RES1						

Table 5. Heteroscedasticity Test Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.364	3.903		1.374	.179
	Total X1	-.046	.087	-.094	-.531	.599
	Total X2	-.042	.070	-.106	-.605	.550
	Total Z	-.091	.094	-.173	-.968	.340
a. Dependent Variable: ABS_RES2						

Source: SPSS Data Processing 26

Sign value > 0.05 means that there is no heteroscedasticity.

4.3 Classical Assumption Test

4.3.1 T-Test Results

Table 6. T Tests

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.740	6.172		3.523	.001
	Total X1	-.199	.157	-.213	-1.266	.215
	Total X2	.119	.128	.157	.935	.356
a. Dependent Variable: Total M						

Table 7. T Tests

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.258	6.457		.969	.340
	Total X1	.104	.143	.116	.725	.474
	Total X2	.094	.115	.129	.817	.420
	Total M	.422	.155	.440	2.720	.010
a. Dependent Variable: Total Y						

4.4 Coefficient of Determination (R^2)

Table 8. T Tests

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.260[a]	.067	.011	1.00356
a. Predictors: (Constant), Total X2, Total X1				
b. Dependent Variable: Total M				

Table 8. T Tests

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.470[a]	.220	.147	.89510
a. Predictors: (Constant), Total M, Total X2, Total X1				
b. Dependent Variable: Total Y				

E1 = $\sqrt{(1 - Adj\ R\ Square}$ persamaan 1

= $\sqrt{(1 - 0.011}$

= $\sqrt{0.89}$

= 0.9433

E2 = $\sqrt{(1 - Adj\ R\ Square}$ persamaan 2

= $\sqrt{(1 - 0.147}$

= $\sqrt{0.853}$

= 0.9423

5. Discussion

5.1 Analysis of the influence of relational behavior on supplier performance

The result is 0.474 > 0.05 (rejected). The results of the study indicate that there is no significant effect between relational behavior and supplier performance. The context of the brown sugar industry may have unique characteristics that distinguish it from other industries. The results of this study are based on (Villena et al., 2011) that relationships that are too close can have a negative effect on performance, a phenomenon called "the dark side of buyer-supplier relationships". This may explain why relational behavior does not always lead to improved supplier performance.

5.2 Analysis of the influence of relational communication on supplier performance

Results 0.420 > 0.05 (rejected). The results show no significant influence between relational communication and supplier performance. The results of this study are based on research (Kottila and Rönni, 2008) which concluded that although communication is important, it does not always lead to improved performance in the organic supply chain.

5.3 Analysis of the influence of relational behavior and relational communication on the quality of collaborative communication

Results 0.215 > 0.05 (rejected) and Results 0.356 > 0.05 (rejected). Both independent variables do not show a significant effect on quality collaborative communication. This is contrary to the findings of Paulraj et al. (2008) which showed a positive relationship between relational behavior and inter-organizational communication quality. The specific characteristics of the brown sugar industry may affect how relational behavior and communication are translated into quality collaborative communication. The effectiveness of communication in the supply chain depends not only on behavior and intention, but also on the alignment of technology and business processes (Chang et al., 2013).

5.4 Analysis of the Influence of Quality Collaborative Communication on Supplier Performance

The result is 0.010 < 0.05 (accepted). In accordance with the hypothesis and previous research by Joshi (2009) who found that the quality of communication between buyers and suppliers contributes positively to improving the operational and strategic performance of suppliers.

5.4 Mediation Effect of Quality Collaborative Communication

The direct influence given by X1 to M is -0.213. While the indirect influence of X1 through M to Y is the multiplication of the beta value of X1 to Y with the beta value of M to Y, which is 0.116 x 0.440 = 0.051 then added with the influence of X1 to M so 0.051 + (-0.213) = -0.162. The results show that indirectly X1 through M to Y shows an insignificant influence. (because -0.162 < 0.051).

The direct influence given by X2 to M is 0.157. While the indirect influence of X2 through M to Y is the multiplication of the beta value of X2 to Y with the beta value of M to Y, which is 0.129 x 0.440 = 0.0567 then added with the influence of X2 to M so 0.056 + 0.157 = 0.213. The results show that indirectly X2 through M on Y shows a significant influence. (because 0.213 > 0.0567).

The results show that M does not mediate the relationship between X1 and Y, but mediates the relationship between X2 and Y. The results show that M does not mediate the relationship between X1 and Y, but mediates the relationship between X2 and Y. This shows the complexity of the relationship between variables in the context of the brown sugar industry. Terpend et al. (2008) in their review of buyer-supplier relationships found that the effects of relational practices can vary depending on the industry context and specific relationship characteristics. This may explain the differences in mediation effects found in this study.

6. Conclusion

The results of this study indicate that in the context of the brown sugar industry, the relationship between relational behavior, relational communication, collaborative communication quality, and supplier performance is more complex than previously thought. Although relational behavior and relational communication do not have a significant direct effect on supplier performance, collaborative communication quality is proven to be an important factor affecting performance. This finding opens up opportunities for further research on contextual factors that may affect the dynamics of buyer-supplier relationships in this industry.

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