

Human Resource Digital Competence on Consumer Loyalty Through Satisfaction as an Intervening Variable Micro, Small, and Medium Culinary Businesses in Indonesia

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Abstract

This study aims to analyze the effect of Human Resource Digital Competence on Consumer Loyalty, with Satisfaction as an intervening variable in Micro, Small, and Medium culinary businesses in Palopo City. The background of this study is based on the importance of Human Resource Digital Competence in providing responsive, efficient, and innovative services to enhance consumer experience in the digital era. The method used in this study is a quantitative approach, through the distribution of questionnaires to 100 respondents who are consumers of culinary Micro, Small and Medium Enterprises. The data was then analyzed using Structural Equation Modeling (SEM) techniques using SmartPLS software to test the direct and indirect relationships between variables. The results showed that each variable had a high level of statistical significance. Furthermore, satisfaction was proven to be a mediator linking Human Resource Digital Competence to consumer loyalty, indicating that the higher the digital capabilities of Human Resources, the greater the consumer satisfaction, which ultimately strengthens consumer loyalty. This finding confirms that satisfaction is an important factor linking Human Resource Digital Competence to Consumer Loyalty. This research provides practical implications for micro, small, and medium culinary businesses in Palopo City to continue to improve.

Keywords: Human_Resource; Digital_Competence; Satisfaction; Consumer Loyalty; Culinary_Businesses.

1. Introduction

Globalization and technological advances have brought about many transformations in human life, where access to information that was once limited to print media or radio can now be easily accessed through the internet and various digital devices. Rapid developments in technology are also driven by the human desire to complete various tasks in a faster, more efficient, and more practical manner, thereby directly influencing consumption patterns and public expectations regarding service quality. These technological innovations not only affect consumer satisfaction, but also encourage businesses, including micro, small, and medium culinary enterprises in Indonesia, to improve product and service quality through the use of digital technology [1].

Amidst digital developments that are changing the way micro, small, and medium enterprises in the culinary sector interact with customers, from ordering through GoFood/GrabFood to managing real-time reviews, digital skills in human resources (the ability to use platforms, create content, understand simple CRM, POS/analytics, and data literacy) have become essential requirements for providing responsive services (fast, accurate, and empathetic) in reducing service barriers, increasing customer satisfaction, and ultimately converting it into repeat loyalty. This context is increasingly relevant in Palopo City, as the

growth of its culinary ecosystem is driven by household consumption and local government programs such as training for Micro, Small, and Medium Enterprises and product selection [2].

The development of the digital economy has driven rapid changes in the micro, small, and medium enterprise (MSME) model, especially in the culinary industry, which has been the fastest to adapt to technologies such as online ordering, electronic payments, and digital-based marketing. In various regions, including Palopo City, the use of digital tools such as QRIS, e-commerce platforms, and digital finance has influenced how MSME players serve their customers and manage their business administration. However, the level of digital readiness and understanding among MSME players still varies, making efforts to improve human resource competencies crucial to maximizing the benefits of digitalization [3].

Human resource digital competence not only impacts internal activities (such as record keeping, marketing, and services), but also affects customer experience. Research on digital transformation and digital competence shows a positive relationship between increased digital capabilities among employees and organizational results and productivity, which has the potential to increase customer satisfaction if implemented properly (e.g., faster service, clearer product information, and better customer response). Given that customer satisfaction is often a strong indicator of consumer loyalty, the digital capabilities of human resources have the opportunity to become a key factor that indirectly influences customer loyalty through satisfaction [4].

The phenomenon of title selection by researchers is based on the urgency of digital transformation, which requires human resources to have competent digital skills so that micro, small, and medium enterprises can efficiently use digital media, e-commerce, and online marketing technology. Recent research indicates that human resource capabilities have a significant impact on the digitization process of Micro, Small, and Medium Enterprises, including aspects of digital literacy and infrastructure, which directly affect business outcomes [5]. The culinary sector, particularly in Palopo City, which is known as the center of growth for Micro, Small, and Medium Enterprises (MSMEs) in South Sulawesi, faces intense competition, making customer satisfaction and loyalty key factors in maintaining business continuity. Previous research has also found that effective digital communication can increase customer satisfaction and appeal in culinary MSMEs [6]. Interactions using digital touchpoints have an impact on loyalty through satisfaction. However, research specifically examining the relationship between digital competence of human resources, satisfaction, and consumer loyalty in micro, small, and medium culinary businesses in Palopo City and in the Indonesian context is very limited. Therefore, this study is expected to contribute theoretically by filling the gap in the literature and providing practical benefits for culinary MSME players in designing digital strategies based on human resource competencies to increase customer satisfaction and loyalty.

Based on the background mentioned above, the researcher will conduct research on “How Human Resource Digital Competence Affects Consumer Loyalty through Satisfaction as an Intervening Variable in Indonesian Micro, Small, and Medium Culinary Businesses” in 2025.

2. Methodology

The type of research used in this study is a quantitative approach that aims to collect and analyze data. The focus of this study is on more objective measurements, data collection in the form of numbers, and statistical analysis to identify patterns or significant relationships between the variables being studied

The population that is the focus of this study includes all consumers of Micro, Small and Medium Culinary Businesses in Palopo City. The sample in this study took 100 respondents from consumers who visited Micro, Small and Medium Culinary Businesses in Palopo City. The population involved in this study consists of consumers who visit Micro, Small and Medium Culinary Enterprises in Palopo City, who also serve as the objects of observation. The determination of the population is expected to represent a larger population, so that the results obtained can be used for generalization. In this study, several data collection techniques will be applied as follows:

- a. Questionnaires, which are a data collection method involving a series of questions systematically arranged to be answered by respondents, will be the benchmark for obtaining valid and reliable data.
- b. Interviews are a method of data collection conducted in depth by distributing questionnaires through informants to explore further information about the issues discussed in this study.
- c. Documentation is one of the data collection techniques carried out directly by filling out questionnaire answers as one of the data used to support this research.

3. Results and Discussion

3.1. Descriptive Analysis Results

3.1.1. Respondent description

This study involved 100 consumers from Micro, Small, and Medium Culinary Businesses in Palopo City. This data collection contains descriptive information about the respondents who were the focus of this study. This data collection provides a clear and concise explanation of the current consumer situation. Participants in this study were categorized according to gender, age, and education level.

Table 1. Description of respondents

Description	Demographics	Frequency	Percentage
Gender	Male	51	51%
	Women	49	49%
Total		100	100%
Age	20 – 30	81	81%
	31 – 40	15	15%
	>40	4	4%
Total		100	100%
Education	High School	20	20%
	Associate Degree	5	5%

	Bachelor	75	75%
Total		100	100%

Source: Data processed in 2025

Table 1 shows that there were 49 female respondents, equivalent to 49% of the total number of respondents, while 51 respondents, or 51%, were male. In the 20-30 age group, there were 81 respondents, representing 81% of the total respondents. For the 31-40 age group, there were 15 respondents, representing 15% of the total respondents. Meanwhile, in the over-40 age group, there were 4 respondents, representing 4% of the total respondents. The majority of respondents had a bachelor's degree, namely 75 respondents or 75% of the total respondents.

3.2. Validity test results

3.2.1. konvergen Convergent validity test results (convergent validity)

Convergent validity is an evaluation conducted for each indicator related to the construct. If the outer loading value for each indicator is greater than 0.70, then the construct indicator can be considered valid. The following are the results of the convergent validity test:

Table 2. Convergent Validity

	Satisfaction (Z)	Human Resource Digital Competency (X)	Customer Loyalty (Y)
X1		0.845	
X2		0.817	
X3		0.733	
X4		0.735	
X5		0.777	
Y1			0.828
Y2			0.826
Y3			0.792
Y4			0.821
Y5			0.790
Z1	0.733		
Z2	0.847		
Z3	0.856		
Z4	0.843		
Z5	0.866		

Source: SmartPLS program data output

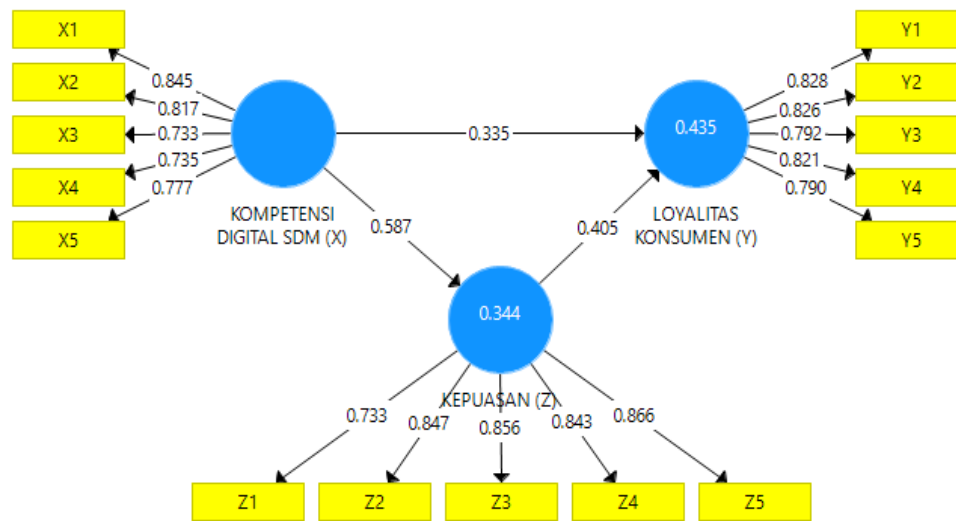


Figure 1. Loading Factor Path Diagram

Based on the above results, it can be seen that each indicator of the questions has an outer loading value of more than 0.70, so it can be concluded that all indicators in the research variables are valid. Based on the outer loading output, it can be seen that the factor loading values for all indicators in each construct have met convergent validity, because all factor loadings of each indicator are greater than 0.70.

3.2.2. Average Variance Extracted test results (AVE)

The value measured is Average Variance Extracted (AVE), which is expected to be greater than 0.5. The AVE value that has been obtained and tested for validity is shown in the following table:

Table 3. Average Variance Extracted Values

Variable	Average Variance Extracted (AVE)
Human Resource Digital Competency (X)	0.690
Satisfaction (Z)	0.612
Customer Loyalty (Y)	0.659

Source: SmartPLS program data output

Based on the table above, it can be seen that the Average Variance Extracted value for each variable in this study is greater than 0.5. Thus, it can be concluded that all variables are valid and suitable for use in SEM model testing.

3.2.3. Reliability Test

Reliability testing is a method for assessing how consistent measurement results are when repeated with the same object. The method used for consistency testing is the Cronbach's alpha formula. The level of reliability can be seen from the reliability coefficient produced. The reliability standard is that if the alpha is greater than 0.7, then the reliability is considered sufficient. If the alpha exceeds 0.80, this indicates that all items can be considered reliable. If

the alpha ranges from 0.70 to 0.90, the reliability is considered high. Meanwhile, if the alpha is between 0.50 and 0.70, the reliability is categorized as moderate. If the alpha is less than 0.50, the reliability is considered low.

Table 4. Composite Reliability and Cronbach Alpha Values

Variable	Cronbach Alpha	Composite Reliability
Satisfaction (Z)	0.886	0.917
Human Resource Digital Competency (X)	0.840	0.887
Customer Loyalty (Y)	0.871	0.906

Source: SmartPLS program data output

The lowest acceptable threshold for Cronbach Alpha is 0.6, which indicates a reliable value. Similarly, the minimum threshold for Composite Reliability is 0.7. Based on the table above, all variables in the SEM model analyzed show Cronbach Alpha values exceeding 0.6 and Composite Reliability values greater than 0.7. Thus, it can be concluded that the SEM model is reliable.

3.2.4. Analysis of the influence between research variables

The purpose of SEM analysis is to measure the extent to which independent variables influence dependent variables. The results of Structural Equation Modeling (SEM) using inter-variable influence analysis can be seen in the following figure:

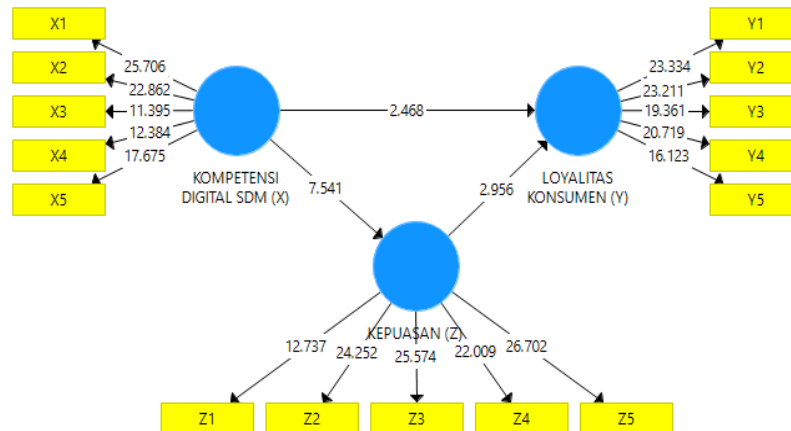


Figure 2. Impact of the relationship between research variables

This study examines the effect of Human Resource Digital Competence (X) through Satisfaction (Z) on Consumer Loyalty (Y). This analysis is also used to evaluate the hypotheses proposed in the study. The magnitude of the direct effect of these variables is shown in the following table.

Table 5. Influence values of research variables

Direct Influence	T count	T table	P value	Cut-off value
Human Resource Digital Competency (X) -> Customer Loyalty (Y)	2.449	1.661	0.015	0.05
Human Resource Digital Competency (X) -> Satisfaction (Z)	7.292	1.661	0.000	0.05
Satisfaction (Z) -> Customer Loyalty (Y)	2.886	1.661	0.004	0.05

Source: SmartPLS program data output

Based on the information in the table above, hypothesis testing can be carried out in the following manner:

1. The first hypothesis shows that the T-statistic analysis produces a calculated T value of 2.449, which exceeds the table T value of 1.661, and the recorded P value of 0.015 indicates statistical significance because the number is lower than the significance threshold of 0.05. This means that the Human Resource Digital Competence variable has a positive and significant effect on Customer Loyalty. The initial hypothesis stating that Human Resource Digital Competence positively and significantly affects Customer Loyalty has been proven.
2. The second hypothesis shows that the T-statistic analysis produces a calculated T of 7.292, which is higher than the table T of 1.661, and a measured P-value of 0.000, which indicates statistical significance at the 0.05 level. Therefore, the Human Resource Digital Competence variable has a positive and significant impact on customer satisfaction. Thus, the second hypothesis, which states that Human Resource Digital Competence has a positive and significant effect on customer satisfaction, is proven to be true.
3. The third hypothesis shows that the T-statistic analysis produces a calculated T value of 2.886, which is greater than the table T value of 1.661, and has a P value of 0.004, which indicates statistical significance because it is smaller than the significance threshold of 0.05. Therefore, the variable that measures satisfaction is very influential and beneficial to customer loyalty. The third hypothesis, which states that Satisfaction has a positive and significant effect on Customer Loyalty, has been confirmed.

This study examines the indirect effect of Human Resource Digital Competence (X) on Consumer Loyalty (Y) through Satisfaction (Z). The table below shows the extent to which variable X indirectly affects Y through Z.

Table 6. Indirect effects of research variables

Indirect influence	T count	T table	P value	Cut-off value
Human Resource Digital Competency (X) -> Satisfaction (Z) -> Customer Loyalty (Y)	2.441	1.661	0.015	0.05

Source: SmartPLS program data output

4. The fourth hypothesis states that the T-statistic analysis produces a calculated T value of 2.441, which is higher than the table T value of 1.661, with a P value of 0.015, indicating

significance because the value is smaller than the significance threshold of 0.05. Thus, Human Resource Digital Competence shows a significant effect on Customer Loyalty through Satisfaction. The fourth hypothesis shows that Human Resource Digital Competence has a positive and significant impact on Customer Loyalty through Satisfaction, which has been proven to be true.

This study examines the effect of one variable, namely Human Resource Digital Competence (X), on two outcomes, namely Satisfaction (Z) and Consumer Loyalty (Y). This effect can be seen through the results of the determination analysis. The purpose of the determination analysis is to assess the extent to which the independent variables jointly influence the dependent variable. The results of the determination analysis for the Structural Equation Modeling (SEM) model can be seen in the following table:

Table 6. Influence of research variable determinants

	R Square	R Square adjusted
Satisfaction (Z)	0,344	0,338
Consumer Loyalty (Y)	0,435	0,423

Source: SmartPLS program data output

The table above shows that the R Square value for the Satisfaction (Z) variable is 0.344. This indicates that the independent variables in this study are able to explain 34.4% of the variation in satisfaction, while the remaining 65.6% is influenced by factors outside the scope of this study. The Adjusted R Square value is 0.338, which indicates that there has been an adjustment so that the model remains reliable even with the addition of variables.

On the other hand, the R Square value for the Consumer Loyalty variable (Y) is 0.435, which indicates that the independent variables (including the intervening variable of Satisfaction) can explain 43.5% of the variation in consumer loyalty, while the remaining 56.5% is influenced by other factors outside the scope of this study. The Adjusted R Square value of 0.423 indicates that the model used is quite good and has fairly strong predictive power.

3.3. Discussion

3.3.1. The Influence of Human Resource Digital Competence on Consumer Loyalty

The findings of this study indicate that Human Resource Digital Competence has a positive and significant effect on Consumer Loyalty in culinary Micro, Small and Medium Enterprises in Palopo City. Human Resources who have the digital skills to operate online ordering platforms, actively interact through social media, and utilize digital payment systems can provide a more satisfying service experience for customers. This situation creates a comfortable and practical atmosphere that increases consumer confidence to continue choosing culinary products from the same Micro, Small, and Medium Enterprises. Consumers who feel effectively served through digital platforms tend to show loyalty by making repeat purchases and giving positive recommendations to others. The results of this study are in line with

previous research [6] which shows that digital communication has a significant influence on customer satisfaction and retention in culinary Micro, Small and Medium Enterprises in Bandung, as well as research [7] which confirms that digital marketing strategies contribute to increased consumer loyalty among Micro, Small, and Medium Enterprises in the era of Industry 4.0.

Digital competence in human resources also serves as a business sustainability strategy amid intense competition in the culinary micro, small, and medium enterprise sector. With digital skills, human resources can not only improve service quality, but also create service differentiation that focuses on consumer needs. The resulting consumer loyalty becomes a valuable asset for micro, small, and medium enterprises as it strengthens their competitive position in the market. This is reinforced by research [8] which states that digital literacy and the use of e-commerce have a significant contribution to the performance of Micro, Small and Medium Enterprises. Therefore, digital capabilities in Human Resources can be considered an important element that not only improves internal efficiency, but can also build long-term relationships with consumers through loyalty.

3.3.2. The Influence of Human Resource Digital Competence on Customer Satisfaction

The findings from this study indicate that Human Resource Digital Competence has a positive and significant effect on Customer Satisfaction in culinary Micro, Small, and Medium Enterprises in Palopo City. Human resources who are skilled in using information technology, social media, online ordering applications, and digital communication systems are able to provide faster, more responsive services that meet customer expectations. This type of service experience creates satisfaction because consumers feel that the service not only meets their practical needs but also provides convenience and comfort when interacting digitally. These results are in line with research conducted in Purworejo Regency, which shows that developing the digital competence of human resources can significantly increase productivity and customer satisfaction through improved business efficiency and market expansion [9].

The satisfaction that arises from this Digital Competence of Human Resources also reinforces consumers' positive views of the brand or culinary business, which has the potential to increase repeat purchases and recommendations to others. For example, in a study entitled "Adoption of Digital Technology and Sales Performance Improvement among Indonesian SMEs", digital literacy and the adoption of digital technology have been proven to increase consumer satisfaction before having an impact on sales [10] Thus, Human Resource Digital Competence is not merely an internal technical factor, but also an important foundation in creating a satisfying consumer experience, which ultimately contributes to the loyalty and sustainability of culinary Micro, Small and Medium Enterprises.

3.3.3. The Effect of Satisfaction on Customer Loyalty

The findings from this study indicate that customer satisfaction has a positive and significant effect on customer loyalty in micro, small, and medium culinary businesses in

Palopo City. Customers who are satisfied with product quality, speed of service, and ease of access through digital platforms are often more committed to making repeat purchases and are less likely to switch to competitors. Customer satisfaction plays an important role in creating customer loyalty in culinary micro, small, and medium enterprises. When customer expectations are met, in terms of product quality, service, and overall experience, they tend to make repeat purchases and maintain long-term relationships with service providers. This is supported by research conducted by [11] in Micro, Small, and Medium Enterprises Nagih Kuliner, which shows that customer satisfaction plays an important role in creating long-lasting loyalty. In line with this [12] shows that product quality and price perception can increase satisfaction, which ultimately impacts customer loyalty. Thus, customer satisfaction can be seen as a key factor in determining customer loyalty, including for micro, small, and medium culinary businesses in Palopo City.

Customer satisfaction not only influences short-term loyalty, but also shapes emotional attachment and long-term trust in culinary Micro, Small and Medium Enterprises. This study is in line with research by [13] which shows that customer loyalty has a strong correlation with customer satisfaction. This explains that the level of customer loyalty is inversely proportional to the level of satisfaction experienced with a product or service. If customers do not feel satisfied, they tend to be disloyal to the products or services offered. Many factors influence customer loyalty, including feelings of satisfaction, happiness, level of trust, convenience, and overall experience.

3.3.4. The Effect of Human Resource Digital Competence on Consumer Loyalty through Satisfaction

The findings of this study indicate that Human Resource Digital Competence has a positive effect on Customer Loyalty through Satisfaction as an intervening variable. Human Resources who are proficient in the use of digital technology are able to provide services that are faster, more efficient, and tailored to consumer needs, which ultimately strengthens the positive experience of customers. This is in line with the results of the study [14] which states that digital competence plays an important role in improving service quality and performance, thereby impacting customer satisfaction.

Satisfaction as an intervening variable shows that customer loyalty is not only formed directly from digital competence, but also through the satisfying experiences of consumers. Human resources who are proficient in digital technology can respond to customer needs in a more personalized manner, maintain intensive communication, and provide consistent services, thereby building trust and emotional attachment among consumers. This study is consistent with the findings [6] which states that effective digital communication can increase customer satisfaction while retaining customers in the culinary Micro, Small and Medium Enterprises, as well as [7] emphasizes that customer satisfaction is an important factor in building customer loyalty in the era of digital marketing. Thus, satisfaction has proven to be a strategic link between Human Resource Digital Competence and Customer Loyalty in Micro, Small and Medium Enterprises in the culinary sector in Indonesia, especially in the city of Palopo.

4. Conclusion

The results of the study indicate that Human Resource Digital Competence has a positive effect on Customer Satisfaction, where this satisfaction functions as an intervening variable that strengthens the relationship between Human Resource Digital Competence and Customer Loyalty of Micro, Small, and Medium culinary businesses in Palopo City. This indicates that the development of digital skills in human resources not only affects business operational efficiency, but also plays a role in creating satisfaction that contributes to sustainable Customer Loyalty.

Human Resource Digital Competence plays a very important role in creating satisfaction and encouraging consumer loyalty in micro, small and medium culinary businesses in Palopo City. Human Resource Digital Competence in terms of mastery of online marketing, digital communication, and application-based services has been proven to improve consumer experience, resulting in higher levels of satisfaction. This satisfaction then functions as an intervening variable that strengthens the influence of Digital Competence of Human Resources on Customer Loyalty, as reflected in consumers' willingness to make repeat purchases, give positive reviews, and choose the same culinary Micro, Small, and Medium Enterprises even amid fierce competition. This confirms that efforts to improve Human Resource Digital Competence not only provide internal benefits for business efficiency but also have a strategic impact in establishing long-term relationships with consumers. Thus, this study emphasizes the importance of developing digital strategies that focus on Human Resources and Customer Satisfaction as the basis for creating Loyalty, as well as providing a real contribution to the development of literature and management practices for culinary Micro, Small, and Medium Enterprises in the digital era, particularly in the local context of Palopo City and more broadly in Indonesia.

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