

# THE IMPACT OF FINANCIAL LITERACY AND DIGITAL PAYMENT TRUST ON CASH ON DELIVERY PREFERENCE AND ITS IMPLICATION FOR PERCEPTION OF LAST MILE DELIVERY PERFORMANCE

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## Abstract

In 2023, online shopping transaction value has reached IDR 1,100 trillion, in which 75,19% of those were done by Cash on Delivery (COD) transaction method. However, National financial literacy index in 2023 was 65.43%, which theoretically should encourage the use of digital payments. This research seeks to investigate the impact of Financial Literacy (FL) and Digital Payment Trust (DPT) on Cash on Delivery (COD) preference and its implication for perception of Last Mile Delivery (LMD) performance. Using an explanatory quantitative approach with PLS-SEM analysis on 60 respondents, the result shows that FL has positive and significant impact on LMD through COD preference ( $\beta=0,241$ ;  $p=0,001$ ). This supports the notion that financially literate consumers choose COD as a risk mitigation plan to gain full control over transaction. Conversely, DPT has negative and significant impact on LMD through COD preference ( $\beta=-0,376$ ;  $p=0,001$ ). This behavior appears due to COD as a considered adaptation strategy and substitute for trust when the reliability of digital payment systems in the online shopping ecosystem is questioned. Furthermore, COD preference has positive and significant impact on perception of LMD performance ( $\beta=0,613$ ;  $p=0,001$ ) because direct face-to-face interaction provide a more tangible sense of security for consumers. This research concludes that COD preference is an intervening variable that explains why high financial literacy does not necessarily encourage payment digitalization, but rather strengthens cash methods as measurable risk protection in the logistics ecosystem, particularly for online shopping.

**Keywords:** Financial Literacy, Digital Payment Trust, Cash on Delivery (COD), Perception of Last Mile Delivery Performance.

## 1. INTRODUCTION

Indonesia's online shopping transactions growth shows a significant trend, driven by digitalization efforts and public preference for online shopping platforms. A 2023 report from Indonesian Central Bureau of Statistics stated that online shopping transactions reached value up to 1,100 trillion Rupiah, with 75.19% of online transactions done by cash or Cash on Delivery (COD) payments. By this method, consumers could receive the goods without the need to transfer funds before the delivery.

On the other hand, a 2023 report from Indonesian National Survey of Financial Literacy and Inclusion stated a Financial Literacy Index was 65.43%, meaning that out of 100 people, 65 of them had good financial literacy. Digital payment technology users

generally have better financial and digital literacy and are less vulnerable to financial risk (Seldal & Nyhus, 2022).

The urgency of this research is to highlight the continued dominance of COD payment methods despite relatively high levels of financial literacy, thus revealing a gap between knowledge and practiced behavior. On the contrary, the COD payment method can negatively impact logistics performance, given that the responsibility for payment settlement falls on the Last Mile Delivery officer (Yu et al., 2020).

This research explores the behavior of consumers who did choose the COD payment method in online shopping despite having high financial literacy and how this decision affects their perceptions of the performance of Last Mile Delivery services. Therefore, this research aims to address this phenomenon and provide a basis for developing a strategy to optimize LMD services based on customer behavior approaches.

This research also explores novelties that explain the gap between Financial Literacy (FL) levels and COD preferences in the context of online shopping, which has not been widely empirically researched; integrating Digital Payment Trust (DPT) variable as a factor explaining consumer COD preference; analyzing the impact of COD preference on perception of Last Mile Delivery (LMD) performance.

This research offers a new approach to expanding the literature on consumer behavior and logistics management by developing a causality model linking Financial Literacy (FL) and Digital Payment Trust (DPT) variable to Cash on Delivery (COD) preference and their implication for perception of Last Mile Delivery (LMD) Performance. Secondly, it serves as a strategic literature review for logistics service providers to develop optimal service policies by considering the social context and customer behavior.

### **1.1. The Role of Financial Literacy in COD Preference**

Financial Literacy (FL) is a series of knowledge, awareness, skills, behaviors, and attitudes used to determine appropriate financial actions. (Swiecka et al., 2020). Financial literacy can be measured through a person's knowledge, behavior, and attitudes and play an important role in determining intertemporal decision making, which is often influenced by self-control and long-term orientation (Ventre et al., 2024). Individuals with high financial literacy have higher levels of non-durable consumption, particularly for food, although this is not directly proportional to long-term consumption growth (Dinkova et al., 2021).

In Indonesia, Foster et al. (2022) found that financial literacy significantly influenced interest in using electronic money, with practicality and lifestyle also acting as mediators. This suggest that Financial Literacy can encourage an increase in other digital payment methods and reduce the use of COD methods.

*H1: Financial Literacy has a significant influence on Cash on Delivery Preference.*

### **1.2. The Role of Digital Payment Trust in COD Preference**

Digital Payment Trust (DPT) is one of the important elements that increases the use of digital payment systems. A study by Liu et al. (2025) shows that trust has both direct and indirect influences on cross-border shopping intentions, through satisfaction

and perceived risk. In meta-analytic studies, Handoyo (2024) emphasized that digital payment trust is one factor influencing consumer decisions in choosing a payment method, including preference for Cash on Delivery (COD).

Several studies have identified that the reason consumers choose Cash on Delivery (COD) is due to low levels of trust in data protection, security, and transparency of digital systems. Studies by Handoyo (2024) dan Tedjakusuma et al. (2025) show that when consumers doubt the reliability of a digital payment system, they tend to switch to Cash on Delivery (COD), which is perceived as providing greater control over transaction.

*H2: Digital Payment Trust has a significant influence on Cash on Delivery Preference.*

### **1.3. The Role of Cash on Delivery Preference in Perception of Last Mile Delivery Performance**

Consumer perception of Last Mile Delivery (LMD) service performance is crucial for e-commerce success, especially in developing countries like Indonesia. Karli & Tanyaş (2024) study explains that one of the important indicators that shape the perception of Last Mile Delivery (LMD) performance is on-time delivery and accessibility. Consumer expectations for fast delivery and accurate information are increasing, considering that payment interactions are made directly to the courier. This is demonstrated in a study by Alfarizi & Sari (2023) which highlighted that the behavior of using Cash on Delivery (COD) payments is influenced by expectations regarding performance and quality of information during the last mile delivery process.

*H3: Cash on Delivery Preference has a significant effect on Perception of Last Mile Delivery Performance.*

### **1.4. The Role of COD Preference as an Intervening Variable**

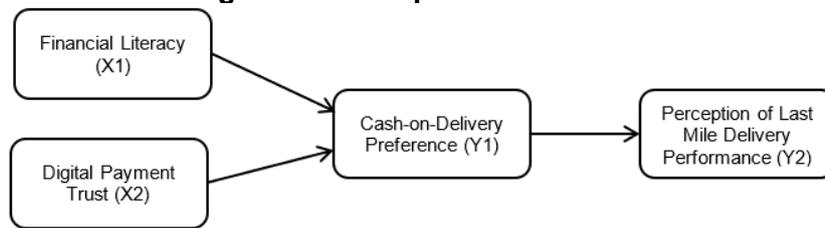
Cash on Delivery (COD) payment method facilitates the payment process via courier after receiving the order, not before the product is shipped. Preference for using COD is also strongly associated with consumer perceptions of last mile delivery performance. Yu et al. (2020) found that order traceability and distribution costs are key risk factors in a COD system that can impact consumer satisfaction. Additionally, factors such as security, package tracking, anticipation of excitement, and visual appeal also influence the overall user experience (Vrhovac et al., 2023). If the final delivery process is unreliable, such as due to delays, damage, or lack of tracking information, consumer trust in the system will decrease, and in turn, increase reliance on COD as a form of self-protection.

COD preference as an intervening variable, is a key factor transforming input from Financial Literacy (FL) and Digital Payment Trust (DPT) into the basis for consumers' perception of Last Mile Delivery (LMD) Performance. Financial Literacy plays an important role in forming decisions regarding the use of payment methods, and Digital Payment Trust (DPT) is a crucial prerequisite for consumer engagement, loyalty, and purchasing behavior in the digital ecosystem.

*H4: Financial Literacy significantly influences Perception of Last Mile Delivery Performance through Cash on Delivery Performance.*

*H5: Digital Payment Trust significantly influences Perception of Last Mile Delivery Performance through Cash on Delivery Performance.*

**Figure 1. Conceptual Framework**



Source: Conceived by the author (2026)

## 2. METHODOLOGY

### 2.1. Research Design

An explanatory quantitative approach was used in this research, with the aim of finding causal patterns between the variables studied, namely Financial Literacy (FL) and Digital Payment Trust (DPT), on Cash on Delivery (COD) preference, and its impact on perception of last-mile delivery performance. The quantitative approach was chosen because it allows for systematic measurement and analysis of relationships between variables using standardized instruments and valid statistical techniques (Hair et al., 2017).

Indicators used in Financial Literacy are FL-1 Personal financial management; FL-2 Saving and investing; FL-3 Debt management; FL-4 Financial decisions (Alfarizi & Sari, 2023; Swiecka et al., 2020; Ventre et al., 2024). Indicators used in Digital Payment Trust are DPT-1 Data Security; DPT-2 Accuracy of transaction processing; DPT-3 Convenience of using; DPT-4 Reliability system (Handoyo, 2024; Liu et al., 2025; Tedjakusuma et al., 2025). Indicators used in Cash on Delivery Preference are COD-1 Trust in direct payment; COD-2 Risk avoidance; COD-3 Ease of transaction; COD-4 Feeling safe in cash payment; COD-5 Frequency of use; COD-6 Control over transaction (Alfarizi & Sari, 2023; Karlı & Tanyaş, 2024). Indicators used in Perception of Last Mile Delivery Performance are LMD-1 Timely delivery; LMD-2 Courier professionalism; LMD-3 Item matches order; LMD-4 Delivery process; LMD-5 Ease of courier tracking; LMD-6 Accuracy of delivery information (Vrhovac et al., 2023; Yu et al., 2020).

### 2.2. Population dan Sample

The population in this research were e-commerce or social commerce consumers residing in Indonesia and who had experience shopping online using payment method Cash on Delivery (COD) within the past month. Purposive sampling is used as a data collection technique, with special criteria having made an online purchase in Indonesia within the past month and being at least 17 years old to assess their online shopping experience.

Referring to the PLS-SEM analysis requirements (Hair et al., 2017) which requires a minimum number of respondents of at least 10 times the maximum number of indicators. In this research, it was estimated that each construct would have a

maximum of six indicators, and 60 respondents were collected, thus meeting the minimum requirements for PLS-SEM analysis.

### 2.3. Data Analysis Technique

Hair et al. (2017) stated that PLS-SEM can be used to measure the outer structure model (research model) and the inner structure model (structural model). The outer structural model testing was conducted by measuring convergent validity based on factor loadings of at least 0,700 coupled with the measurement average variance extracted of at least 0,500. Furthermore, to ensure clear differences between constructs, The Fornell-Larcker method is used to measure the level of discriminant validity. Meanwhile, the Cronbach's alpha and composite reliability values of at least 0,700 are used to measure the reliability of the model.

Evaluation of the inner structural model are carried out to find causality patterns and levels of influence between variables by measuring the coefficient of determination (R-Squared) with criteria strong (>0,75), moderate (>0,50), and weak (>0,25). Furthermore, the minimum T statistic value of 1,65 and the maximum P value of 0,05 were measured for a 5% confidence level.

## 3. FINDINGS AND DISCUSSION

### 3.1. Respondent Demographics

For this research, 60 respondents were collected with details of 34 respondents (57%) male and 26 respondents (43%) female. If based on age, 50 respondents (83%) were over 25 years old and 10 respondents (17%) were between 17-25 years old. Based on online shopping frequency (during the last 1 month), 16 respondents (27%) only made 1 transaction, 30 respondents (50%) 2-5 transactions and 14 respondents (23%) more than 5 transactions.

### 3.2. Outer Model Result

Statistically, Table 1 states that all measured indicators achieved factor loadings >0,700. Table 2 describe that the value of AVE (average variance extracted) was >0,500 and meets convergent validity. This indicates that each indicator contributes significantly to explaining the construct being measured. The model's Reliability testing is carried out by measuring Cronbach's alpha and composite reliability, each yielded values at least 0,700, indicating that this research instrument has high internal consistency and meets the established minimum reliability standards.

**Table 1. Factor Loadings for Each Indicator**

	FL		DPT		COD		LMD	
	FL-1	0,715	DPT-1	0,715	COD-1	0,797	LMD-1	0,824
	FL-2	0,728	DPT-2	0,751	COD-2	0,799	LMD-2	0,830
	FL-3	0,737	DPT-3	0,808	COD-3	0,909	LMD-3	0,907
	FL-4	0,715	DPT-4	0,831	COD-4	0,783	LMD-4	0,893
					COD-5	0,877	LMD-1	0,900
					COD-6	0,721	LMD-2	0,892

Source: Primary Data Processed (2026)

**Table 2. Validity and Reliability Test Results for Research Variables**

Variable	Cronbach's Alpha	Composite Reliability	AVE
Financial Literacy	0,700	0,815	0,524
Digital Payment Trust	0,781	0,859	0,604
Cash on Delivery Preference	0,899	0,923	0,667
Perception of Last Mile Delivery Performance	0,939	0,951	0,765

Source: Primary Data Processed (2026)

**Table 3. Discriminant Validity Test Using Fornell-Larcker Method**

	FL	DPT	COD	LMD
Financial Literacy	0,724			
Digital Payment Trust	-0,263	0,777		
Cash on Delivery Preference	0,556	-0,718	0,817	
Perception of Last Mile Delivery Performance	0,378	-0,462	0,613	0,875

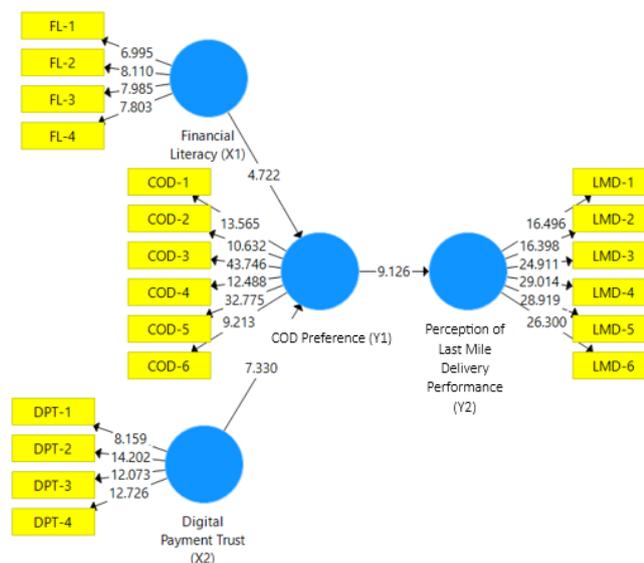
Source: Primary Data Processed (2026)

Furthermore, Table 3 describe the results of the discriminant validity test (Fornell-Larcker method) and found that square root value of AVE was consistently greater than each of the latent constructs, indicating clear differences between each construct.

### 3.3. Inner Model Results

A series of tests of the R-Squared (coefficient of determination), T-statistic, and P-value were used to test the inner model. Statistically, the variables such as Financial Literacy (FL) and Digital Payment Trust (DPT) influence the Cash on Delivery (COD) Preference variable by 66% (moderate) and the Perception of Last Mile Delivery (LMD) Performance variable by 37,5% (low). Therefore, this research model can be considered to have an adequate coefficient of determination.

**Figure 2. Bootstrapping, Path Coefficient, Factor Loading and P-Values Results**



Source: Primary Data Processed (2026)

**Table 4. Hypothesis Test Results Based on T-Statistic and P-Value**

Hypothesis	Path Coefficient	Mean	STDEV	T-Statistic	P-Value
H1: FL -> COD	0,394	0,398	0,083	4,722	0,001
H2: DPT -> COD	-0,614	-0,611	0,084	7,330	0,001
H3: COD -> LMD	0,613	0,622	0,067	9,126	0,001
H4: FL -> COD -> LMD	0,241	0,248	0,061	3,976	0,001
H5: DPT -> COD -> LMD	-0,376	-0,380	0,068	5,526	0,001

Source: Primary Data Processed (2026)

Table 4 shows the PLS-SEM results. Using a 5% confidence level, all T values are greater than 1,65 and all P values are less than 0,05. Figure 2 shows that all hypotheses are valid and significant based on the bootstrapping results.

### 3.4. Discussion

Based on statistical test results, Financial Literacy (FL) is a significant positive predictor of Cash on Delivery (COD) preference. The data strongly suggests the higher financial literacy level they tend to choose the COD payment method. In Indonesia, consumers with high Financial Literacy attributes view Cash on Delivery as a risk mitigation plan that allows them to gain full control over transaction. This aligns with the theory that financial literacy influences intertemporal decision-making driven by self-control (Ventre et al., 2024).

Meanwhile Digital Payment Trust (DPT) has a negative and significant effect on Cash on Delivery (COD) preference, meaning that increased trust in digital payment systems will significantly reduce consumer reliance on Cash on Delivery payment methods. When consumers doubt the reliability of a system or feel data protection is not guaranteed, they tend to turn to Cash on Delivery as a risk mitigation plan (Gómez-Hurtado et al., 2024). In this case, Cash on Delivery becomes a response or adaptive strategy to distrust in digital systems, particularly related to concerns about misuse of financial transaction data.

Cash on Delivery (COD) preference is a significant positive predictor of Perception of Last Mile Delivery (LMD) Performance, meaning that consumers who prefer Cash on Delivery (COD) tend to rate the final delivery performance more favorably. When consumers are directly involved in the payment settlement process, this experience provides a more tangible sense of security and transparency compared to passive cashless methods (Yu et al., 2020).

Furthermore, Cash on Delivery (COD) preference act as mediator. The secondary influence of Financial Literacy (FL) on perception of Last Mile Delivery (LMD) Performance through Cash on Delivery (COD) Preference is positive and significant. Good Financial Literacy (FL) encourages the choice of Cash on Delivery (COD) as a rational risk management strategy and allows consumers to directly evaluate delivery service performance. The secondary influence of Digital Payment Trust (DPT) on perception of Last Mile Delivery (LMD) Performance through Cash on

Delivery (COD) Preference is negative and significant. This indicates that low consumer trust drives increased use of Cash on Delivery (COD). These findings confirm that COD preference is not simply a payment method, but rather a connecting instrument that explains the relationship between financial behavior and consumer assessments of the overall operational process.

Ultimately, this research demonstrates that Financial Literacy (FL) is not always inversely related to digital payment adoption; in fact, under certain conditions, it can drive increased use of traditional COD as a measurable form of risk control. This research also integrates the variable Digital Payment Trust (DPT) as a factor explaining shifts in consumer behavior in logistics management. These findings emphasize that consumer payment decisions are inextricably linked to the quality of delivery services. Courier-consumer interactions are the final face of the online shopping supply chain, so optimizing last-mile delivery performance through increased speed, reliability, and traceability is crucial for maintaining customer satisfaction, particularly among Cash on Delivery (COD) users who have higher expectations.

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#### 4. CONCLUSION

This research found that Cash on Delivery (COD) preference significantly acts as a mediator (intervening variable) explaining the relationship between each independent variables such as Financial Literacy and Digital Payment Trust, which influences consumers' final assessment of Last Mile Delivery performance. The success of consumers perception of logistics performance is highly dependent on how the COD Preference variable manages expectations regarding the online shopping transaction experience which originates from the level of consumer Financial Literacy and Digital Payment Trust. This choice of payment method then significantly increases positive perceptions of last mile delivery performance because it facilitates direct interaction and transparency during the delivery of goods.

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