DETERMINANTS OF EMOTIONAL EXPERIENCE IN E-COMMERCE LAST-MILE DELIVERY: EVIDENCE FROM THE VILL DELIVERY APP IN VINH LONG PROVINCE

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Abstract: ***This study investigates the impact of logistics service quality on customers' emotional experiences and satisfaction in last-mile delivery within the context of the VILL delivery platform in Vinh Long Province. A quantitative approach was employed, with data collected from 271 customers and analyzed using Structural Equation Modeling (SEM). The reliability and validity of measurement scales were confirmed through Cronbach's Alpha, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA). The findings reveal that timeliness, order condition, and discrepancy handling positively influence customer emotions, while staff interaction and information quality significantly reduce negative emotions. Notably, negative emotions exert a strong negative effect on customer satisfaction. This study contributes to the literature by integrating emotional dimensions into the assessment of logistics service quality, emphasizing the critical role of negative emotions in shaping customer satisfaction in local e-commerce platforms.***

• Keywords: *last-mile delivery; logistics service quality; emotional experience; customer satisfaction; e-commerce platform.*

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1. Introduction

The rapid growth of e-commerce has made last-mile delivery an increasingly important stage in connecting businesses with customers and completing the overall shopping experience. The continued expansion of e-commerce, both globally and in Vietnam, has raised customer expectations not only in terms of delivery speed and accuracy but also in relation to the quality of the entire service experience (eMarketer, 2025; Grand View Research, 2023; VECOM, 2025; Ministry of Industry and Trade of Vietnam, 2025; Viettel Post, 2025). In this context, last-mile delivery has become more than a functional logistics activity; it is now a critical touchpoint that shapes how customers evaluate the service as a whole.

In Vinh Long, VILL has emerged as a local multi-service platform with the potential to strengthen its competitive position if greater attention is paid to customer experience. However, most previous studies have mainly examined the relationship between logistics service quality and customer satisfaction, while customers' emotional experiences in last-mile delivery remain underexplored, especially in local contexts. This gap is important because emotional responses often arise during direct service encounters and may substantially influence overall evaluations of the service.

Against this background, the present study aims to identify the factors influencing customers' emotional experiences in last-mile delivery, assess the magnitude of each factor's effect, and propose managerial implications for the VILL platform in Vinh Long. In doing so, the study contributes to a more nuanced understanding of last-mile logistics by incorporating emotional experience into the analytical framework.

2. Literature Review and Research Framework

2.1. Customer Emotional Experience in Last-Mile Delivery

Customer experience refers to customers' cognitive, emotional, behavioral, and sensory responses throughout the purchasing and consumption process (Lemon & Verhoef, 2016). Within this broader concept, emotional experience captures the feelings that arise when customers interact with a service or encounter specific service-related events (Bagozzi et al., 1999). In the context of e-commerce, last-mile delivery is a particularly critical stage because it is

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often the final and most visible part of the service process from the customer's perspective.

Prior studies suggest that factors such as delivery time, order tracking, product condition, and service interaction can trigger either positive or negative emotional responses during last-mile delivery (Lim et al., 2018; Morganti et al., 2014; Masorgo et al., 2023; Yeo et al., 2017). A timely and smooth delivery may create feelings of reassurance, trust, and satisfaction, whereas delays, lack of information, or poor interaction may evoke frustration, anxiety, or irritation. Therefore, understanding emotional experience in last-mile delivery offers important insights into how customers interpret service performance beyond purely functional outcomes.

2.2. Logistics Service Quality and Emotional Experience

The logistics service quality literature has traditionally emphasized factors related to order fulfillment, timeliness, information accuracy, and customer support (Mentzer et al., 1999, 2001). In recent years, scholars have increasingly recognized that these service dimensions may also shape customers' emotional responses. This is particularly relevant in last-mile delivery, where operational performance and direct human interaction are both highly visible to customers.

Drawing on this literature, the present study identifies five dimensions of logistics service quality that are especially relevant to the last-mile delivery context: timeliness, order condition and accuracy, information quality and tracking, handling of discrepancies or service incidents, and delivery staff interaction (Mentzer et al., 1999, 2001; Arabelen & Kaya, 2021; Phan Thai Vinh & Huynh Chi Minh, 2023). These dimensions are expected to influence customer emotional experience in different ways and with varying degrees of intensity.

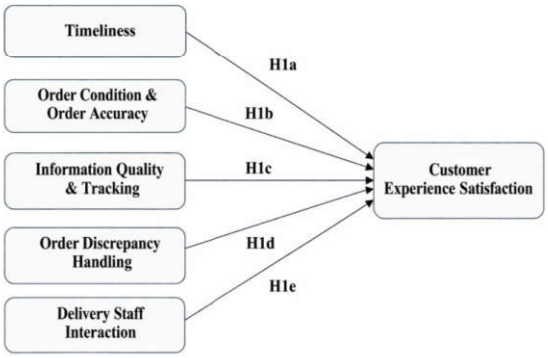
2.3. Theoretical Foundation

This study is grounded in two complementary theoretical perspectives. The first is Affective Events Theory (AET), which suggests that specific events occurring during service encounters can trigger emotional reactions that subsequently shape attitudes and evaluations (Weiss & Cropanzano, 1996). In last-mile delivery, such events may include a late delivery, a damaged order, clear tracking updates, or a courteous interaction with delivery staff.

The second is the Stimulus–Organism–Response (SOR) framework, in which external service-related stimuli influence an internal state, which then leads to behavioral or evaluative responses (Mehrabian & Russell, 1974). In this study, logistics service quality dimensions function as the stimuli, emotional experience represents the organism, and customer satisfaction serves as the response. Together, these frameworks provide a strong basis for examining how logistics service quality translates into customer satisfaction through emotional processes.

2.4. Research Model

Based on the above arguments, this study proposes a research model in which five logistics service quality dimensions influence customer emotional experience, which is measured through two distinct dimensions: positive emotions and negative emotions. These emotional dimensions are then examined in relation to customer satisfaction. The model is developed to reflect the specific context of VILL's last-mile delivery service in Vinh Long.



Source: Proposed by the authors

2.5. Research Hypotheses

Timeliness refers to the ability to deliver orders within the promised timeframe and is a key indicator of logistics service reliability (Mentzer et al., 2001). In last-mile delivery, timely service can enhance reassurance and confidence, while delays may lead to frustration and dissatisfaction (Lim et al., 2018).

H1a: Timeliness has a positive effect on customers' emotional experience.

Order condition and accuracy refer to whether customers receive the correct products in the expected quantity and condition. This dimension reflects fulfillment reliability and is likely to generate favorable emotional responses when delivery meets expectations (Li & Green, 2012).

H1b: Order condition and accuracy have a positive effect on customers' emotional experience.

Information quality and tracking concern the clarity and timeliness of delivery information

provided to customers. Reliable updates can reduce uncertainty and support a more positive delivery experience (Thai, 2013).

H1c: Information quality and tracking have a positive effect on customers' emotional experience.

Handling of discrepancies or service incidents reflects a firm's ability to resolve delivery problems effectively. Prompt and transparent responses can maintain trust and reduce negative reactions (Maxham III & Netemeyer, 2002).

H1d: Handling of discrepancies or service incidents has a positive effect on customers' emotional experience.

Delivery staff interaction refers to the behavior and communication of delivery personnel during service encounters. Professional and responsive interaction can reduce discomfort and help prevent negative emotional responses (Masorgo et al., 2023).

H1e: Delivery staff interaction has a negative effect on customers' negative emotional experience.

Within the Stimulus–Organism–Response framework, emotional responses link service performance to customer evaluation (Mehrabian & Russell, 1974). Positive emotions generally support satisfaction, whereas negative emotions tend to reduce it (Oliver, 2014).

H2a: Positive emotions have a positive effect on customer satisfaction.

H2b: Negative emotions have a negative effect on customer satisfaction.

3. Research Methodology

3.1. Data Collection

The target respondents were customers who had used VILL's last-mile delivery service in Vinh Long within the previous six months. The study followed a mixed-methods approach with an exploratory sequential design. Quantitative data were collected through an online survey using Google Forms, and convenience sampling was employed through Facebook and Zalo. A total of 280 responses were collected, of which 271 valid questionnaires were retained for analysis.

The sample was predominantly female and concentrated in the 18–25 age group. Most respondents were pupils or university students, had a monthly income below VND 5 million, and used VILL relatively frequently. Overall, the sample largely reflects a young customer segment, which is consistent with the current usage context of the VILL platform in Vinh Long.

3.2. Measurement Scales

The constructs were adapted from prior studies. Timeliness, information quality and tracking, and delivery staff interaction were adapted mainly from Thai (2013). Order condition and accuracy, as well as handling of discrepancies or service incidents, were adapted from Akıl and Ungan (2022) and Thai (2013). Emotional experience was measured using the PANAS scale developed by Watson et al. (1988), with four indicators for positive affect and four indicators for negative affect

3.3. Data Analysis Procedure

After data collection, the responses were cleaned, coded, and analyzed using SPSS 26.0 and AMOS 24.0. The analysis proceeded in several stages. First, common method bias was assessed using Harman's single-factor test. Second, reliability was evaluated using Cronbach's Alpha. Third, Exploratory Factor Analysis was conducted to examine the factor structure. Fourth, Confirmatory Factor Analysis was used to validate the measurement model in terms of model fit, convergent validity, and discriminant validity. Finally, Structural Equation Modeling was employed to test the proposed hypotheses and assess the effects of logistics service quality on emotional experience and customer satisfaction.

4. Results and Discussion

4.1. Common Method Bias

Common method bias was tested using Harman's single-factor test. The total variance explained by a single factor was 16.546%, which is well below the 50% threshold suggested by Podsakoff et al. (2003). This result indicates that common method bias was not a serious concern in the dataset.

4.2. Reliability and Validity of Scales

The Cronbach's Alpha results show that all scales met the required reliability thresholds. All Alpha values exceeded 0.6, and all corrected item-total correlations were above 0.3. No items were removed, as the "Cronbach's Alpha if item deleted" values were all lower than the overall Alpha coefficients. These findings indicate adequate internal consistency across all constructs.

Table 1. Reliability Test Results

Variable	Code	Deleted Items	Minimum Item-Total Correlation	Cronbach's Alpha
Timeliness	TL	0/3	0.623	0.813
Order Condition and Accuracy	OC	0/3	0.753	0.872
Information Quality and Tracking	IT	0/3	0.756	0.882
Handling of Discrepancies or Incidents	DH	0/3	0.644	0.821
Delivery Staff Interaction	PCQ	0/3	0.739	0.869
Positive Affect	PA	0/4	0.818	0.937

Variable	Code	Deleted Items	Minimum Item-Total Correlation	Cronbach's Alpha
Negative Affect	NA	0/4	0.675	0.858
Customer Satisfaction	CS	0/3	0.703	0.854
Service Price and Cost	CP	0/3	0.576	0.781
Technology and Application	AT	0/3	0.603	0.802

Source: Calculated from the research data

The EFA results further support the validity of the scales. For the independent variables in the main model, the KMO value was 0.763 and Bartlett's Test was significant at p = 0.000, confirming the appropriateness of factor analysis. Five factors were extracted, with total explained variance reaching 77.666%. For emotional experience, the KMO value was 0.846, and two factors were extracted, corresponding to positive affect and negative affect, with total explained variance of 77.107%. These results confirm that the measurement scales exhibit satisfactory convergent and discriminant properties at the exploratory stage.

Table 2. EFA Results

Variable	Deleted Items	Factor Loading Range
IT	0/3	0.885–0.910
PCQ	0/3	0.885–0.892
OC	0/3	0.853–0.872
DH	0/3	0.818–0.856
TL	0/3	0.789–0.844
PA	0/4	0.895–0.926
NA	0/4	0.819–0.860
AT	0/3	0.815–0.869
CP	0/3	0.800–0.867
CS	0/3	0.751–0.791

The CFA results show that the overall measurement model fits the data very well, with CMIN/df = 0.936, GFI = 0.944, CFI = 1.000, TLI = 1.005, RMSEA = 0.000, and PCLOSE = 1.000. In addition, all standardized factor loadings exceeded 0.7, composite reliability values were above 0.7, and AVE values were above 0.5. Discriminant validity was also established, as the square roots of the AVEs exceeded the correlations among constructs. Taken together, these findings indicate that the measurement model is both reliable and valid.

Table 3. Model Fit Indices

Index	Recommended Threshold	Result	Assessment
CMIN/df	≤ 2	0.936	Acceptable
GFI	0.9 < GFI < 1	0.944	Acceptable
CFI	≥ 0.9	1.000	Acceptable
TLI	≥ 0.9	1.005	Acceptable
RMSEA	≤ 0.08	0.000	Acceptable
PCLOSE	≥ 0.05	1.000	Acceptable

Source: Calculated from the research data.

The EFA results established the final measurement structure of the study, consisting of five independent factors representing logistics service quality and two dimensions of emotional experience, namely positive affect and negative affect. Based on this structure, CFA was conducted to validate the measurement model before proceeding to SEM.

The findings indicate that the overall measurement model achieved a very good fit with the survey data, as all fit indices satisfied the recommended thresholds: CMIN/df = 0.936, GFI = 0.944, CFI = 1.000, TLI = 1.005, RMSEA = 0.000, and PCLOSE = 1.000. These results suggest that the measurement model demonstrated unidimensionality and was appropriate for subsequent assessment of composite reliability, convergent validity, discriminant validity, and structural relationships.

Further analysis confirmed that all standardized factor loadings exceeded 0.7, ranging from 0.706 to 0.913. Composite reliability values were also above 0.7 for all constructs, indicating strong internal consistency. In addition, all Average Variance Extracted (AVE) values were greater than 0.5, confirming convergent validity. Discriminant validity was also established, as all Maximum Shared Variance values were lower than the corresponding AVE values, and the square roots of the AVEs exceeded the inter-construct correlations. Therefore, all constructs in the model demonstrated satisfactory reliability, convergent validity, and discriminant validity, making them suitable for further analysis.

Table 4. Discriminant Validity Results

Variable	TL	PA	NA	IT	PCQ	OC	DH
TL	0.772						
PA	0.501	0.887					
NA	-0.028	0.134	0.776				
IT	-0.117	-0.096	-0.161	0.846			
PCQ	0.034	-0.039	-0.245	0.073	0.829		
OC	0.510	0.479	0.087	-0.051	-0.042	0.834	
DH	0.359	0.369	0.074	-0.084	-0.069	0.363	0.779

Source: Calculated from the research data.

4.3. Structural Model Results

The SEM results reveal different mechanisms in the formation of positive and negative emotional experiences. For positive affect, three factors timeliness, order condition and accuracy, and handling of discrepancies or service incidents had positive and statistically significant effects. Timeliness was the strongest predictor (β = 0.307), followed by order condition and accuracy (β = 0.262) and handling of discrepancies or service incidents (β = 0.160). In contrast, information quality and tracking, as well as delivery staff interaction, did not significantly affect positive emotions.

For negative affect, only information quality and tracking (β = −0.149) and delivery staff interaction (β = −0.222) had significant negative effects. This indicates that better order information and more

appropriate staff interaction can substantially reduce customers' negative emotional responses. Timeliness, order condition and accuracy, and incident handling did not show statistically significant effects on negative emotions.

In the extended model, positive affect did not have a statistically significant effect on customer satisfaction. By contrast, negative affect had a strong and significant negative effect on customer satisfaction ($\beta = -0.506$). This suggests that, in this context, reducing negative emotions may be more important than merely enhancing positive emotions when the goal is to improve satisfaction.

Table 5. SEM Results

Hypothesis	Relationship	Standardized Estimate	p-value
SEM for Positive Affect			
H1a	TL → PA	0,307	0,000
H1b	OC → PA	0,262	0,000
H1c	IT → PA	-0,033	0,566
H1d	DH → PA	0,160	0,016
H1e	PCQ → PA	-0,025	0,665
SEM for Negative Affect			
H1a	TL → NA	-0,111	0,214
H1b	OC → NA	0,110	0,201
H1c	IT → NA	-0,149	0,030
H1d	DH → NA	0,046	0,561
H1e	PCQ → NA	-0,222	0,001
Extended SEM to Satisfaction			
Positive Affect	TL → PA	0,306	0,000
	OC → PA	0,261	0,000
	IT → PA	-0,035	0,536
	DH → PA	0,160	0,016
	PCQ → PA	-0,026	0,647
	PA → CS	-0,121	0,075
Negative Affect	TL → NA	-0,118	0,183
	OC → NA	0,102	0,232
	IT → NA	-0,177	0,010
	DH → NA	0,051	0,513
	PCQ → NA	-0,230	0,000
	NA → CS	-0,506	0,000

Source: Calculated from the research data

4.4. Discussion

The findings indicate that logistics service quality influences customer emotions in different ways. Positive emotions are mainly associated with reliable operational performance, particularly when deliveries are timely, accurate, and properly handled. These factors strengthen customers' confidence in the service.

Negative emotions, in contrast, are more closely related to uncertainty and service interaction. Poor communication or unclear delivery information may lead to irritation and discomfort. This suggests that positive and negative emotions stem from different aspects of the service experience.

Importantly, negative emotions have a stronger impact on customer satisfaction than positive emotions. This highlights the importance of preventing negative experiences rather than focusing solely on creating positive ones.

5. Managerial Implications

The findings suggest several practical implications. First, improving information transparency especially during delays can help reduce customer uncertainty.

Second, delivery staff interaction should be managed carefully, with greater emphasis on communication and responsiveness in service encounters.

Third, maintaining consistent operational performance, including delivery punctuality and order accuracy, remains essential for building customer confidence.

Finally, monitoring key indicators such as complaints and post-delivery feedback can help identify service issues and support continuous improvement.

Conclusion

This study examined how emotional experience links logistics service quality to customer satisfaction in the context of VILL's last-mile delivery service in Vinh Long. The results show that positive and negative emotions are influenced by different service factors and that negative emotions play a more significant role in shaping satisfaction.

The study contributes to the literature by integrating emotional perspectives into logistics service quality research and offers practical insights for improving customer experience in last-mile delivery.

However, the study has several limitations. The cross-sectional design and focus on a single platform limit generalizability. Future research may expand the sample, include additional variables, and apply longitudinal approaches to provide deeper insights.

References:

Akıl, S., & Ungan, M. C. (2022). E-commerce logistics service quality: Customer satisfaction and loyalty. Journal of Electronic Commerce in Organizations, 20(1), 1-19.

Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The role of emotions in marketing. Journal of the Academy of Marketing Science, 27(2), 184-206.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. Journal of Marketing, 80(6), 69-96.

Lim, S. F. W. T., Jin, X., & Srai, J. S. (2018). Consumer-driven e-commerce: A literature review, design framework, and research agenda on last-mile logistics models. International Journal of Physical Distribution & Logistics Management, 48(3), 308-332.

Masorgo, N., Mir, S., & Hofer, A. R. (2023). You're driving me crazy! How emotions elicited by negative driver behaviors impact customer outcomes in last mile delivery. Journal of Business Logistics, 44(4), 666-692.

Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. MIT Press.

Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2001). Logistics service quality as a segment-customized process. Journal of Marketing, 65(4), 82-104. https://doi.org/10.1509/jmkg.65.4.82.18390

Mentzer, J. T., Flint, D. J., & Kent, J. L. (1999). Developing a logistics service quality scale. Journal of Business Logistics, 20(1), 9-32.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879-903.

Thai, V. V. (2013). Logistics service quality: Conceptual model and empirical evidence. International Journal of Logistics Research and Applications, 16(2), 114-131. https://doi.org/10.1080/13675567.2013.804907

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.), Research in organizational behavior (Vol. 18, pp. 1-74). JAI Press.