

Unlocking Youth Customer Loyalty Through Digital Experience: The Interplay of Online Flow State and Value Co-Creation

Zulfahmi^{1*}, Ginta Ginting¹, Andryansah¹, Hubertina Karolina Ngarbingan¹

¹Faculty of Economic and Business, Universitas Terbuka

Jl. Cabe Raya, Pd. Cabe Udik, Kec. Pamulang, Tangerang, Banten 15418, Indonesia

*Corresponding Email: fahmi@ecampus.ut.ac.id¹

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ABSTRACT

This study examines how Online Flow State and Value Co-Creation enhance Digital Customer Experience and Customer Loyalty among young consumers, drawing on the S-O-R Dominant Logic. A quantitative approach customer loyalty through digital experience: using purposive sampling involved 186 young e-commerce consumers across regions outside Java, Indonesia. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results show that Online Flow State significantly improves Digital Customer Experience and Customer Loyalty, while Digital Customer Experience and Value Co-Creation significantly enhance Customer Loyalty. However, Value Co-Creation does not significantly moderate the relationship between Online Flow State and Digital Customer Experience, indicating that this relationship remains stable across different co-creation levels. These findings highlight Online Flow State as a key driver of digital experiences and loyalty while revealing limitations of Value Co-Creation as a moderating mechanism among young consumers.

Keywords: Digital Customer Experience; On Line Flow State; Value Co Cretion; Loyalty; Youth Generation; E-Commerce

INTRODUCTION

The global e-commerce landscape has undergone a substantial paradigm shift, characterized by the continuous growth of digital commerce and increasing online sales projections (Databoks Katadata, 2024–2025). Data on the four leading e-commerce platforms indicate a remarkably high volume of website traffic, reaching 102.5 million visits in 2025 (Table 1). The figures reveal that Shopee remains the dominant market leader, followed by TikTok Shop, which has demonstrated a significant upward trend in user engagement. The number of visits to TikTok Shop increased substantially from 27.03 million in 2024 to 62.79 million in 2025, highlighting its growing competitiveness and strengthening position within the e-commerce market.

Table 1: Average Number of Visitors to Shopee, TikTok Shop, Tokopedia, and Lazada in 2024 and 2025

Platform	2024 Million	2025 Million
Shopee	±92,28	±122,10
TikTok Shop	±27,03	±62,79
Tokopedia	±20,82	±21,96
Lazada	±38,86	±20,86

Sources: Databoks Katadata (2024-2025)

At the forefront of this transformation are young consumers, particularly the Millennial and Generation Z cohorts, who are widely recognized as digital natives characterized by highly dynamic purchasing behaviors, strong reliance on visual content, and a preference for instant gratification (PMC, 2025). The accelerated adoption of e-commerce is largely driven by these younger generations, whose consumption patterns have become a key force shaping the digital marketplace.

Contemporary youth represent a distinctive social group capable of driving technological change and innovation. Among them, Generation Z often referred to as the “Internet Generation” exhibits a relatively homogeneous set of values and lifestyles shaped by continuous exposure to the internet, mobile communication technologies, and social networking platforms. This generation is characterized by a strong emphasis on independent thinking, educational attainment, creativity, individualism, privacy rights, and the pursuit of meaningful and engaging experiences (Silvana K., 2020; Korshunova, S.A., 2019).

In Indonesia, the strategic importance of young consumers is further reinforced by demographic trends. According to Statistics Indonesia (BPS, 2025), approximately 50% of the country's population is composed of Generation Z (aged 8–23 years) and Millennials (aged 24–39 years), making these cohorts the dominant demographic groups and a critical segment for the continued growth and sustainability of the e-commerce sector.

For these generations, e-commerce platforms are no longer perceived merely as utilitarian tools for fulfilling functional needs. Instead, young consumers increasingly demand digital ecosystems capable of delivering immersive, interactive, and hedonic experiences (Huo et al., 2023). This phenomenon presents a critical challenge for

industry practitioners, as developing a superior Digital Customer Experience (DCX) has become an essential prerequisite for fostering youth customer loyalty. This challenge is further intensified by the extremely low switching costs between platforms, which enable young consumers to move seamlessly from one application to another within seconds (Albarak, 2024; Garuda, 2026).

Within the context of digital environmental psychology, one of the key determinants capable of enhancing the quality of digital experiences is the Online Flow State, defined as a condition of complete psychological immersion in which consumers become deeply absorbed, highly focused, and intrinsically engaged in their interactions with a digital platform, often losing awareness of time and their surrounding environment (Csikszentmihalyi, 1990; Huo et al., 2023). When consumers enter a state of flow, cognitive barriers are reduced, leading to more favorable evaluations of their overall digital interactions and consequently enhancing their perceptions of Digital Customer Experience (DCX). This positive experience subsequently stimulates repurchase intentions and brand advocacy behaviors (Huang & Suo, 2021; Herman & Amelinda, 2025).

However, the transformation of a temporary psychological state (i.e., flow state) into long-term customer loyalty through the mediating role of DCX does not occur in isolation. In today's digital landscape, young consumers increasingly reject the role of passive information recipients. Instead, they function as "prosumers" who actively seek opportunities to engage in value co-creation activities, such as producing interactive video reviews, participating in gamification features, and actively contributing to live-streaming sessions (Zheng et al., 2023).

Despite the recognized importance of these variables, a critical research gap remains within the contemporary e-commerce literature. First, most previous studies have tended to conceptualize the relationship between psychological experience (i.e., flow state) and platform evaluation (i.e., Digital Customer Experience) as linear and direct (Wang et al., 2024). Such an approach overlooks the active role of digital consumers, whose behaviors may either facilitate or inhibit the transformation of flow experiences into meaningful customer experiences. Second, empirical findings concerning the enduring effects of flow state remain inconclusive. Several studies suggest that the transient nature of digital immersion may be insufficient to foster long-term customer loyalty when platforms fail to provide opportunities for consumer self-expression and participation (MDPI, 2025). These inconsistencies highlight a theoretical void regarding the mechanisms that strengthen the relationship between Online Flow State and Digital Customer Experience, particularly among specific generational segments (PMC, 2025). To address this gap, the novelty of the present study lies in its empirical examination of the interplay between Online Flow State and Value Co-Creation in shaping Digital Customer Experience and, ultimately, fostering customer loyalty among young consumers. Specifically, this study positions Value Co-Creation as a critical moderating variable. It is argued that the positive influence of Online Flow State on Digital Customer Experience will be significantly amplified when consumers are provided with interactive opportunities to participate in value creation through platform features such as TikTok Shop Live, Shopee Video, interactive reviews, gamification, and other collaborative digital engagement tools. Conversely, in the absence of opportunities for co-creation, the positive effects of flow state may weaken and fail to translate into sustainable customer loyalty. By integrating the Stimulus–Organism–Response (S–O–R) framework with digital experience management in the context of future consumer generations namely Millennials and Generation Z, this study offers a fresh theoretical contribution to the digital marketing literature (MDPI, 2025; Garuda, 2026).

Based on this background, the present study aims to investigate how the interplay between Online Flow State and Value Co-Creation enhances Digital Customer Experience and ultimately unlocks customer loyalty among young consumers. The findings are expected to contribute to the advancement of consumer behavior theory by providing deeper insights into the psychological and participatory mechanisms underlying loyalty formation in digital environments. Furthermore, this study offers practical guidance for marketing managers in designing interactive, collaborative, and experience-driven e-commerce platforms capable of sustaining competitive advantage and strengthening customer loyalty among younger generations.

LITERATURE REVIEW

Grand Theory Framework

The primary theoretical foundation underpinning this study is the Stimulus–Organism–Response (S–O–R) Model. Originally proposed by Woodworth (1929) and subsequently extended by Mehrabian and Russell (1974) within the context of environmental psychology, the S–O–R framework posits that environmental stimuli influence consumers' internal emotional and cognitive states (Organism), which subsequently shape their behavioral responses. In digital environments, platform-related attributes and interactive features function as stimuli that affect users' psychological experiences and perceptions, ultimately influencing their behavioral outcomes, such as customer loyalty. To complement the S–O–R framework, this study incorporates two supporting theories that serve as the applied theoretical foundations for explaining the relationships among the proposed constructs.

Flow Theory

Flow Theory, developed by Csikszentmihalyi (1990), explains how individuals achieve a state of optimal experience characterized by complete cognitive absorption, intense concentration, and intrinsic enjoyment when a balance exists between perceived challenges and personal skills. Within digital environments, Flow Theory provides a useful lens for understanding how seamless navigation, engaging content, and intuitive platform design can induce a state of psychological immersion, thereby enhancing users' overall digital experiences (Wang et al., 2024). Accordingly, Online Flow State is conceptualized as a critical psychological mechanism through which digital stimuli influence consumers' perceptions and behavioral outcomes.

Service-Dominant (S–D) Logic

Service-Dominant (S–D) Logic, introduced by Vargo and Lusch (2004, 2017), represents a paradigm shift from a goods-centered perspective of marketing toward a service-centered view of value creation. This perspective argues that value is not created solely by firms and delivered to consumers; rather, value emerges through collaborative interactions between firms and consumers. In this context, consumers are regarded as active participants in the value creation process rather than passive recipients of products or services. The concept of Value Co-Creation reflects this collaborative process, whereby consumers contribute resources, knowledge, experiences, and interactions to jointly create value within digital platforms (Zheng et al., 2023). Consequently, S–D Logic provides a strong theoretical basis for understanding the role of Value Co-Creation in strengthening customer experiences and fostering customer loyalty in e-commerce environments.

Conceptual Review of Variables

Online Flow State

Online Flow State refers to a psychological condition in which digital consumers become deeply absorbed, intensely focused, and intrinsically engaged in their exploration of an

e-commerce platform, often losing awareness of time and their surrounding environment (Csikszentmihalyi, 1990; Huo et al., 2023). According to Huang and Suo (2021), within the contemporary digital shopping landscape, flow state extends beyond mere technical convenience and represents an immersive emotional bond between consumers and digital platforms. When young consumers enter a state of flow while browsing shopping content, their cognitive barriers tend to diminish, while their hedonic satisfaction increases substantially (Herman & Amelinda, 2025). Consequently, Online Flow State has emerged as an important psychological mechanism influencing consumers' perceptions and behavioral responses in digital environments. The primary dimensions of Online Flow State include Concentration, Time Distortion, Telepresence, and Enjoyment (Wang et al., 2024).

Digital Customer Experience (DCX)

Digital Customer Experience (DCX) refers to the cumulative perceptions, interactions, and cognitive as well as affective responses that consumers develop toward a brand or platform across multiple digital touchpoints throughout their customer journey (Albarak, 2024). Among younger generations, DCX is no longer evaluated solely on the basis of utilitarian functionality; rather, it is increasingly assessed in terms of the interactivity, personalization, and aesthetic quality of the digital ecosystem (Garuda, 2026). A superior DCX is achieved when an e-commerce platform successfully transforms a rigid transactional process into a seamless, enjoyable, and engaging digital journey (PMC, 2025). As competition intensifies within the digital marketplace, DCX has become a critical strategic asset for cultivating customer satisfaction, engagement, and loyalty. The primary dimensions of DCX include Cognitive Experience, Affective Experience, and Social Experience (Albarak, 2024; Garuda, 2026).

Value Co-Creation

Drawing upon the Service-Dominant (S-D) Logic perspective, Value Co-Creation is defined as an interactive process through which consumers actively participate as co-creators in shaping, developing, and personalizing the value derived from their shopping experiences, rather than merely acting as passive recipients of products or services (Vargo & Lusch, 2017; Zheng et al., 2023). Within contemporary e-commerce environments favored by younger consumers, value co-creation is manifested through various activities, including uploading user-generated video reviews, participating in live-streaming interactions, providing real-time feedback, and recommending products within their digital social networks (MDPI, 2025). Such participatory behaviors enable consumers to contribute knowledge, experiences, and resources that enrich the overall value creation process. The primary dimensions of Value Co-Creation are Information Seeking and Sharing, Responsible Behavior, and Personal Interaction (Zheng et al., 2023).

Customer Loyalty

In the context of digital commerce, Customer Loyalty is defined as a consumer's deep commitment to continue using, repurchasing from, and advocating for a particular e-commerce platform consistently in the future, despite situational influences and marketing efforts from competing platforms designed to encourage brand switching (Oliver, 1999; Albarak, 2024). Given that younger consumers face extremely low switching costs due to the ease of accessing and installing competing applications, digital loyalty is no longer primarily driven by functional necessity. Instead, it is increasingly shaped by strong experiential bonds and positive digital experiences, leading to what is commonly referred to as experience-driven loyalty (Garuda, 2026). Therefore, fostering customer loyalty requires e-commerce platforms to create meaningful, engaging, and memorable experiences that extend beyond transactional value. The primary

dimensions of Customer Loyalty include Cognitive Loyalty, Affective Loyalty, Conative Loyalty, and Action Loyalty (Oliver, 1999; Albarrak, 2024).

Hypothesis Development

The Relationship Between Online Flow State and Digital Customer Experience (DCX)
Flow Theory suggests that when consumers enter a state of psychological immersion, their cognitive barriers are reduced while their affective evaluations of a platform become more favorable. As a result, consumers are more likely to perceive the platform as delivering a superior digital experience. In the context of e-commerce, Online Flow State reflects a condition of deep concentration, enjoyment, and temporal dissociation that enhances consumers' engagement with digital platforms. Consequently, consumers experiencing a state of flow tend to develop more positive perceptions of their overall Digital Customer Experience (DCX).

This argument is supported by Wang et al. (2024), who found that key dimensions of flow, particularly deep concentration and time distortion, serve as essential precursors to consumers' holistic evaluations of digital experiences. Similarly, Huo et al. (2023) demonstrated that digital environmental stimuli within e-commerce platforms induce flow states, which subsequently influence how consumers perceive platform usability, convenience, and overall experience quality core components of DCX. Based on these arguments, the following hypothesis is proposed:

H1: Online Flow State has a positive and significant effect on Digital Customer Experience (DCX).

The Relationship Between Digital Customer Experience (DCX) and Customer Loyalty
A growing body of literature suggests that seamless, secure, and interactive digital experiences play a critical role in reducing customer churn and fostering long-term commitment. In highly competitive digital environments, consumers are more likely to remain loyal to platforms that consistently deliver positive and memorable experiences throughout their customer journey.

Empirical evidence from Albarrak (2024) indicates that the accumulation of positive digital experiences serves as a primary determinant of customer loyalty in digital commerce settings. Likewise, Garuda (2026) reported that among young consumers, Digital Customer Experience accounts for more than 60% of the variance in repurchase intentions and loyalty toward e-commerce platforms. Therefore, it is reasonable to expect that consumers who perceive higher levels of DCX will exhibit stronger loyalty behaviors. Accordingly, the following hypothesis is proposed:

H2: Digital Customer Experience (DCX) has a positive and significant effect on Customer Loyalty.

The Mediating Role of Digital Customer Experience in the Relationship Between Online Flow State and Customer Loyalty

Although Online Flow State generates positive emotional responses and psychological immersion, its influence is often temporary and situational. For these short-term psychological experiences to evolve into sustainable customer loyalty, consumers must develop favorable evaluations of the overall quality of their digital interactions. In this regard, Digital Customer Experience functions as an important mechanism through which flow experiences are translated into long-term behavioral outcomes.

Huang and Suo (2021) argued that flow experiences do not automatically lead to enduring customer loyalty. Rather, their impact is mediated through consumers' cumulative evaluations of their digital interactions and experiences. Consequently, consumers who experience a higher level of flow are more likely to perceive superior

digital experiences, which in turn enhance their loyalty toward the platform. Therefore, the following hypothesis is proposed:

H3: Digital Customer Experience (DCX) mediates the relationship between Online Flow State and Customer Loyalty.

The Moderating Role of Value Co-Creation in the Relationship Between Online Flow State and Digital Customer Experience

Drawing upon the Service-Dominant (S-D) Logic perspective, consumers are no longer passive recipients of value but active participants in the value creation process. Accordingly, the positive effects of Online Flow State on Digital Customer Experience may become stronger when consumers are provided with opportunities to actively engage in value co-creation activities.

Zheng et al. (2023) argued that two-way interactivity, where users act as “prosumers” by sharing content, creating video reviews, and participating in live interactions, strengthens the influence of psychological immersion on consumers’ evaluations of digital experiences. Similarly, recent evidence (MDPI, 2025) highlights that although young consumers may experience flow while watching digital content or participating in live-streaming sessions, the quality of their Digital Customer Experience reaches its highest level when platforms facilitate active value co-creation through interactive features, feedback mechanisms, and collaborative engagement opportunities.

Therefore, it is expected that the positive effect of Online Flow State on Digital Customer Experience will be stronger when consumers engage in higher levels of Value Co-Creation. Based on this reasoning, the following hypothesis is proposed:

H4: Value Co-Creation positively moderates the relationship between Online Flow State and Digital Customer Experience.

Based on the literature review and hypothesis development discussed above, the conceptual framework proposed in this study is presented in **Figure 1**.

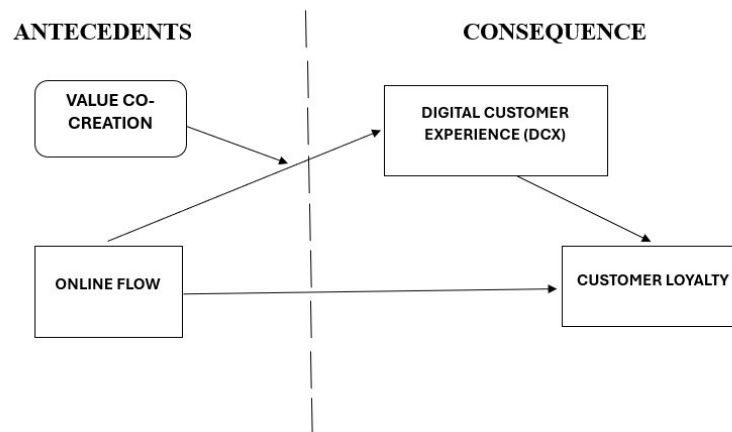


Figure 1:: Conceptual Framework

Research Hypotheses

H1: Online Flow State has a positive effect on Digital Customer Experience.

H2: Online Flow State has a positive effect on Customer Loyalty.

H3: Digital Customer Experience has a positive effect on Customer Loyalty.

H4: Value Co-Creation has a positive effect on Digital Customer Experience.

H5: Value Co-Creation positively moderates the relationship between Online Flow State and Digital Customer Experience.

H6: Digital Customer Experience mediates the relationship between Online Flow State and Customer Loyalty.

RESEARCH METHOD

This study employed a quantitative research approach. The target population consisted of young consumers residing in several regions outside Java Island, including Medan, Batam, Pangkal Pinang, Gorontalo, and Tarakan. The selection of respondents from regions outside Java was intended to ensure that the adoption and utilization of e-commerce among young consumers in these areas were adequately represented and comparable to those observed in Java, where digital commerce is more established.

The sample was selected using a purposive non-probability sampling technique. Data were collected through an online survey administered via Google Forms between April and May 2026. A total of 186 valid responses were obtained and included in the final analysis. This sample size is considered adequate for structural equation modeling. According to Hair et al. (2019, 2020) and Sekaran (2006), a minimum sample size ranging from 30 to 100 respondents is generally sufficient for quantitative research, while larger samples enhance the robustness and reliability of statistical analyses.

Measurement items for the study constructs were adapted from established scales in the existing literature. The Online Flow State construct was adapted from Wang et al. (2024). Measurement items for Digital Customer Experience were adapted from Silalahi and Rufaidah (2018a, 2018b), Albarrak (2024), and Garuda (2026). The Value Co-Creation construct was derived from the works of Vargo and Lusch (2017), Prahalad and Ramaswamy (2004), and Zheng et al. (2023). Customer Loyalty was measured using scales adapted from Verhoef et al. (2017) and Oliver (1999).

All constructs were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Descriptive statistical analysis was conducted to examine the mean scores and standard deviations of respondents' perceptions regarding each construct. To test the proposed hypotheses, this study employed Partial Least Squares Structural Equation Modeling (PLS-SEM), a robust and widely used analytical technique for examining complex causal relationships among latent variables (Chin, 1998). SmartPLS 4.0 software was utilized to assess both the measurement model and the structural model, as well as to evaluate the proposed hypotheses.

RESULTS

This study involved 186 respondents drawn from the younger generation cohorts, specifically Millennials and Generation Z, with diverse demographic characteristics. The respondents varied in terms of age, gender, educational background, and socioeconomic status (see Table 2). Although the sample was selected using a non-probability sampling approach, the diversity of respondent characteristics indicates a considerable degree of variation within the sample. Such heterogeneity enhances the representativeness of different segments of young consumers and provides a broader understanding of e-commerce adoption and behavioral patterns among younger generations across various regions outside Java Island.

Table 2. Profil Respondent

Characteristics	Frequency (n=186)	Percentage (%)
Age		
≤20 years	41	22.04
21-25 years	108	58.06
26-30 years	15	8.06
>30 years	22	11.83
Gender		

Male	49	26.34
Female	137	73.66
Occupation		
Student	106	56.99
Private employee	30	16.13
Entrepreneur	16	8.60
Home Maker	13	6.99
Others	21	11.29
Education		
Junior High School	11	5.91
Senior High School	141	75.81
Diploma	3	1.61
Bachelor	31	16.67
Monthly Expenditure		
≤1 Million	77	41.40
>1 Million - 3 Million	64	34.41
>3 Million - 5 Million	23	12.37
>5 Million	13	6.99
Others	9	4.84
Total	186	100.00

Based on the respondent profile data presented in Table 2, the majority of e-commerce users in this study were young adults within the productive age group, particularly those aged between 21 and 25 years, who accounted for 58.06% of the total 186 respondents. This dominance is further reflected in the respondents' occupational backgrounds, with students constituting the largest group at 56.99%, and in their educational attainment, where high school graduates represented 75.81% of the sample. In terms of gender distribution, the respondent profile reveals a notable imbalance, with female participants accounting for 73.66% of the sample, substantially exceeding the proportion of male respondents (26.34%). These findings suggest that the digital e-commerce ecosystem among younger generations is more actively utilized by female consumers and individuals currently engaged in academic or higher education pursuits.

From an economic perspective, the respondent profile indicates that most participants possess relatively limited or moderate spending capacity. Approximately 41.40% of respondents reported monthly expenditures of IDR 1 million or less, followed by 34.41% whose monthly expenditures ranged between IDR 1 million and IDR 3 million. This financial profile is consistent with their occupational status as students, who typically rely on allowances or early-career income sources. Only a small proportion of respondents (6.99%) reported monthly expenditures exceeding IDR 5 million. Overall, these findings suggest that the digital market segment represented in this study consists predominantly of young, highly educated, and technologically savvy consumers, largely female, with spending patterns characteristic of lower- to middle-income socioeconomic groups.

Measurement Model

The measurement model was evaluated to ensure the construct validity of the proposed research model. The measurement model illustrates how observed variables (manifest indicators) represent the underlying latent constructs being measured. Convergent validity was assessed using outer loading values and the Average Variance Extracted (AVE). According to established guidelines, individual reflective indicators are considered acceptable when their outer loading values exceed the recommended threshold of 0.70, indicating a strong correlation with the respective latent construct.

The results of the validity assessment presented in Table 3 indicate that all research indicators exhibited strong factor loadings, exceeding the minimum threshold of 0.70, with values ranging from 0.806 to 0.913. Furthermore, the statistical significance of each indicator was highly satisfactory, as evidenced by T-statistics substantially exceeding the critical value of 1.96 and p-values of 0.000 for all measurement items. The highest loading factor was observed for indicator DCE7 (0.913), suggesting that the availability of sufficient information for decision-making represents the strongest reflection of the Digital Customer Experience construct.

Overall, these findings confirm that all indicators satisfy the requirements for convergent validity. Therefore, each measurement item can be considered a reliable and accurate representation of its corresponding latent construct, supporting the adequacy of the measurement model for subsequent structural analysis.

Table 3. Validity Test Result

	Loading Factor	T statistics	P values
CL1 <- Customer Loyalty	0.838	29.052	0.000
CL2 <- Customer Loyalty	0.806	19.409	0.000
CL3 <- Customer Loyalty	0.882	43.503	0.000
CL4 <- Customer Loyalty	0.837	30.129	0.000
CL5 <- Customer Loyalty	0.851	28.440	0.000
CL6 <- Customer Loyalty	0.868	35.020	0.000
CL7 <- Customer Loyalty	0.869	34.330	0.000
CL8 <- Customer Loyalty	0.875	39.063	0.000
DCE1 <- Digital Cust Exp	0.874	41.959	0.000
DCE10 <- Digital Cust Exp	0.861	31.120	0.000
DCE2 <- Digital Cust Exp	0.808	12.314	0.000
DCE3 <- Digital Cust Exp	0.814	23.103	0.000
DCE4 <- Digital Cust Exp	0.867	20.438	0.000
DCE5 <- Digital Cust Exp	0.889	31.576	0.000
DCE6 <- Digital Cust Exp	0.871	37.364	0.000
DCE7 <- Digital Cust Exp	0.913	56.030	0.000
DCE8 <- Digital Cust Exp	0.867	33.706	0.000
DCE9 <- Digital Cust Exp	0.850	25.000	0.000
OFS1 <- Online Flow State	0.856	26.804	0.000
OFS2 <- Online Flow State	0.844	19.644	0.000
OFS3 <- Online Flow State	0.867	40.717	0.000
OFS4 <- Online Flow State	0.871	30.089	0.000
OFS5 <- Online Flow State	0.865	30.804	0.000
OFS6 <- Online Flow State	0.896	41.570	0.000
OFS7 <- Online Flow State	0.898	45.772	0.000
OFS8 <- Online Flow State	0.828	20.173	0.000
OFS9 <- Online Flow State	0.873	35.178	0.000
VCC1 <- Value Co Creation	0.865	34.862	0.000
VCC2 <- Value Co Creation	0.833	22.986	0.000
VCC3 <- Value Co Creation	0.863	29.795	0.000

VCC4 <- Value Co Creation	0.851	24.577	0.000
VCC5 <- Value Co Creation	0.857	33.958	0.000
VCC6 <- Value Co Creation	0.811	22.971	0.000
VCC7 <- Value Co Creation	0.853	31.274	0.000
VCC8 <- Value Co Creation	0.862	31.959	0.000

The reliability assessment results presented in Table 4 indicate that the research instrument demonstrates a very high level of internal consistency across all constructs. This is evidenced by the Cronbach's Alpha and Composite Reliability values, all of which exceed the recommended threshold of 0.90. Among the constructs, Digital Customer Experience recorded the highest reliability values, with a Cronbach's Alpha of 0.961 and a Composite Reliability of 0.967. Furthermore, the Average Variance Extracted (AVE) values for all constructs surpassed the minimum recommended threshold of 0.50, ranging from 0.722 to 0.751. These high AVE values confirm that more than 70% of the variance in the indicators is explained by their respective latent constructs. Such findings provide strong evidence of convergent validity and indicate that the constructs adequately capture the underlying dimensions they are intended to measure.

Overall, the results presented in Table 4 provide robust support for the reliability and stability of the measurement model, making it suitable for subsequent structural model analysis. Based on the high values of Cronbach's Alpha, Composite Reliability, and AVE, it can be concluded that the research instrument is both valid (as established in the previous validity assessment) and reliable. Consequently, the collected data are internally consistent and appropriate for testing the proposed structural model and research hypotheses.

Table 4. Reliability Test Result

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Customer Loyalty	0.947	0.955	0.729
Digital Cust Exp	0.961	0.967	0.743
Online Flow State	0.959	0.965	0.751
Value Co Creation	0.945	0.954	0.722

The discriminant validity assessment using the Fornell–Larcker criterion, as presented in Table 5, indicates that the measurement model satisfactorily meets the requirements for discriminant validity. This is evidenced by the fact that the square root of the Average Variance Extracted ($\sqrt{\text{AVE}}$), represented by the diagonal values, consistently exceeds the correlations between constructs (off-diagonal values) within the corresponding rows and columns. For example, the $\sqrt{\text{AVE}}$ value for Customer Loyalty (0.874) is greater than its correlations with the other constructs (0.822, 0.865, and 0.854). A similar pattern is observed for Digital Customer Experience, Online Flow State, and Value Co-Creation, where each construct exhibits a $\sqrt{\text{AVE}}$ value that surpasses its inter-construct correlations.

These findings confirm that each latent construct possesses adequate discriminant validity and is empirically distinct from the other constructs included in the model. In other words, the indicators associated with each construct measure their intended latent variable more strongly than they measure any other construct. Therefore, the

measurement model demonstrates satisfactory construct distinctiveness, providing a solid foundation for proceeding to the structural model assessment and hypothesis testing.

Table 5. Discriminant Validity Fornell Larcker Criterion

	Customer Loyalty	Digital Cust Exp	Online Flow State	Value Co Creation
Customer Loyalty	0.874			
Digital Cust Exp	0.822	0.872		
Online Flow State	0.865	0.861	0.867	
Value Co Creation	0.854	0.863	0.822	0.849

The discriminant validity assessment based on cross-loading values, as presented in Table 6, demonstrates that all research indicators satisfy the established criteria for discriminant validity. Specifically, each indicator exhibits a higher correlation with its respective latent construct than with any other construct included in the model. For instance, indicator DCE7 shows a loading of 0.913 on the Digital Customer Experience construct, which is substantially higher than its correlations with Customer Loyalty (0.828), Online Flow State (0.818), and Value Co-Creation (0.791). A similar pattern is consistently observed across the remaining indicators. The indicators associated with Online Flow State (OFS) exhibit their highest loadings on the Online Flow State construct, while the indicators of Value Co-Creation (VCC) demonstrate the strongest correlations with the Value Co-Creation construct.

These findings provide strong evidence that each indicator is uniquely associated with its intended latent construct and is capable of distinguishing it from other constructs within the model. Therefore, the measurement instrument can be considered to possess satisfactory discriminant validity, confirming its suitability for subsequent structural model evaluation and hypothesis testing.

Table 6. Discriminant Validity Cross Loading

	Customer Loyalty	Digital Cust Exp	Online Flow State	Value Co Creation
CL1	0,838	0,728	0,711	0,781
CL2	0,806	0,723	0,686	0,701
CL3	0,882	0,785	0,784	0,766
CL4	0,837	0,712	0,751	0,719
CL5	0,851	0,726	0,740	0,710
CL6	0,868	0,783	0,758	0,759
CL7	0,869	0,721	0,732	0,727
CL8	0,875	0,704	0,742	0,663
DCE1	0,760	0,874	0,793	0,796
DCE1 0	0,751	0,861	0,735	0,714
DCE2	0,663	0,808	0,685	0,626
DCE3	0,710	0,814	0,730	0,778
DCE4	0,686	0,867	0,745	0,693

DCE5	0,746	0,889	0,725	0,730
DCE6	0,762	0,871	0,751	0,706
DCE7	0,828	0,913	0,818	0,791
DCE8	0,774	0,867	0,754	0,829
DCE9	0,734	0,850	0,757	0,754
OFS1	0,756	0,733	0,856	0,675
OFS2	0,727	0,742	0,844	0,697
OFS3	0,724	0,731	0,867	0,708
OFS4	0,700	0,735	0,871	0,698
OFS5	0,753	0,730	0,865	0,660
OFS6	0,782	0,788	0,896	0,748
OFS7	0,787	0,821	0,898	0,758
OFS8	0,741	0,736	0,828	0,748
OFS9	0,774	0,770	0,873	0,717
VCC1	0,785	0,790	0,765	0,865
VCC2	0,716	0,776	0,697	0,833
VCC3	0,718	0,738	0,702	0,863
VCC4	0,715	0,717	0,674	0,851
VCC5	0,731	0,698	0,694	0,857
VCC6	0,636	0,615	0,597	0,811
VCC7	0,766	0,755	0,739	0,853
VCC8	0,719	0,752	0,700	0,862

Structural Model

Following the evaluation of the measurement model, the next step involved assessing the structural model using Partial Least Squares Structural Equation Modeling (PLS-SEM) (see Table 7). The evaluation of the structural model, also referred to as the inner model assessment, aims to examine the relationships among the latent constructs proposed in the research framework.

Structural model assessment includes the examination of the coefficient of determination (R^2) for the endogenous latent variables. The R^2 value indicates the extent to which the exogenous latent variables explain the variance in the endogenous constructs (Hair Jr. et al., 2014). Therefore, the coefficient of determination serves as an important indicator of the model's explanatory power and predictive capability (see Table 7).

Table 7. R-Square and Q-Square Test

	R-square (R^2)	Q-square (Q^2)
Customer Loyalty	0.798	0.577
Digital Cust Exp	0.826	0.599

Based on the R-square (R^2) results presented in Table 8, the Digital Customer Experience construct achieved an R^2 value of 0.826, indicating that 82.6% of its variance is explained by Online Flow State and Value Co-Creation, while the remaining 17.4% is attributable to factors outside the scope of the present research model. Similarly, the Customer Loyalty construct recorded an R^2 value of 0.798, suggesting that Online Flow State and Digital Customer Experience collectively explain 79.8% of the variance in customer loyalty.

The R^2 values for both endogenous constructs exceed the threshold of 0.75, indicating that the structural model possesses substantial explanatory power and strong predictive accuracy. These findings demonstrate that the proposed antecedent variables are highly relevant determinants of Digital Customer Experience and Customer Loyalty within the context of young consumers' behavior on e-commerce platforms.

Furthermore, the Q-square (Q^2) assessment yielded values of 0.599 for Digital Customer Experience and 0.577 for Customer Loyalty. Since both Q^2 values are substantially greater than zero, the model can be considered to possess satisfactory predictive relevance. These results confirm that the proposed model not only explains the theoretical relationships among the constructs but also demonstrates a meaningful capability to predict observed values of the endogenous variables.

Overall, the findings suggest that the integration of users' psychological experiences, digital customer experience quality, and customer participation through value co-creation provides a robust and stable framework for explaining and predicting digital loyalty among younger generations. Consequently, the proposed model offers strong empirical support for understanding the mechanisms underlying customer loyalty formation in contemporary e-commerce environments.

Hypothesis Testing

In the PLS-SEM approach, decisions regarding the acceptance or rejection of hypotheses are based on statistical significance, as indicated by the p-values and t-statistics. In SmartPLS, statistical significance is evaluated by examining the path coefficients together with their corresponding t-values and p-values obtained through the bootstrapping procedure.

The criteria for hypothesis testing are as follows: a hypothesis is supported when the t-statistic exceeds 1.96 and/or the p-value is equal to or less than 0.05 at the 5% significance level ($\alpha = 0.05$), indicating that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is supported. Conversely, if the t-statistic is below 1.96 and/or the p-value exceeds 0.05, the null hypothesis (H_0) is supported and the alternative hypothesis (H_a) is not supported.

The results of the hypothesis testing are presented in **Table 8** and **Figure 2**, which summarize the estimated path coefficients, t-statistics, and p-values for all proposed relationships in the structural model.

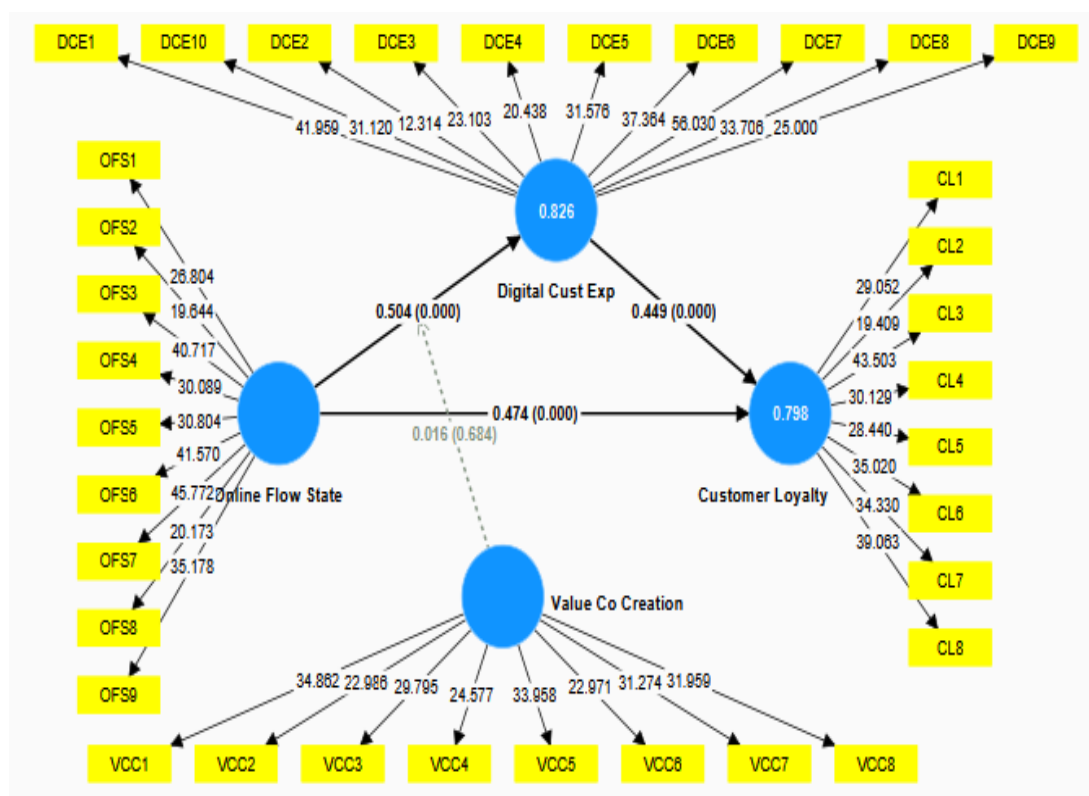


Figure 2: : Structural Model

Table 8. Hypotesis Testing Direct and Indirect Effect

Hyphotesis	Variabel Relationship	Path Coeff	T-stat	p-Values
Direct Effect				
H1	Online Flow State → Digital Customer Experience	0.504	4.269	0.000
H2	Online Flow State → Customer Loyalty	0.474	5.596	0.000
H3	Digital Customer Experience → Customer Loyalty	0.449	5.202	0.000
H4	Value Co Creation → Digital Customer Experience	0.452	4.183	0.000
H5	Online Flow state X Value Co Creation → Digital Customer Experience	0.016	0.406	0.684
Indirect Effect				
H6	Online Flow State → Digital Customer Experience → Customer Loyalty	0.227	4.276	0.000

DISCUSSION

H1: The Effect of Online Flow State on Digital Customer Experience

The results of the data analysis indicate that, among the six hypotheses proposed, one hypothesis was not supported by the empirical data. The hypothesis testing results reveal that Online Flow State has a positive and significant effect on Digital Customer Experience, with a path coefficient of 0.504 (H1). This relationship is supported by a t-statistic of 4.269, which substantially exceeds the critical threshold of 1.96, and a p-value of 0.000, indicating strong statistical significance.

These findings suggest that when consumers experience a state of deep psychological immersion and engagement while interacting with an e-commerce platform, their overall perception of the digital experience improves significantly. In the context of e-commerce, Online Flow State occurs when consumers become highly engaged in browsing products, interacting with platform features, and exploring content to the extent that they lose awareness of the time spent on the platform.

The positive influence of Online Flow State on Digital Customer Experience can be explained through two key mechanisms. First, flow transforms shopping activities from purely transactional processes into experiential activities. Consumers no longer perceive online shopping merely as a functional means of acquiring products; instead, they begin to enjoy the shopping process as a form of entertainment and leisure. Second, flow fosters stronger emotional engagement. When consumers enter a flow state, their level of concentration intensifies, and they experience a highly satisfying combination of cognitive and affective responses. These positive psychological experiences contribute directly to the formation of a seamless, enjoyable, and satisfying Digital Customer Experience.

This phenomenon is particularly relevant among younger generations, who are widely recognized as digital natives with exceptionally high expectations regarding technology-mediated experiences. Young consumers tend to become easily disengaged when confronted with rigid, repetitive, or slow digital processes. Consequently, modern e-commerce platforms have increasingly adopted gamification mechanisms and social commerce features, including live-streaming commerce, to stimulate and sustain flow experiences.

Two important mechanisms illustrate how Online Flow State contributes to the development of Digital Customer Experience among younger consumers. First, time distortion occurs through immersive live-streaming interactions. Platforms such as TikTok Live and Shopee Live leverage real-time communication, social presence, and limited-time promotional activities to create highly engaging environments. The social presence of streamers, combined with interactive communication and promotional incentives, encourages consumers to become deeply absorbed in the experience. As a result, consumers often lose track of time, leading to memorable digital experiences that may also stimulate impulse purchasing behavior.

Second, algorithm-driven personalization facilitates what may be described as algorithmic flow. Features such as personalized product recommendations and “For You Page” (FYP) algorithms continuously present content that closely matches users’ preferences and interests. This high level of personalization sustains consumers’ curiosity and motivates them to continue scrolling and exploring content, thereby maintaining a state of flow. Consequently, the browsing experience becomes more enjoyable, immersive, and personally relevant, ultimately enhancing perceptions of Digital Customer Experience.

The findings of this study are consistent with the results reported by Kurniawati (2026) in the study entitled “Immersed to Buy: The Mediating Effect of Flow Experience on Impulsive Buying in TikTok Live Streaming.” The study found that flow experience, characterized by immersion, enjoyment, and intense concentration, serves as a critical psychological mechanism underlying Generation Z purchasing behavior. Enjoyable interactions and the social presence of streamers were found to facilitate consumers’ entry into a flow state, which subsequently enhanced the quality of their digital shopping experiences and increased the likelihood of spontaneous purchasing behavior.

These findings further support the integration of the Stimulus–Organism–Response (S–O–R) framework with Flow Theory in contemporary e-commerce environments. Additional support is provided by Mimanda (2026) in the study “Live Streaming Commerce as a Digital Marketing Innovation.” Drawing upon the S–O–R framework, the study explains that digital stimuli such as interactivity, authenticity, and engaging content function as environmental triggers that influence consumers’ internal psychological states (organism), leading them into an Online Flow State. This psychological transformation subsequently reshapes consumers’ purchase experiences and enhances the overall quality of Digital Customer Experience, thereby strengthening the competitiveness of modern e-commerce platforms.

H2: The Effect of Online Flow State on Customer Loyalty

The analysis results further indicate that Online Flow State has a positive and significant effect on Customer Loyalty, with a path coefficient of 0.474. The strength of this relationship is supported by a substantial t-statistic of 5.596 and a p-value of 0.000, thereby providing strong support for H2. These findings suggest that the relationship between Online Flow State and Customer Loyalty does not emerge instantaneously but is developed through a process of deep emotional satisfaction and psychological attachment.

When consumers enter a state of flow, they experience intense concentration, intrinsic enjoyment, and time distortion. Such experiences generate a high level of hedonic satisfaction, leading consumers to perceive the e-commerce platform not merely as a transactional medium but as a source of enjoyment and pleasure. Consequently, a psychological lock-in effect may emerge, whereby consumers become reluctant to switch to alternative platforms because they fear losing the comfort, enjoyment, and immersive experiences they have come to associate with the current platform. In this context, the perceived switching cost is psychological rather than economic.

Furthermore, the autotelic nature of flow experiences where engagement is intrinsically rewarding and enjoyable in itself encourages young consumers to revisit the platform voluntarily, even in the absence of an immediate purchasing need. This intrinsic motivation increases platform visitation frequency and user retention, which subsequently enhances the likelihood of repurchase intentions and long-term loyalty. Frequent interactions with the platform strengthen familiarity, emotional attachment, and behavioral commitment, all of which contribute to loyalty formation.

The influence of Online Flow State on Customer Loyalty is particularly relevant among younger generations, who tend to be highly community-oriented and socially connected. When consumers experience exceptionally satisfying interactions that lead to a state of flow, they often develop a strong emotional bond with the platform. For young consumers, loyalty extends beyond repeat purchasing behavior (behavioral loyalty) and encompasses positive advocacy behaviors (attitudinal loyalty). As a result, they are more likely to recommend the platform to others, share their experiences through screenshots and social media posts, and voluntarily create user-generated content that promotes the platform. Such behaviors transform loyal customers into active brand advocates who contribute to the platform’s organic growth and reputation.

The findings of this study are consistent with the results reported by Putra and Santoso (2025), who investigated mobile commerce behavior among younger consumers and found that Online Flow Experience exerts a direct and significant influence on Brand Loyalty. Their study revealed that dimensions of flow, particularly time distortion and enjoyment during browsing activities, were stronger predictors of Generation Z loyalty than traditional functional factors such as perceived price attractiveness.

Additional support is provided by Ananda et al. (2026) in the study entitled "Unlocking Digital Loyalty: The Role of Flow State in Social Commerce." The authors demonstrated that Flow State functions as a primary driver of customer engagement. Young consumers who experience high levels of flow exhibit stronger emotional commitment toward e-commerce platforms, which significantly reduces customer churn and strengthens long-term loyalty. These findings reinforce the argument that Online Flow State serves as a critical psychological mechanism underlying customer loyalty formation in contemporary digital commerce environments.

H3: The Effect of Digital Customer Experience on Customer Loyalty

The analysis results indicate that Digital Customer Experience (DCX) has a positive and significant effect on Customer Loyalty, with a path coefficient of 0.449. This relationship is supported by a t-statistic of 5.202 and a p-value of 0.000, providing strong support for H3. These findings confirm that the quality of the digital experience serves as a critical determinant of loyalty among younger consumers. Specifically, consumers' perceptions of ease of navigation, payment efficiency, service responsiveness, and personalized experiences directly influence their willingness to remain loyal to a particular e-commerce platform.

Digital Customer Experience (DCX) represents the totality of consumers' perceptions, cognitive evaluations, and emotional responses throughout their interactions with a brand's digital touchpoints. The positive relationship between DCX and Customer Loyalty can be explained through three primary mechanisms.

First, a superior DCX enhances consumer trust. High-quality digital experiences are characterized by seamless functionality, including fast page-loading speeds, transparent order-tracking systems, secure digital payment mechanisms, and intuitive navigation. When young consumers repeatedly encounter frictionless digital experiences, their trust in the platform increases. Trust constitutes a fundamental foundation of loyalty, as consumers become less willing to switch to competing platforms once the current platform has consistently demonstrated reliability and competence.

Second, DCX generates emotional satisfaction. Digital experiences extend beyond functional performance and encompass affective dimensions of consumer interaction. A visually appealing interface, accurate product recommendations, personalized content, and entertaining features such as gamification and live-streaming commerce contribute to heightened emotional satisfaction. Consumers who experience strong emotional satisfaction are more likely to develop affective commitment toward the platform, increasing their intention to repurchase and maintain long-term relationships with the brand.

Third, superior DCX creates psychological switching costs. As consumers repeatedly interact with adaptive digital platforms whose algorithms increasingly understand their preferences, purchasing habits, and transaction histories, they accumulate substantial convenience-related investments. Features such as personalized recommendations, stored preferences, and streamlined warranty or return processes enhance user convenience over time. Consequently, switching to an alternative platform would require consumers to rebuild their preferences, retrain recommendation algorithms, and adapt to unfamiliar systems. These psychological barriers increase consumers' reluctance to switch and ultimately strengthen customer loyalty.

Within the context of younger generations, the influence of Digital Customer Experience on Customer Loyalty becomes particularly significant. Compared with previous

generations, Millennials and Generation Z possess substantially different expectations regarding digital interactions. For these consumers, functional technology is often regarded as a basic requirement rather than a source of competitive advantage. Instead, unique, engaging, and immersive experiences represent the primary differentiating factors that shape loyalty.

Several characteristics of younger consumers help explain this relationship.

First, young consumers possess strong expectations regarding personalization. Generation Z expects e-commerce platforms to understand their preferences immediately and provide highly relevant product recommendations. When consumers encounter carefully curated content aligned with their interests and lifestyles, rather than generic mass-market advertising, they perceive greater value from the platform. Such personalized experiences foster feelings of recognition and appreciation, which contribute to long-term loyalty.

Second, younger consumers increasingly perceive e-commerce as a social environment rather than merely a transactional marketplace. For this generation, a successful Digital Customer Experience includes opportunities for two-way interaction, such as participating in live-streaming discussions, engaging with content creators, and interacting with other consumers through digital communities. When these social dimensions are effectively facilitated, consumers develop a sense of belonging and community identification. As a result, transactional loyalty evolves into community-driven loyalty, which tends to be more enduring and emotionally grounded.

Third, younger consumers demand speed and reliability across omnichannel experiences. They frequently transition between multiple platforms, such as discovering products on Instagram or TikTok, following links to e-commerce platforms, and completing purchases through mobile applications. The smoothness of these transitions significantly influences their perception of Digital Customer Experience. Even minor disruptions, delays, or complicated processes may result in shopping cart abandonment and negative evaluations of the platform. Therefore, seamless omnichannel integration has become a critical component of contemporary customer experience management. The findings of this study are supported by Rahmawati and Wijaya (2025), whose empirical investigation of customer retention among young consumers in Indonesian online marketplaces demonstrated that Digital Customer Experience exerts the strongest positive influence on online customer loyalty. Their research concluded that the quality of digital interactions, including visual usability and system responsiveness, is considerably more effective in retaining Generation Z consumers than price competition or shipping subsidies.

Additional support is provided by Hasan et al. (2026) in the study entitled "Rethinking Digital Loyalty Frameworks for Gen Z Consumers." Their findings revealed that Digital Customer Experience functions as a full mediator between technological platform stimuli and long-term customer loyalty. In other words, advanced technological features such as artificial intelligence, personalized recommendation systems, and interactive live-commerce functions do not automatically generate loyalty. Rather, these technological capabilities must be translated into meaningful, enjoyable, and satisfying digital experiences before they can effectively foster enduring customer loyalty. These findings further reinforce the central role of Digital Customer Experience as a strategic mechanism linking technological innovation to loyalty formation in contemporary e-commerce environments.

H4: The Effect of Value Co-Creation on Digital Customer Experience

The results for the fourth hypothesis (H4) indicate that Value Co-Creation has a positive and significant effect on Digital Customer Experience, with a path coefficient of 0.452. The significance of this relationship is supported by a t-statistic of 4.183 and a p-value of 0.000. These findings confirm that active customer participation, including providing feedback, sharing experiences, and engaging in platform-related activities, contributes significantly to enhancing the quality of Digital Customer Experience. When consumers perceive themselves as active contributors to the value creation process, they are more likely to view the platform as relevant, responsive, and aligned with their needs, thereby increasing the overall quality of their digital experience.

Within the e-commerce context, younger generations are characterized by high levels of expressiveness, social engagement, and a strong preference for authenticity. Unlike previous generations, Generation Z tends to place greater trust in peer-generated content than in traditional advertising or firm-generated promotional messages. Consequently, Value Co-Creation has become a central mechanism through which digital experiences are formed and evaluated.

For many young consumers, creating aesthetically appealing product reviews accompanied by videos on platforms such as Shopee or TikTok Shop represents not only a functional activity but also a form of self-expression. When e-commerce platforms provide interactive review systems, such as reward points for video reviews or user-generated content, they actively facilitate Value Co-Creation. Exposure to review sections enriched with authentic content from fellow consumers increases perceptions of transparency, credibility, and trustworthiness, thereby enhancing Digital Customer Experience.

Similarly, live-streaming commerce environments provide numerous opportunities for collaborative engagement. Young consumers do not merely observe product demonstrations; they actively participate by requesting product trials, selecting product variations through polls, asking questions, and interacting with streamers and other viewers through comment sections. These collaborative interactions represent direct manifestations of Value Co-Creation. As a result, shopping activities are transformed from routine transactional processes into highly engaging and entertaining collective experiences.

Furthermore, when young consumers become deeply involved in co-creation activities, such as producing video reviews, curating product wish lists, or sharing product recommendations within their social networks, their level of concentration and engagement increases substantially. It is within this context that the interplay between Value Co-Creation and Online Flow State becomes particularly evident. Participation in co-creation activities may facilitate the emergence of flow experiences, while the combination of active engagement and psychological immersion contributes to the development of memorable and meaningful Digital Customer Experiences.

The findings of this study are consistent with those reported by Kurniawan and Wardhana (2025), who examined the role of interactive marketing in digital environments. Their study found that Value Co-Creation exerts a direct and significant influence on Digital Customer Experience. Specifically, e-commerce platforms that provided broader opportunities for user collaboration, including community features and product discussion forums, achieved substantially higher DCX evaluations among Generation Z consumers than conventional platforms characterized by limited interaction.

Additional support is provided by Chen and Zhang (2026) in their study entitled "The Power of Co-Creation in Social Commerce." Their findings suggest that, for digital-native consumers, customer experiences are no longer determined solely by firm-provided

resources but increasingly emerge through customer co-created interactions. The study demonstrated that active consumer participation within digital ecosystems significantly enhances both relational and emotional satisfaction, which represent core dimensions of Digital Customer Experience.

The present findings also provide empirical support for the Service-Dominant Logic perspective (Vargo & Lusch, 2017), which emphasizes that value is collaboratively created through interactions between firms and consumers. Evidence from contemporary e-commerce environments suggests that key dimensions of Value Co-Creation, particularly information sharing and interpersonal interaction, simultaneously strengthen consumers' perceptions of both functional and emotional value. Consequently, the findings validate the role of Value Co-Creation as a powerful predictor of Digital Customer Experience among younger consumers and highlight its strategic importance in the development of engaging digital commerce ecosystems.

H5: The Moderating Role of Value Co-Creation in the Relationship Between Online Flow State and Digital Customer Experience

Unlike the other hypotheses, the fifth hypothesis (H5), which examined the moderating effect of Value Co-Creation on the relationship between Online Flow State and Digital Customer Experience, was not supported by the empirical data. This conclusion is based on the very low path coefficient of 0.016, accompanied by a t-statistic of only 0.406 and a p-value of 0.684, which is substantially higher than the significance threshold of 0.05. These results indicate that customer participation in value creation activities does not significantly strengthen or weaken the influence of Online Flow State on Digital Customer Experience.

This finding represents an important and potentially novel contribution to the digital marketing literature, as it challenges a widely accepted assumption regarding the synergistic role of Value Co-Creation in enhancing customer experiences. From a quantitative perspective, a non-significant moderating effect suggests that the influence of Online Flow State on Digital Customer Experience remains stable and consistent regardless of whether young consumers engage in high or low levels of Value Co-Creation. In other words, the strength of the relationship between Online Flow State and Digital Customer Experience does not depend on the extent of customers' participation in value creation activities.

The statistical evidence therefore indicates that Online Flow State functions as an independent and robust antecedent of Digital Customer Experience. For younger consumers, the emotional and cognitive immersion experienced while engaging with e-commerce platforms appears sufficient to generate favorable evaluations of their digital experiences. Consequently, higher levels of co-creation activities, such as writing reviews, providing feedback, or participating actively in platform interactions, do not necessarily amplify the positive effects of flow on Digital Customer Experience.

Several contextual explanations may account for this finding. First, younger consumers, particularly Generation Z, are characterized by a strong preference for convenience, immediacy, and seamless digital interactions. As a result, excessive requirements for participation in value creation activities may disrupt the immersive experience that underlies the flow state. Rather than enhancing the digital experience, intensive co-creation demands may interrupt consumers' concentration and reduce the psychological benefits derived from flow.

Second, the findings may be explained by the prevalence of "lurking" behavior within digital ecosystems. Many young consumers are passive yet highly engaged participants

who enjoy watching live-streaming sessions, reading product reviews, browsing promotional content, and consuming user-generated content without actively contributing their own comments, reviews, or feedback. Despite their relatively low levels of Value Co-Creation, these consumers may still experience high levels of Online Flow State and consequently perceive superior Digital Customer Experiences. This phenomenon suggests that flow-driven experiences can independently enhance DCX without requiring active participation in co-creation processes.

Another possible explanation relates to participation fatigue. Young consumers generally prefer efficient and effortless digital interactions. When e-commerce platforms impose excessive co-creation requirements such as lengthy review forms, mandatory rating procedures, or repeated requests for feedback consumers may experience frustration and cognitive overload. In such situations, the positive effects of flow can be disrupted by the additional effort required to participate in value creation activities. Consequently, Value Co-Creation may fail to enhance the relationship between flow and customer experience because it introduces friction into an otherwise seamless interaction process. Furthermore, there appears to be a fundamental difference between the nature of Online Flow State and Value Co-Creation. Flow generates immediate gratification through immersive and enjoyable interactions, whereas co-creation often requires additional effort, time, and cognitive involvement before rewards are realized. This contrast may explain why Value Co-Creation does not operate as a multiplicative mechanism capable of strengthening the impact of flow on Digital Customer Experience among younger consumers.

The findings of this study are supported by Pratama and Lestari (2025), who examined user experience among Generation Z consumers and argued that flow experiences are inherently autotelic, meaning that the activity itself is intrinsically rewarding and satisfying. Their study found that external factors, including active user participation through Value Co-Creation, did not exert a significant interaction effect on consumers' perceptions of digital experience quality. In this regard, Online Flow State emerged as an independent and powerful predictor of Digital Customer Experience.

Additional support is provided by the critical evaluation of Service-Dominant Logic conducted by Nugroho et al. (2026). Their study suggests that within mobile application ecosystems, not all digital consumers function as active co-creators. Among younger consumers with relatively short attention spans, Digital Customer Experience is often shaped instantaneously through sensory stimulation, interface design, and immersive interactions associated with Online Flow State. Value Co-Creation, by contrast, frequently occurs as a parallel or post-purchase activity. Consequently, it may fail to statistically moderate the psychological processes that occur while consumers are actively browsing and interacting with e-commerce platforms.

Taken together, these findings suggest that although Value Co-Creation remains an important determinant of Digital Customer Experience, its role may be better conceptualized as a direct antecedent rather than as a moderating mechanism. The results highlight the dominant role of Online Flow State in shaping Digital Customer Experience among younger consumers and contribute a novel perspective to the literature by demonstrating that not all forms of customer participation necessarily enhance the psychological benefits derived from immersive digital experiences.

H6: The Mediating Role of Digital Customer Experience in the Relationship Between Online Flow State and Customer Loyalty

Finally, the sixth hypothesis (H6), which examined the mediating role of Digital Customer Experience, yielded noteworthy results. The findings indicate that Online Flow State exerts a positive and significant indirect effect on Customer Loyalty through the

mediation of Digital Customer Experience, with an indirect path coefficient of 0.227. This indirect relationship was found to be statistically significant, as evidenced by a t-statistic of 4.276 and a p-value of 0.000.

The statistical results confirm that Digital Customer Experience (DCX) serves as a significant mediating mechanism linking Online Flow State to Youth Customer Loyalty. This finding suggests that the psychological immersion and time distortion experienced by young consumers while interacting with e-commerce platforms do not automatically translate into long-term loyalty. Instead, the flow experience must first be transformed into a holistic Digital Customer Experience in which consumers perceive cognitive convenience, emotional enjoyment, and meaningful interactive engagement. In this regard, DCX functions as a transformative bridge that converts temporary psychological immersion into a comprehensive and enduring evaluation of the platform.

Without a mature and satisfying Digital Customer Experience, the enjoyment generated by Online Flow State may remain limited to temporary satisfaction or a one-time impulse purchase, without developing into a sustained commitment to revisit and continue using the platform. Therefore, the core mechanism underlying this mediation effect lies in the ability of DCX to crystallize temporary flow experiences into lasting perceptions that ultimately foster customer loyalty.

Within the e-commerce environment, the mediating role of Digital Customer Experience is particularly important for younger consumers for several reasons.

First, DCX facilitates the transformation of impulse purchasing into long-term customer retention. Flow experiences generated through live-commerce environments often stimulate immediate and spontaneous purchases. However, converting these purchases into enduring loyalty requires a positive post-purchase experience. Features such as transparent package tracking, responsive digital customer service, seamless voucher redemption, and efficient complaint-handling systems contribute to a favorable Digital Customer Experience. If the post-purchase experience is unsatisfactory, the initial flow experience may fail to leave a lasting impression and will be unlikely to generate long-term loyalty.

Second, AI-driven algorithmic curation contributes to the development of digital comfort and personalization. When Generation Z consumers become immersed in personalized e-commerce feeds that closely match their interests and preferences, they often perceive that the platform understands them on an individual level. This perception of personal relevance and recognition enhances the quality of Digital Customer Experience and strengthens consumers' emotional attachment to the platform. Consequently, consumers become less inclined to explore competing platforms, creating a psychological lock-in effect that reinforces loyalty.

Third, Digital Customer Experience enables the conversion of hedonic enjoyment into brand commitment. Young consumers frequently engage in online shopping not only to satisfy functional needs but also to seek entertainment and enjoyment. While Online Flow State provides immediate hedonic value through immersive and enjoyable interactions, DCX transforms this enjoyment into broader functional and social value through features such as gamification, personalized engagement, and community interaction. When hedonic gratification and functional utility are successfully integrated within the overall Digital Customer Experience, the foundation for sustainable customer loyalty is established.

The findings of this study are consistent with those reported by Sari and Hidayat (2025), who investigated young consumers' behavior within social commerce environments.

Their study demonstrated that Digital Customer Experience acts as a significant mediator between Flow Experience and Online Brand Loyalty. The authors concluded that consumers' enjoyment during browsing activities is insufficient to generate loyalty if subsequent platform interactions are characterized by confusing interfaces, slow performance, or poor usability.

Additional support is provided by Arifin et al. (2026) in the study entitled "The Role of Immersive Experience in Driving Youth Customer Retention." Their findings suggest that, for digital-native consumers, the boundary between technology and lived experience has become increasingly blurred. Online Flow State functions as an upstream antecedent that enriches the overall quality of Digital Customer Experience, which subsequently emerges as one of the strongest drivers of customer retention and a key mechanism for reducing customer churn. These findings reinforce the argument that Digital Customer Experience serves as the critical pathway through which immersive digital interactions are translated into enduring customer loyalty among younger generations.

Overall, the results provide strong support for the Stimulus–Organism–Response (S–O–R) framework, in which Online Flow State represents the internal psychological response (organism), Digital Customer Experience functions as the evaluative and experiential mechanism through which psychological states are interpreted, and Customer Loyalty constitutes the ultimate behavioral outcome. The significant mediating role of DCX highlights its strategic importance in transforming temporary digital engagement into sustainable loyalty in contemporary e-commerce environments.

CONCLUSION

The findings of this study lead to several important conclusions regarding the formation of customer loyalty among younger consumers in contemporary e-commerce environments:

First, Online Flow State emerges as a key driver of Digital Customer Experience and Customer Loyalty. When young consumers achieve a state of flow characterized by deep concentration, enjoyment, immersion, and seamless interaction with digital platforms they are more likely to perceive their experiences as highly positive and meaningful. These favorable perceptions not only enhance Digital Customer Experience but also contribute directly to the development of stronger customer loyalty. The findings suggest that creating immersive and engaging digital environments should be a strategic priority for e-commerce platforms seeking to retain younger consumers.

Second, the study reveals the limitations of Value Co-Creation as a moderating mechanism. Although Value Co-Creation exerts a significant direct influence on Digital Customer Experience, it does not strengthen or weaken the relationship between Online Flow State and Digital Customer Experience. This finding indicates that, for younger consumers, the quality of a seamless, fast, and immersive digital experience is substantially more important than the extent to which they are involved in collaborative value-creation activities. Consequently, efforts to encourage customer participation through product customization or intensive two-way interactions may not necessarily enhance the impact of flow experiences on overall digital experience quality.

Third, the study contributes to the literature by offering a novel perspective on customer participation in digital environments. The findings suggest that not all consumers desire active involvement in value co-creation processes. For certain consumer segments, particularly those seeking efficiency, convenience, and frictionless transactions, excessive demands for participation may reduce satisfaction rather than enhance it. Therefore, the assumption that greater customer involvement will always generate

superior customer experiences should be reconsidered. Instead, firms should recognize the heterogeneity of consumer preferences and design digital experiences that balance opportunities for participation with the need for simplicity, convenience, and seamless interaction.

Overall, this study highlights the dominant role of Online Flow State in shaping Digital Customer Experience and fostering customer loyalty among younger generations, while simultaneously challenging the conventional assumption that Value Co-Creation universally amplifies the effects of positive digital experiences.

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DECLARATION OF CONFLICTING INTERESTS

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ABOUT THE AUTHOR(S)

1st Author

Zulfahmi, S.E., M.Si. is a lecturer in the Faculty of Economics and Business at Universitas Terbuka, Indonesia. His academic and research interests center on development economics, macroeconomics, regional and local economic development, public-sector economics, poverty and welfare, sustainable development, and economic policy. His research has examined issues including inflation, private investment, regional development, circular-economy practices, sustainable economic development, and, more recently, digital customer experience and e-commerce. He previously served as Head of the Development Economics Study Program at Universitas Terbuka. He is actively involved in research, scholarly publication, and academic development in the field of economics.

Email: fahmi@ecampus.ut.ac.id

2nd Author

Prof. Dr. Ginta Ginting, S.E., M.B.A. is Professor of Management in the Faculty of Economics and Business at Universitas Terbuka, Indonesia. She earned her undergraduate degree in Management from Universitas Brawijaya, her Master of Business Administration from Edith Cowan University, Australia, and her doctoral degree in Management from Universitas Padjadjaran, Indonesia. Her research interests include marketing management, consumer behavior, strategic management, tourism management, sustainable tourism, green consumption, entrepreneurship, digital customer experience, and environmentally responsible behavior. She has extensive experience in teaching, research, academic leadership, and distance higher education and has published widely in management and tourism. ORCID: 0000-0002-5139-6370.

Email: ginta@ecampus.ut.ac.id

3rd Author

Dr.E. Andriyansah, S.E., M.M. is a lecturer and senior academic in Management in the Faculty of Economics and Business at Universitas Terbuka, Indonesia. He earned his bachelor's degree in Economics from STIE Widya Wiwaha, his Master of Management from Universitas Islam Indonesia, and his doctoral degree from Universitas Diponegoro. He joined Universitas Terbuka in 2008 after previously serving as a lecturer at Akademi Manajemen Belitung from 2004 to 2008. He has held several academic leadership positions, including Head of the Doctoral Program in Management Science. His research interests include strategic marketing management, ergo-iconic value, competitive advantage, SME performance, green innovation, tourism management, organizational performance, and distance education. ORCID: 0000-0002-4851-2617. Scopus Author ID: 57194765014.

Email: andri@ecampus.ut.ac.id

4th Author

Hubertina Karolina Ngarbingan, S.Pd., M.Par. is a lecturer in the Tourism Study Program, Faculty of Economics and Business, Universitas Terbuka, Indonesia. She holds a Master of Tourism degree and specializes in tourism management, tourist behavior, cultural tourism, destination development, and sustainable tourism. Her research has examined traveler decision-making, destination experiences, halal tourism, circular-economy practices, digital customer experience, sustainability, and contemporary developments in the tourism sector. In addition to her academic responsibilities, she serves as Manager of Learning and Examination at Universitas Terbuka Overseas. ORCID: 0009-0000-1549-729X.

Email: hubertina@ecampus.ut.ac.id