

# Determinants Of Impulse Buying On Tokopedia Mobile Application An Integrated Model Of Paylater, Flash Sales, E-Commerce Diversity, Urge To Buy, Brand Image, And Celebrity Endorsement

Meisa Reresimi<sup>1</sup>, Ngadino Surip Diposumarto<sup>1</sup>, Yuary Farradia<sup>1</sup>, Agus Setyo Pranowo<sup>1</sup>, Didik Notosudjono<sup>1</sup>

<sup>1</sup>Management Department, Universitas Pakuan, Jl. Pakuan, RT.02/RW.06, Tegallega, Kecamatan Bogor Tengah, Kota Bogor, Jawa Barat 16143, Indonesia

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## **Abstract**

This study investigates the determinant factors influencing impulse buying behavior among Tokopedia mobile application users. We examine the impact of Paylater service usage, Flash Sale programs, and E-commerce Diversity, alongside the Urge to Buy, with Brand Image acting as an intervening variable and Celebrity Endorsement as a moderator. Employing a quantitative survey approach, data was collected from active Master's students at a private university in South Jakarta and analyzed using Structural Equation Modeling (SEM). The findings reveal that Paylater usage, Flash Sale programs, E-commerce Diversity, and the Urge to Buy all have a positive and significant effect on impulse buying. These four variables also positively influence Tokopedia's Brand Image. Crucially, Brand Image is confirmed as a significant intervening variable, mediating the effects of Paylater, Flash Sale, E-commerce Diversity, and the Urge to Buy on impulse buying. Celebrity Endorsement directly and positively impacts both Brand Image and impulse buying, and it strengthens the relationship between Paylater and E-commerce Diversity with impulse buying. However, it does not significantly strengthen the relationship between the Urge to Buy and impulse buying, nor between Brand Image and impulse buying. Theoretically, this study supports and expands the Stimulus-Organism-Response (SOR) theory, demonstrating how external stimuli and internal perceptions drive impulse buying. Practically, it offers strategic recommendations for Tokopedia: optimizing Paylater and Flash Sale features, strengthening Brand Image through diverse products and positive experiences, and leveraging Celebrity Endorsement selectively. A behavior-based segmentation approach is also advised for targeted marketing in the competitive digital market.

**Keywords:** Impulse Buying, Brand Image, Celebrity Endorsement, Paylater, Flash Sale, E-Commerce Diversity

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## 1. INTRODUCTION

The rapid growth of e-commerce in Indonesia is significantly driven by the extensive penetration of the internet and widespread use of smartphones. Market analyses consistently indicate that e-marketplace platforms, including Tokopedia, Bukalapak, Shopee, and Lazada, dominate significant market shares due to their user-friendly interfaces and minimal entry barriers for sellers who require no physical storefronts (Katadata, 2023d). These platforms enhance customer satisfaction by providing convenience, diverse product selections, and integrated digital services. Concurrently, business-to-consumer (B2C) platforms such as Blibli, JD.id, and Bhinneka have also carved notable positions within Indonesia's e-commerce ecosystem by delivering an extensive variety of products directly to consumers (Katadata, 2023d). Furthermore, consumer-to-consumer (C2C) models pioneered by Tokopedia and Bukalapak have revolutionized digital economic inclusivity, enabling individuals to actively participate in commerce (Katadata, 2023b). Sector-specific e-commerce platforms targeting industries such as fashion, food, and healthcare cater to the increasingly diversified consumer demands. A novel trend, social commerce, integrates product purchasing seamlessly into daily social media interactions, further reshaping consumer behavior in digital spaces (Katadata, 2023b).

Technological advancements offer substantial benefits, notably enhancing economic conditions and subsequently increasing individual disposable income. Nonetheless, such improvements often inadvertently trigger impulsive spending behaviors, colloquially referred to as impulse buying (Lestari, 2020). Online shopping platforms, by providing ease of access, simplified purchasing processes, minimal

social pressure, and convenient delivery systems, amplify impulsive purchase tendencies compared to traditional retail environments. Tokopedia, specifically, represents a quintessential example of an e-marketplace experiencing significant impulse buying behaviors among its users (Katadata, 2023a). Recent visitor statistics underscore Tokopedia's strong market presence, with an average monthly visitation of approximately 117 million, although challenges persist in terms of competitive pricing, promotional appeal, delivery services, and customer service effectiveness compared to rival platforms such as Shopee (Katadata, 2023a). Moreover, market dynamics in early 2023 indicate a general decline in site visits across major Indonesian e-commerce platforms, attributed to post-pandemic consumer behaviors reverting to traditional retail outlets (Katadata, 2023b).

This study specifically targets postgraduate students enrolled in Management programs at private universities in Jakarta, given their pronounced participation in e-commerce transactions, predominantly driven by millennials aged 21-30 (Katadata Indonesia, 2022). Statistics from the Central Statistics Agency (Badan Pusat Statistik, BPS) highlight Jakarta as hosting the largest concentration of students nationally, positioning this demographic as pivotal for market analysis within the e-commerce context (Ahdiat, 2022; Jayani, 2022). Additionally, consumer financial products like Paylater significantly influence impulse buying behaviors, offering accessible credit facilities through simplified verification processes (Parameswari & Ginny, 2022). The integration of fintech services such as Gopay Paylater within platforms like Tokopedia provides users flexible payment options but necessitates additional app installations, potentially reducing user convenience compared to platforms with integrated payment solutions such as Shopee Paylater (Christian et al., 2022).

Promotional strategies, notably flash sales, significantly contribute to impulsive purchasing by creating urgency and scarcity perceptions among consumers. Flash sales events drive substantial revenue streams, exemplified by Tokopedia's significant income yet lagging behind competitors like Shopee and Lazada (Katadata, 2023c). Furthermore, celebrity endorsements have been employed extensively by Tokopedia to enhance brand image and consumer engagement, notably featuring international celebrities like BTS and Blackpink, thus leveraging their considerable social media followings to reinforce market presence and consumer loyalty (Katadata, 2022). Brand image plays an integral role in shaping consumer perceptions and influencing impulsive buying decisions. A positive brand image enhances consumer trust, perceived product quality, and overall purchasing confidence, crucially affecting impulsive consumer behaviors (Huang & Benyoucef, 2023; Becerra & Badrinarayanan, 2022). Within mobile application contexts, factors such as app usability, consistent promotional campaigns, and innovative customer engagement practices significantly enhance brand perceptions and consumer attraction (Vohra & Bhardwaj, 2021).

This research addresses multiple critical gaps within existing literature. Firstly, limited studies explicitly examine impulse buying behaviors specific to Tokopedia's mobile application users, despite the platform's prominence. Secondly, this investigation uniquely targets postgraduate students in Jakarta, a cohort characterized by distinct consumption behaviors within urban digital markets. Thirdly, the mediation effect of brand image within impulse buying literature remains insufficiently explored, particularly regarding its moderating potential with other critical determinants such as Paylater use, flash sales participation, and celebrity endorsements (Hossain & Khan, 2023). Preliminary qualitative insights from interviews conducted with postgraduate management students suggest that Tokopedia's brand image substantially influences their impulse buying decisions. Participants highlighted trust in the platform, innovative user interface, and aggressive promotional strategies as critical factors motivating impulsive transactions. Furthermore, promotional elements such as Paylater services and flash sales significantly amplified impulsive purchase tendencies among respondents.

This study thus provides a comprehensive analysis of determinants influencing impulse buying behaviors among postgraduate management students using Tokopedia's mobile application, exploring the mediating role of brand image and the moderating influence of celebrity endorsements. Findings will offer critical insights into consumer behavior, brand management strategies, and promotional effectiveness within Indonesia's rapidly evolving digital commerce landscape.

## 2. LITERATURE REVIEW

### 2.1 Consumer Psychology Theory as Grand Theory

The grand theory adopted for this study is Consumer Psychology Theory, a branch of psychology that examines consumer behaviors within the context of purchasing decisions. It encompasses diverse factors influencing consumer decision-making, such as motivation, perception, attitudes, learning, and memory. Motivation, a critical aspect, is defined as the internal driving force compelling consumers to satisfy their needs and desires through product or service purchases (Hasibuan, 2014). Consumer perceptions about brands and products, shaped by brand image, product quality, and prior experiences, substantially affect their purchasing decisions. Additionally, consumer attitudes toward products or brands, influenced by personal experiences and information received, significantly shape purchasing behavior (Kornberger, 2010). Learning through experience and accumulated information, alongside memory retention, also directs future consumer behavior. In the context of Tokopedia's mobile application, this theory helps understand how features such as Paylater, flash sales, product diversity, and promotional strategies like celebrity endorsements influence impulse buying tendencies.

### 2.2 Stimulus-Organism-Response (S-O-R) Theory as Middle Theory

The Stimulus-Organism-Response (S-O-R) framework explains how external stimuli influence internal psychological processes (organism), subsequently resulting in specific consumer responses. Stimuli (S) refer to external factors such as advertisements, promotions, prices, and product attributes. Organism (O) encompasses internal psychological processes including motivation, perception, attitudes, and emotions, which interpret these stimuli. Response (R) pertains to consumer actions and behaviors triggered by these internal processes. S-O-R theory highlights that consumer responses are shaped not only by external factors but also significantly by internal cognitive and emotional processes. This comprehensive framework assists in understanding the psychological dynamics underlying consumer decisions, including impulse buying, by linking promotional stimuli, brand image, and payment features to consumer responses.

### 2.3 Endorsement Theory as Applied Theory

Endorsement theory relates to marketing strategies utilizing celebrities or influential figures to promote products or brands, enhancing attractiveness, credibility, and consumer trust. The appeal of celebrities, their perceived credibility, and the relevance between the endorser and the promoted product or brand critically influence consumer perceptions (Kotler & Wong, 2017). Transfer of meaning, wherein positive attributes of endorsers transfer to the endorsed products, reinforces favorable consumer attitudes and purchase intentions. Tokopedia's utilization of international celebrities like BTS and Blackpink exemplifies endorsement strategies that significantly shape consumer perceptions, trust, and purchasing behaviors.

### 2.4 Paylater Usage

Paylater, or buy-now-pay-later services, enable consumers to defer payments or split them into installments, providing flexible financial solutions compared to traditional credit cards (Guttman-Kenney et al., 2022; Kania, 2019). Paylater platforms offer simplicity, flexible terms, and promotional incentives but also pose risks such as increased consumerism, financial management issues, and data security concerns (Ramadhani, 2020). Behavioral intention dimensions associated with Paylater usage, including financial flexibility, satisfaction with payment flexibility, responsive customer support, ease of use, and post-transaction financial planning, significantly influence consumer perceptions and behaviors (Dude et al., 2022). Paylater significantly facilitates impulse buying by reducing immediate financial barriers. Parameswari and Ginny (2022) identified Paylater as a preferred method for online shoppers, enhancing impulsive purchases beyond initial consumer needs. Similarly, Cuandra (2022) demonstrated a significant relationship between perceived benefits, security of Paylater, and impulse buying intention, although perceived ease of use showed no significant effect. Thus, the hypothesis proposed:

*H1: Paylater usage positively affects impulse buying.*

### 2.5 Flash Sale Programs

Flash sales involve limited-time promotional offers providing substantial price discounts, cashback, or free shipping to stimulate rapid consumer responses (Aribowo et al., 2020; Rahmania et al., 2023). Such promotional strategies effectively create urgency, increase purchasing volumes, and enhance consumer

engagement, ultimately driving significant short-term revenue (Savastano et al., 2019). Kotler (2018) outlines essential dimensions of successful flash sales, including product discoverability, satisfaction with transaction processes, ease of navigation, delivery reliability, transaction security, and customer trust, which collectively foster consumer satisfaction and loyalty. Flash sales trigger urgency and fear of missing out (FOMO), significantly enhancing impulse buying. Ramadhani and Nugroho (2024) and Savitri and Riva'i (2024) affirmed flash sales' potent influence on impulse buying, particularly when coupled with promotional activities. Therefore, the following hypothesis:

*H2: Flash sale promotions positively affect impulse buying*

### **2.6 E-commerce Diversity**

E-commerce diversity refers to the variety in platforms, products, payment methods, and business strategies aimed at meeting diverse consumer needs and preferences (Smith & Zhao, 2021; Kumar & Patel, 2020). Regional adaptations, personalized experiences, innovative technological integrations such as AI and big data, and diverse business models like subscription and freemium significantly contribute to consumer satisfaction and loyalty (Nguyen & Wu, 2020; Tan & Singh, 2023). Building consumer trust through transparency, security, consistent quality, and responsive customer service underpins the effectiveness of diverse e-commerce strategies. Loyalty emerges from stable preferences, positive customer experiences, and the intent to recommend platforms to others, demonstrating the strategic importance of diversity in e-commerce offerings. E-commerce Variety and Impulse Buying Product diversity encourages impulse buying by increasing consumer curiosity and comparison-driven purchases (Luthfia, 2023). Thus:

*H3: E-commerce diversity positively influences impulse buying*

### **2.7 Urge to Buy**

Urge to buy refers to a sudden, intense desire to purchase, often leading to impulsive buying behavior without rational consideration (Badgaiyan & Verma, 2015; Ruswanti, 2016). Stimulated by factors like promotional visibility, urgency, and emotional appeal, urge to buy significantly impacts consumer purchasing behaviors, particularly within the digital e-commerce environment that enhances browsing and shopping experiences (Khodakaram Arzanagh & Danaei, 2014). Urge to buy is an immediate emotional drive significantly correlated with impulse buying, triggered by promotions, visual appeal, and social recommendations (Badgaiyan & Verma, 2015; Putra et al., 2022). Therefore:

*H4: Urge to buy positively impacts impulse buying*

### **2.8 Brand Image**

Brand image constitutes consumer perceptions and emotional responses elicited by a brand name or product, significantly influenced by consumer experiences and brand communications (Roy & Banerjee, 2014; Wade & Krouse, 2020). Positive brand images, reflecting product quality, service reliability, and strong emotional resonance, strongly correlate with consumer trust, repeated purchases, and customer loyalty (Chao, 2019). Brand image serves as an influential mediator in consumer behavior, especially impacting impulsive purchase decisions within digital marketplaces. Effective brand image management through consistent promotional activities, service quality, and celebrity endorsements enhances brand attractiveness and consumer engagement. Paylater, Flash Sale, E-commerce Variety, and Brand Image Flexible payment options and dynamic promotions shape consumers' brand perceptions. Studies highlight that Paylater (Kurniawan & Widjaja, 2023), flash sales (Utami et al., 2024), and extensive product diversity (Kotler & Sarkar, 2018) significantly influence brand image by reflecting innovativeness, trustworthiness, and inclusivity. Positive brand image strengthens consumer confidence, enhancing impulsive purchasing behaviors (Zhao et al., 2022; Syamsurizal & Ernawati, 2020). Hence:

*H5: Paylater usage positively affects brand image.*

*H6: Flash sales positively affect brand image.*

*H7: E-commerce product variety positively influences brand image*

*H8: Brand image positively impacts impulse buying*

### **2.9 Celebrity Endorsement**

Celebrity endorsements leverage well-known figures to enhance brand visibility, consumer trust, and purchase intentions (Kotler & Wong, 2017; Smith & Hanover, 2018). Celebrities provide attractiveness, credibility, and emotional appeal, significantly influencing consumer decisions through trustworthiness,

expertise, attractiveness, respect, and likability (Kotler et al., 2019). Effective celebrity endorsements enhance brand recall, consumer engagement, and loyalty by creating positive emotional associations and trust in promoted brands. Celebrity endorsements amplify the effects of Paylater, e-commerce variety, and urge to buy by enhancing emotional appeal, trust, and perceived product value (Chen et al., 2021; Li et al., 2022). Thus:

H9: Celebrity endorsement strengthens the relationship between Paylater usage and impulse buying.

H10: Celebrity endorsement strengthens the relationship between e-commerce product variety and impulse buying.

H11: Celebrity endorsement strengthens the relationship between urge to buy and impulse buying.

### 2.10 Online Impulse Buying

Online impulse buying encompasses spontaneous and unplanned purchasing behaviors driven by emotional triggers, limited-time promotions, and visual appeal without careful consideration of actual product utility or long-term consequences (Rani & Catherine, 2023; Zhao et al., 2022). Factors like product attractiveness, perceived urgency, and emotional states significantly affect impulsive consumer decisions, making impulse buying a prevalent and critical behavior in digital marketplaces. Brand image mediates the relationships between consumer behavior determinants (Paylater, flash sales, e-commerce variety, urge to buy, celebrity endorsement) and impulse buying, reinforcing consumer trust and preference (Rahmadani et al., 2024; Gao et al., 2024). Hence:

H12: Brand image mediates the relationship between Paylater usage and impulse buying.

H13: Brand image mediates the relationship between flash sales and impulse buying.

H14: Brand image mediates the relationship between e-commerce variety and impulse buying.

H15: Brand image mediates the relationship between urge to buy and impulse buying.

H16: Brand image mediates the relationship between celebrity endorsement and impulse buying.

### 2.11. Research Model

Figure 1 illustrates a conceptual model that depicts relationships among several variables related to impulse buying behavior.

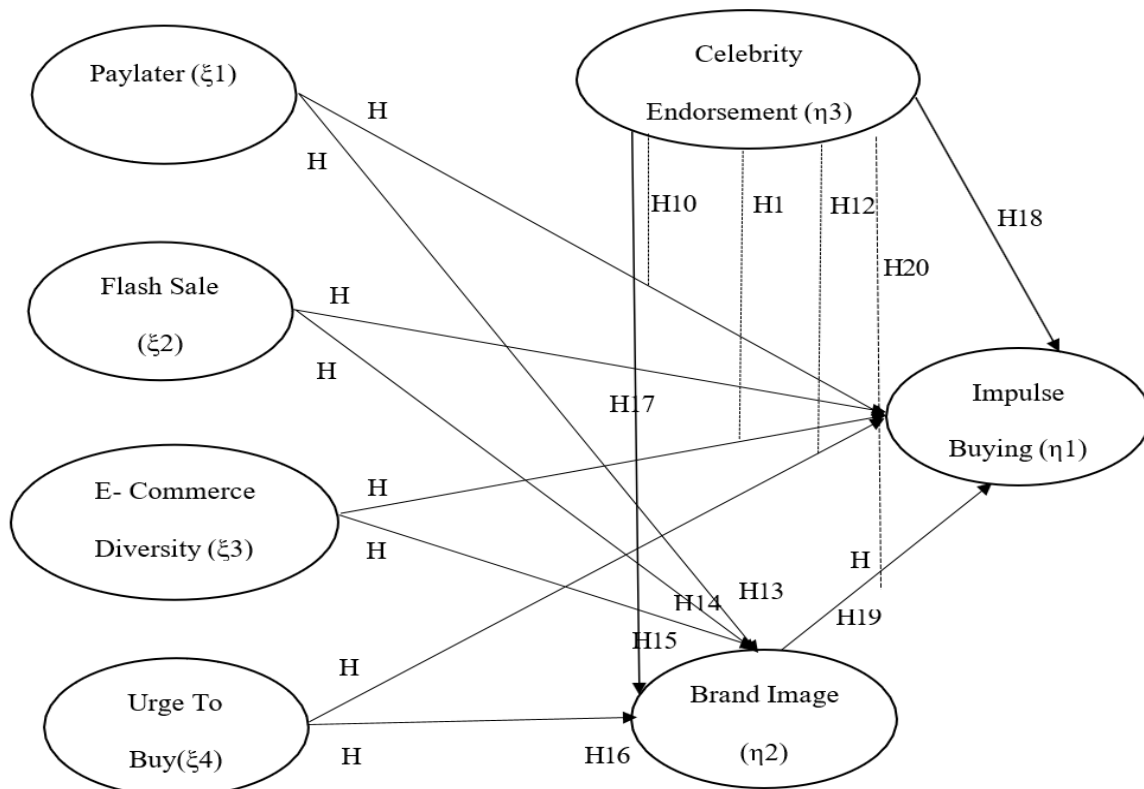


Figure 1. Research Model

The independent variables include Paylater ( $\xi_1$ ), Flash Sale ( $\xi_2$ ), E-Commerce Diversity ( $\xi_3$ ), and Urge to Buy ( $\xi_4$ ). The dependent variable is Impulse Buying ( $\eta_1$ ). Brand Image ( $\eta_2$ ) is positioned as a mediator, whereas Celebrity Endorsement ( $\eta_3$ ) serves as a moderator. Direct hypotheses (solid lines labeled "H") suggest that Paylater, Flash Sale, E-Commerce Diversity, and Urge to Buy have a direct influence on both Brand Image and Impulse Buying. Additionally, Celebrity Endorsement directly influences Impulse Buying. Moderator hypotheses (dotted lines) propose that Celebrity Endorsement strengthens relationships between independent variables and Impulse Buying, and between Brand Image and Impulse Buying. Mediating relationships suggest Brand Image mediates the impact of Paylater, Flash Sale, E-Commerce Diversity, and Urge to Buy on Impulse Buying, and Celebrity Endorsement's influence on Brand Image.

### 3. METHODOLOGY

This research adopts a quantitative approach characterized by systematic, structured, and clearly planned procedures from initiation to the research design phase. According to Sugiyono (2018), quantitative research is rooted in positivist philosophy, emphasizing hypothesis testing through statistical data analysis. Specifically, this study investigates factors influencing impulse buying behavior among active graduate students enrolled in the Faculty of Economics and Business at private universities in South Jakarta, using the Tokopedia mobile application. Brand Image serves as an intervening variable, and Celebrity Endorsement acts as a moderating variable in the research model. The research involves multiple variables: Paylater Usage, Flash Sale, E-commerce Diversity, and Urge to Buy as independent variables; Impulse Buying as the dependent variable; Brand Image as the mediating variable; and Celebrity Endorsement as the moderating variable. Operational definitions, dimensions, and measurement items for each variable are comprehensively detailed in Table 2.

#### 3.1 Data Collection

Data used in this research is cross-sectional, capturing perceptions at a single point in time, focusing on respondents' behaviors and attitudes toward impulse buying within a specific context. Primary data were gathered directly from respondents using structured questionnaires employing a Likert scale (Strongly Agree to Strongly Disagree). Secondary data were collected from relevant literature, theoretical frameworks, and previous empirical studies, providing foundational support for the primary data. The sampling method applied is purposive sampling, a non-probability sampling technique, selected based on specific criteria such as frequency of shopping on Tokopedia (more than three times monthly), regular participation in flash sales, experience with Tokopedia Paylater, and active enrollment as graduate students at private universities in South Jakarta. Following guidelines from Hair et al. (2019), the minimum sample size was calculated as 165 respondents based on the total number of indicators used in the study. The final distribution of respondents among selected universities is detailed comprehensively in Table 1, which shows:

Table 1. Sample Classification

University	Total Population	Sample Calculation	Sample Size
Universitas Pancasila	12,27	$(12,270 / 101,111) * 253$	31
Universitas Muhammadiyah Prof. Dr. HAMKA (UHAMKA)	5,86	$(5,860 / 101,111) * 253$	15
Universitas Nasional (UNAS)	10,39	$(10,390 / 101,111) * 253$	26
Universitas Satya Negara Indonesia (USNI)	18,418	$(18,418 / 101,111) * 253$	46
STIE IPWIJA (Institut Pengembangan Wirausaha Jakarta)	10,191	$(10,191 / 101,111) * 253$	25
Universitas Prof. Dr. Moestopo (Beragama)	16,964	$(16,964 / 101,111) * 253$	42

Universitas Katolik Indonesia Atma Jaya	16,284	(16,284 / 101,111) * 253	41
Universitas Al Azhar Indonesia	10,734	(10,734 / 101,111) * 253	27
<b>Total</b>	<b>101,111</b>		<b>253</b>

Data collection combined field research using structured, validated questionnaires to ensure measurement accuracy, and library research involving comprehensive reviews of existing literature, theoretical bases, and previous research to substantiate findings and contextualize results.

### 3.2 Measurements

Table 2. Measurements is a vital component of this research, meticulously detailing how each variable in the study is defined and measured. It acts as a comprehensive guide, outlining the main concepts under investigation, such as Paylater Usage, Flash Sale, E-commerce Diversity, and Celebrity Endorsement. For each variable, the table specifies its underlying dimensions, the specific aspects being explored—along with unique item codes and the exact questionnaire items (statements or questions) used to gather data from respondents. Crucially, the table also provides the source for each measurement scale, indicating that the study adopts established and validated instruments from prior academic literature, thereby bolstering the credibility and reliability of the research.

Table 2. Measurements

Variable	Dimension	Item	Questionnaire Items	Source
Paylater Usage	Intention to Use Paylater Service	PP 1	Using Paylater provides financial management flexibility.	Guttman-Kenney et al., 2022
		PP 2	High satisfaction with Paylater payment flexibility.	
		PP 3	Responsive Paylater customer service.	
		PP 4	User-friendly experience with Paylater service.	
	Satisfaction with Paylater Service	PP 5	Payment flexibility post-transaction provided by Paylater is helpful.	
		PP 6	Customer service solutions are satisfactory.	
		PP 7	Paylater system is easy to understand and use.	
		PP 8	Paylater is more attractive compared to other payment methods.	
		PP 9	Preference for using Paylater over other payment methods.	
Flash Sale	Promotional Offers	FS 1	Easily finding desired products during flash sales.	Ramadhani & Nugroho, 2024 Savitri & Riva'i, 2024
		FS 2	Satisfaction with purchase process during flash sales.	
		FS 3	User-friendly interface during flash sales.	
	Spontaneous Purchase	FS 4	Satisfaction with product delivery during flash sales.	
		FS 5	Secure and safe transactions during flash sales.	
		FS 6	Trust in transaction security during flash sales.	

	Affordability	FS 7	Personal data protection during flash sales.	
		FS 8	Enjoyable shopping experience during flash sales.	
		FS 9	Flash sales offer affordable prices.	
E-commerce Diversity	Types of commerce	E-K E1	Trustworthy and honest e-commerce service providers.	
		K E2	E-commerce service providers build trust.	
	E-commerce Services	K E3	Intention to continue shopping from e-commerce sites.	Kotler & Sarkar, 2018
		K E4	Recommending e-commerce services to others is beneficial.	
		K E5	Stable preference towards e-commerce services.	
Celebrity Endorsement	Trustworthiness	C E1	Celebrities endorsing Tokopedia ads appear intelligent.	
		C E2	Celebrities match the products they endorse.	
		C E3	Informative celebrity endorsements.	
	Attractiveness	C E4	Honesty of celebrities in endorsements.	Kotler & Wong, 2017
		C E5	Trustworthiness of celebrity endorsers.	
		C E6	Celebrities endorsing Tokopedia are attractive.	
	Likeability	C E7	Celebrities endorsing Tokopedia are competent.	
		C E8	Celebrities endorsing Tokopedia have class.	

### 3.3 Data Analysis

This study's analytical approach began with descriptive analysis to summarize the dataset's characteristics, providing foundational insights into distributions and central tendencies through measures like mean and standard deviation. This initial phase set the stage for deeper inferential analyses, including correlation analysis using Spearman's coefficient to quantify relationships between variables, indicating both strength and direction.

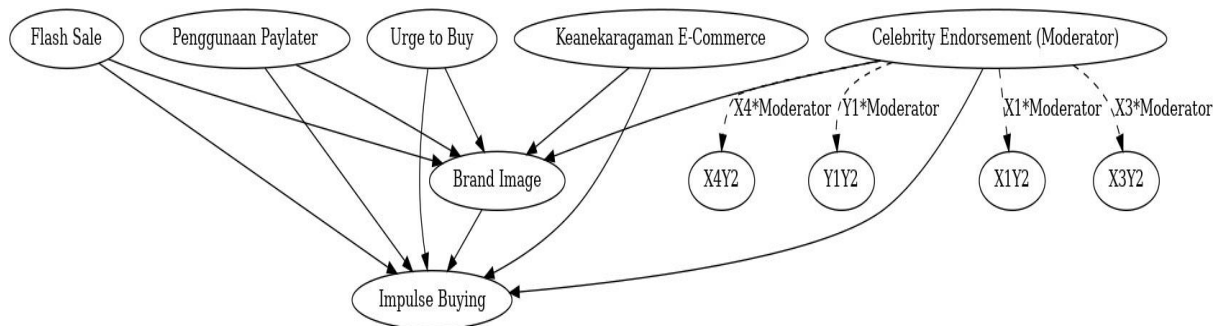


Figure 2. SEM Model

In Figure 2, the core of the analysis involved Structural Equation Modeling (SEM) via SmartPLS 3.0, rigorously testing hypotheses by evaluating both the outer (measurement) model for construct validity and reliability (e.g., convergent, discriminant validity, composite reliability) and the inner (structural) model for causal relationships (e.g., R-Squared, P-values). Further refinement and nuanced understanding of moderation and mediation effects were achieved using Hayes' Process Macro, enabling a comprehensive assessment of direct and indirect influences among variables.

### 3.4 Ethical Considerations

This research prioritized the ethical treatment of all participants, adhering to principles of voluntary participation, anonymity, and confidentiality. All data collected was de-identified to ensure that individual responses could not be linked back to specific participants, thereby safeguarding their privacy. Participation in the study was entirely voluntary, and participants were informed of their right to withdraw at any point without penalty. This study imposed no undue burden or risk on participants, and findings were presented in an aggregated format to protect individual identities and ensure the responsible use of all collected information. Prior to their participation, all respondents received a comprehensive informed consent form, clearly outlining the study's objectives, the nature of their involvement, and the approximate time commitment required. This form explicitly stated the voluntary nature of participation, guaranteed the anonymity and confidentiality of their responses, and explained how the collected data would be utilized solely for academic research purposes. Participants were provided with contact information for the research team to address any questions or concerns, and their explicit consent, either written or electronic, was obtained before they proceeded with the questionnaire, confirming their understanding and agreement to participate.

## 4. RESULT AND DISCUSSION

### 4.1 Respondent Profile

The demographic and behavioral characteristics of the respondents are detailed in the tables 3 below, providing a comprehensive overview of the study's participants.

Table 3. Respondent Demographics and E-commerce Behavior

Category	Sub-Category	Frequency	Percentage (%)
Gender	Male	98	38.7
	Female	155	61.3
Age Group	20-25 years	76	30.0
	26-30 years	110	43.5
	31-35 years	45	17.8
	> 35 years	22	8.7
Monthly Shopping Frequency (Tokopedia)	< 3 times	63	24.9
	3-5 times	121	47.8
	> 5 times	69	27.3
Monthly Living Expenses (IDR)	< 3,000,000	55	21.7
	3,000,001 - 5,000,000	130	51.4
	> 5,000,000	68	26.9
<b>Total Respondents</b>		<b>253</b>	<b>100.0</b>

Beyond confirming their status as active Master's (S2) students in South Jakarta and their familiarity with Tokopedia, a deeper profile of the 253 respondents was captured. The gender distribution revealed a predominance of female respondents at 61.3%, with males constituting 38.7%. In terms of age, the majority of participants fell within the 26-30 years age group (43.5%), closely followed by the 20-25 years group (30.0%), aligning with the common demographic of postgraduate students and digital natives. Regarding their e-commerce behavior, the monthly shopping frequency on Tokopedia indicated that a significant portion, nearly half of the respondents (47.8%), reported shopping 3-5 times per month, suggesting regular and consistent engagement with the platform. This frequent usage underscores the

relevance of Tokopedia in their daily lives. Finally, an analysis of monthly living expenses provided insights into their financial capacity, with the largest group (51.4%) reporting expenses between IDR 3,000,001 - 5,000,000. This suggests a segment with disposable income conducive to online purchasing behavior. These detailed demographic and behavioral insights enrich the understanding of the sample, providing a robust foundation for interpreting the study's findings on impulse buying behavior.

#### 4.2 Descriptive Statistics

This section details the descriptive analysis of the study's variables, providing an overview of respondent perceptions across various dimensions. This analysis aims to quantify respondents' assessments of the indicators comprising each variable, identifying general trends within the data. The results are presented as mean scores and categorized into 'Good' or 'Very Good' ratings, forming a foundational understanding of how each dimension contributes to the overall variables (see Table 4).

Table 4. Descriptive Analysis of Variables

Variable	Dimension	Total Score	Mean Score	Criteria	Mean Percentage of Max Score
Paylater Usage	Intention to Use Paylater Service	3153	4.15	Good	83.00%
	Intention to Buy with Paylater	2116	4.18	Good	83.60%
	Satisfaction with Paylater Service	4196	4.15	Good	83.00%
Overall Paylater Usage		3155	4.16	Good	83.20%
Flash Sale	Promotional Offers	2939	3.87	Good	77.40%
	Spontaneous Purchase	2973	3.92	Good	78.40%
	Price Affordability	2831	3.73	Good	74.60%
Overall Flash Sale		2914.33	3.84	Good	76.80%
E-commerce Diversity	Types of E-commerce	2133	4.22	Very Good	84.40%
	E-commerce Services	3063	4.04	Good	80.80%
Overall E-commerce Diversity		2598	4.13	Good	82.60%
Celebrity Endorsement	Trustworthiness	2858	3.77	Good	75.40%
	Attractiveness	2845	3.75	Good	75.00%
	Likeability	1902	3.76	Good	75.20%
Overall Celebrity Endorsement		2535	3.76	Good	75.20%
Urge to Buy	Cognitive	2966	3.91	Good	78.20%
	Affective	1989	3.93	Good	78.60%
Overall Urge to Buy		2477.5	3.92	Good	78.40%
Impulse Buying	Logical	3027	3.99	Good	79.80%
	Impulsive	3086	4.07	Good	81.40%
Overall Impulse Buying		3056.5	4.03	Good	80.60%
Brand Image	Commitment	2097	4.14	Good	82.80%
	Reputation	3155	4.16	Good	83.20%
	Trustworthiness	4186	4.14	Good	82.80%
Overall Brand Image		3146	4.15	Good	83.00%

Note: The "Mean Percentage of Max Score" is calculated assuming a 5-point Likert scale (Max Score = 5), so (Mean Score / 5) \* 100%.

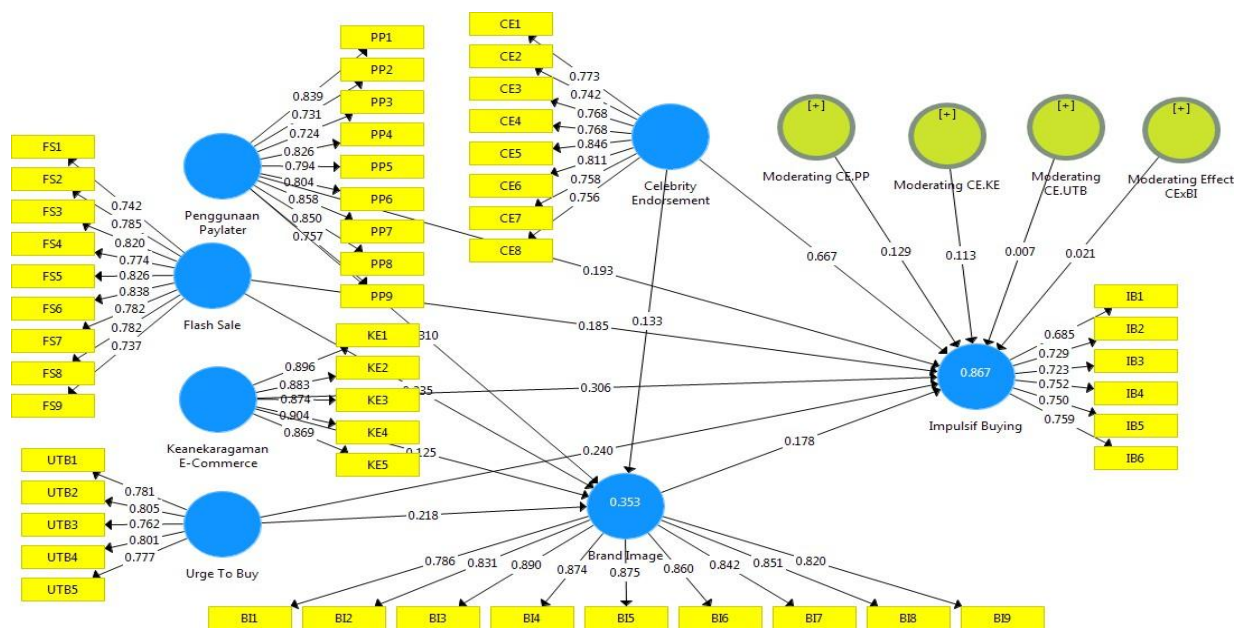
The descriptive analysis provided a comprehensive overview of respondent perceptions across all variables and their constituent dimensions. For Paylater Usage, the overall mean score was 4.16, categorized as "Good," with individual dimensions such as "Intention to Use Paylater Service" (mean 4.15), "Intention to Buy with Paylater" (mean 4.18), and "Satisfaction with Paylater Service" (mean 4.15) all receiving

"Good" ratings. This indicates a generally positive perception and favorable disposition towards using Paylater services among respondents. Similarly, the Flash Sale variable exhibited an overall mean score of 3.84, also categorized as "Good." Its dimensions "Promotional Offers" (mean 3.87), "Spontaneous Purchase" (mean 3.92), and "Price Affordability" (mean 3.73) consistently fell into the "Good" category. This suggests that respondents generally perceive flash sales as attractive and conducive to purchasing. E-commerce Diversity obtained an overall mean score of 4.13, classified as "Good." Notably, the "Types of E-commerce" dimension received a "Very Good" rating with a mean of 4.22, while "E-commerce Services" was rated "Good" (mean 4.04). This highlights that the variety and types of e-commerce platforms are particularly well-regarded by respondents.

For Celebrity Endorsement, the overall mean score was 3.76, categorized as "Good." All its dimensions "Trustworthiness" (mean 3.77), "Attractiveness" (mean 3.75), and "Likeability" (mean 3.76) were consistently rated "Good." These findings suggest that celebrities used in promotions are generally perceived positively, being viewed as trustworthy, attractive, and likable by the audience. The Urge to Buy variable also demonstrated a "Good" overall perception, with a mean score of 3.92. Both its "Cognitive" (mean 3.91) and "Affective" (mean 3.93) dimensions received "Good" ratings, indicating that both rational considerations and emotional impulses contribute to the urge to buy. Impulse Buying itself yielded an overall mean score of 4.03, categorized as "Good." Its dimensions, "Logical" (mean 3.99) and "Impulsive" (mean 4.07), were both rated "Good." This suggests that impulse purchases are influenced by both logical considerations and purely impulsive drives. Finally, Brand Image demonstrated a strong overall perception with a mean score of 4.15, classified as "Good." All its dimensions "Commitment" (mean 4.14), "Reputation" (mean 4.16), and "Trustworthiness" (mean 4.14) were rated "Good." This consistent high rating indicates that respondents hold a very favorable perception of the brand's image. The descriptive analysis consistently showed that respondents held a "Good" to "Very Good" perception across all variables and their respective dimensions. This initial evaluation confirms that the indicators effectively captured the intended constructs and provides a strong foundation for the subsequent inferential analyses regarding the relationships between these variables.

### 4.3 Measurement Model Assessment

This section presents the results of the data analysis performed using SmartPLS, focusing on the assessment of the measurement model through tests of convergent validity, discriminant validity, and reliability. The measurement model was rigorously assessed using SmartPLS, evaluating convergent validity, discriminant validity, and reliability of all constructs. In Figure 3, convergent validity was



confirmed as indicated by all indicator loadings meeting the acceptable thresholds, signifying that each indicator strongly represented its intended construct.

Figure 3. Convergent Validity

Table 5. Measurement Model Assessment Results

Construct	Dimension	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Paylater Usage	Intention to Use Paylater	0.811	0.816	0.888	0.725
	Intention to Buy	0.783	0.783	0.902	0.822
	Satisfaction	0.881	0.884	0.918	0.738
Flash Sale	Promotion	0.876	0.878	0.924	0.802
	Spontaneous	0.860	0.861	0.914	0.781
	Price	0.846	0.846	0.907	0.764
E-commerce Diversity	Type	0.881	0.881	0.944	0.894
	Service	0.894	0.895	0.934	0.825
Celebrity Endorsement	Trustworthiness	0.835	0.835	0.901	0.752
	Attractiveness	0.863	0.865	0.917	0.785
	Likeability	0.782	0.782	0.902	0.821
Urge to Buy	Cognitive	0.744	0.746	0.854	0.661
	Affective	0.633	0.633	0.845	0.732
Impulse Buying	Logical	0.680	0.681	0.824	0.610
	Impulsive	0.752	0.752	0.858	0.668
Brand Image	Commitment	0.788	0.790	0.904	0.825
	Reputation	0.900	0.900	0.937	0.833
	Trustworthiness	0.914	0.914	0.939	0.795

The measurement model was rigorously assessed using SmartPLS, evaluating convergent validity, discriminant validity, and reliability of all constructs. Convergent validity was confirmed as indicated by all indicator loadings meeting the acceptable thresholds, signifying that each indicator strongly represented its intended construct. Discriminant validity was established through two key criteria. First, the Heterotrait-Monotrait Ratio (HTMT) values were predominantly below the 0.85 or 0.90 thresholds (e.g., Celebrity Endorsement and Impulse Buying at 0.750, Brand Image and Impulse Buying at 0.599), indicating that each construct was conceptually distinct and did not overlap excessively with others. Second, the Fornell-Larcker Criterion was satisfied, as the square root of the Average Variance Extracted (AVE) for each construct (displayed on the diagonal in the provided raw data, e.g., E-commerce Diversity 0.885, Brand Image 0.848, Paylater Usage 0.800) was consistently higher than its correlation coefficients with all other constructs. This confirmed that each construct shared more variance with its own indicators than with other constructs in the model, further validating their uniqueness. Furthermore, the reliability of all constructs demonstrated excellent internal consistency. This was evidenced by high values for Cronbach's Alpha, Composite Reliability (rho\_a), and Composite Reliability (rho\_c), all of which exceeded the commonly accepted minimum threshold of 0.7. Specifically, rho\_c values consistently above 0.8 across all constructs (e.g., Intention to Buy with Paylater 0.902, E-commerce Diversity (Type) 0.944, Brand Image (Reputation) 0.937) indicated that the composite of indicators effectively and accurately represented their respective constructs. Additionally, the Average Variance Extracted (AVE) values, predominantly above 0.7 (with a few minor exceptions like Urge to Buy (Cognitive) at 0.661 and Impulse

Buying (Logical) at 0.610 which are still considered acceptable in social science research), confirmed that a substantial proportion of the variance in the indicators was explained by their corresponding latent constructs, reinforcing the convergent validity (see Table 5).

#### 4.4 Structural Model

This section presents the results of the data analysis performed using SmartPLS, focusing on the evaluation of the structural model. This includes the R-squared (R<sup>2</sup>) analysis, which assesses the model's overall predictive power, the f-squared (f<sup>2</sup>) analysis (see Table 6), which quantifies the effect size of individual predictors, and the hypothesis testing of both direct and indirect effects, providing a comprehensive understanding of the structural relationships within the research model.

Table 6. R-squared (R<sup>2</sup>) and f-squared (f<sup>2</sup>) Analysis

Category	Variable Relationship	R-squared (R <sup>2</sup> )	R-squared Adjusted	f-squared (f <sup>2</sup> )	Effect Interpretation	Size
R-squared (R <sup>2</sup> )	Brand Image	0.353	0.340		Moderate	
	Impulse Buying	0.867	0.862		Very Strong	
f-squared (f <sup>2</sup> )	Celebrity Endorsement -> Impulse Buying			2.292	Very Large	
	E-commerce Diversity -> Impulse Buying			0.547	Large	
	Urge To Buy -> Impulse Buying			0.300	Moderate	
	Flash Sale -> Impulse Buying			0.218	Moderate	
	Paylater Usage -> Impulse Buying			0.207	Moderate	
	Brand Image -> Impulse Buying			0.147	Small to Moderate	
	Paylater Usage -> Brand Image			0.127	Small to Moderate	
	Flash Sale -> Brand Image			0.079	Small	
	Urge To Buy -> Brand Image			0.062	Small	
	Celebrity Endorsement -> Brand Image			0.026	Small	
	E-commerce Diversity -> Brand Image			0.021	Small	
	Moderating CE.KE -> Impulse Buying			0.085	Small	
	Moderating CE.PP -> Impulse Buying			0.076	Small	
	Moderating CE.UTB -> Impulse Buying			0.000	Negligible	
Moderating Effect CExBI -> Impulse Buying			0.002	Negligible		

The structural model, depicting the hypothesized relationships between latent variables, was rigorously assessed. This evaluation encompassed the model's predictive power, the effect sizes of individual predictors, and the statistical significance of both direct and indirect relationships. The R-squared (R<sup>2</sup>) values, as presented in Table 6, indicate the model's predictive accuracy. For Brand Image, the R<sup>2</sup> was 0.353 (adjusted R<sup>2</sup> = 0.340), suggesting that 35.3% of its variance was explained by the combined influence of Paylater Usage, Flash Sale, E-commerce Diversity, Urge to Buy, and Celebrity Endorsement. This is considered a moderate level of explanatory power. More significantly, Impulse Buying achieved a very high R<sup>2</sup> of 0.867 (adjusted R<sup>2</sup> = 0.862), implying that 86.7% of its variance was collectively explained by its antecedents and the moderating effects. This strong R<sup>2</sup> value, coupled with a high Q-squared value of 0.912, which is close to 1, confirms the model's substantial predictive relevance and its ability to explain a significant portion (91.2%) of the information within the research data. The f-squared (f<sup>2</sup>) analysis, also detailed in Table 6, provided insights into the effect size of each independent variable on its respective dependent variable. Celebrity Endorsement emerged as the most dominant influence on Impulse Buying, with an f<sup>2</sup> value of 2.292, indicating a very large effect. This highlights Celebrity Endorsement as a crucial driver of impulse buying behavior. E-commerce Diversity also showed a large effect on Impulse Buying (f<sup>2</sup>=0.547). Urge to Buy (f<sup>2</sup>=0.300), Flash Sale (f<sup>2</sup>=0.218), and Paylater Usage (f<sup>2</sup>=0.207) exhibited moderate effects on Impulse Buying. Brand Image had a small to moderate effect on Impulse Buying (f<sup>2</sup>=0.147), and smaller effects on Flash Sale (f<sup>2</sup>=0.079), Paylater Usage (f<sup>2</sup>=0.127), Urge to Buy

( $f^2=0.062$ ), Celebrity Endorsement ( $f^2=0.026$ ), and E-commerce Diversity ( $f^2=0.021$ ) when predicting Brand Image. Notably, the moderating variables, Moderating CE.UTB ( $f^2=0.000$ ) and Moderating Effect CExBI ( $f^2=0.002$ ), displayed negligible effect sizes, suggesting that the direct moderating roles of Celebrity Endorsement on the Urge to Buy  $\rightarrow$  Impulse Buying and Brand Image  $\rightarrow$  Impulse Buying relationships were not statistically significant in terms of practical effect.

Table 7. Direct and Indirect Hypothesis Test Results

Path	Path Coefficient ( $\beta$ )	T-statistic	P-value	Supported ( $p < 0.05$ )
<b>Direct Effects</b>				
Brand Image $\rightarrow$ Impulse Buying	0.178	5.004	0.000	Supported
Celebrity Endorsement $\rightarrow$ Brand Image	0.133	2.362	0.019	Supported
Celebrity Endorsement $\rightarrow$ Impulse Buying	0.667	14.620	0.000	Supported
Flash Sale $\rightarrow$ Brand Image	0.235	3.656	0.000	Supported
Flash Sale $\rightarrow$ Impulse Buying	0.185	6.040	0.000	Supported
E-commerce Diversity $\rightarrow$ Brand Image	0.125	2.389	0.017	Supported
E-commerce Diversity $\rightarrow$ Impulse Buying	0.306	8.943	0.000	Supported
Moderating CE.KE (CE x E-commerce Diversity) $\rightarrow$ Impulse Buying	0.113	4.193	0.000	Supported
Moderating CE.PP (CE x Paylater Usage) $\rightarrow$ Impulse Buying	0.129	3.894	0.000	Supported
Moderating CE.UTB (CE x Urge To Buy) $\rightarrow$ Impulse Buying	0.007	0.232	0.817	Not Supported
Moderating Effect CExBI (CE x Brand Image) $\rightarrow$ Impulse Buying	0.021	0.520	0.603	Not Supported
Paylater Usage $\rightarrow$ Brand Image	0.310	4.756	0.000	Supported
Paylater Usage $\rightarrow$ Impulse Buying	0.193	6.110	0.000	Supported
Urge To Buy $\rightarrow$ Brand Image	0.218	3.982	0.000	Supported
Urge To Buy $\rightarrow$ Impulse Buying	0.240	7.347	0.000	Supported
<b>Indirect Effects (Mediation through Brand Image)</b>				
Celebrity endorsement $\rightarrow$ Brand Image $\rightarrow$ Impulse Buying	0.024	2.094	0.037	Supported
Flash sale $\rightarrow$ Brand Image $\rightarrow$ Impulse Buying	0.042	3.108	0.002	Supported
E-commerce Diversity $\rightarrow$ Brand Image $\rightarrow$ Impulse Buying	0.022	1.998	0.046	Supported
Paylater Usage $\rightarrow$ Brand Image $\rightarrow$ Impulse Buying	0.055	3.309	0.001	Supported
Urge To Buy $\rightarrow$ Brand Image $\rightarrow$ Impulse Buying	0.039	2.984	0.003	Supported

Finally, the hypothesis testing (Table 7) provided definitive insights into the statistical significance of the direct and indirect relationships. Celebrity Endorsement emerged as the strongest direct predictor of Impulse Buying ( $\beta=0.667, p<0.001$ ), signifying a powerful immediate influence. Beyond this, a range of factors were also found to directly contribute to impulsive purchases: E-commerce Diversity ( $\beta=0.306, p<0.001$ ), Urge To Buy ( $\beta=0.240, p<0.001$ ), Paylater Usage ( $\beta=0.193, p<0.001$ ), and Flash Sale ( $\beta=0.185, p<0.001$ ). These findings underscore that both internal consumer states (Urge To Buy) and external marketing stimuli (Flash Sale, Paylater Usage, E-commerce Diversity) directly trigger unplanned purchases. Furthermore, the study revealed the significant role of these factors in shaping Brand Image. All direct paths from Paylater Usage ( $\beta=0.310, p<0.001$ ), Flash Sale ( $\beta=0.235, p<0.001$ ), Urge To Buy ( $\beta=0.218, p<0.001$ ), Celebrity Endorsement ( $\beta=0.133, p=0.019$ ), and E-commerce Diversity ( $\beta=0.125, p=0.017$ ) to Brand Image were statistically significant. This indicates that convenience features like Paylater, engaging promotions like Flash Sale, broad product offerings, and positive emotional responses, all enhanced by celebrity associations, contribute to a favorable brand perception. In turn, this strengthened Brand Image itself was found to directly and significantly influence Impulse Buying ( $\beta=0.178, p<0.001$ ), establishing it as a crucial direct driver of impulsive purchases. The analysis also explored the nuanced interplay of these variables through moderation and mediation. Celebrity Endorsement was found to significantly strengthen the positive effects of E-commerce Diversity ( $\beta=0.113, p<0.001$ ) and Paylater Usage ( $\beta=0.129, p<0.001$ ) on Impulse Buying, highlighting its role as a powerful enhancer for these specific drivers. However, celebrity influence did not significantly moderate the relationship between Urge To Buy and Impulse Buying ( $\beta=0.007, p=0.817$ ), nor did it significantly moderate the relationship between Brand Image and Impulse Buying ( $\beta=0.021, p=0.603$ ), suggesting the innate desire to buy and the existing brand perception operate somewhat independently of celebrity endorsement in those direct interactions. Critically, Brand Image also acted as a significant mediator in several relationships: the influence of Paylater Usage ( $\beta=0.055, p<0.001$ ), Flash Sale ( $\beta=0.042, p=0.002$ ), Urge To Buy ( $\beta=0.039, p=0.003$ ), Celebrity Endorsement ( $\beta=0.024, p=0.037$ ), and E-commerce Diversity ( $\beta=0.022, p=0.046$ ) on Impulse Buying were all indirectly channeled and amplified through the formation of a positive brand image. This comprehensive set of results underlines the multifaceted nature of impulse buying behavior, driven by direct stimuli, strong brand perception, and, in certain contexts, moderated by influential figures.

#### 4.5 Moderation Analysis with Macro Hayes

The analysis uses slope graphs to visually represent the moderating effects at different levels of Celebrity Endorsement (high moderation: +1 standard deviation, low moderation: -1 standard deviation).

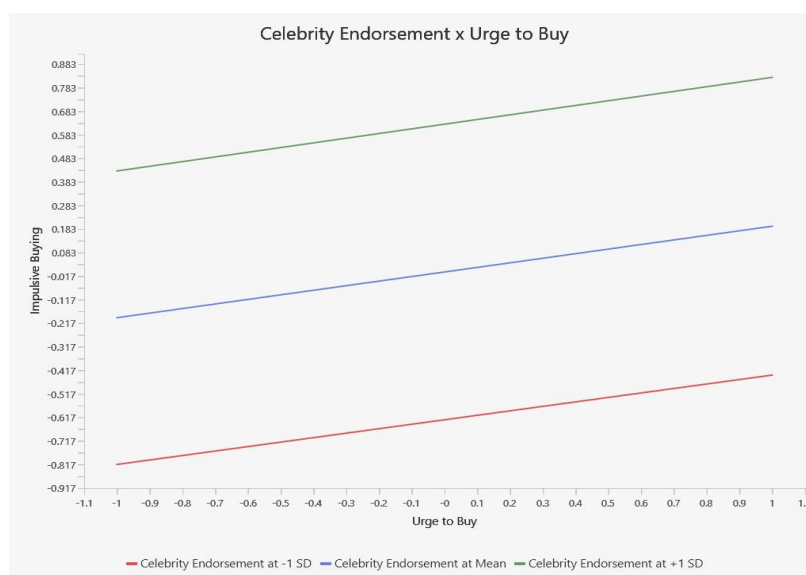


Figure 4. Celebrity Endorsement as a Moderator for Urge to Buy and Impulse Buying

The analysis shows that Celebrity Endorsement does not significantly moderate the relationship between Urge to Buy and Impulse Buying. The slope graph (Gambar 4.4) illustrates this clearly, with the lines representing high (+1 SD) and low (-1 SD) levels of Celebrity Endorsement appearing nearly parallel. This parallelism indicates that regardless of whether celebrity endorsement is high or low, its presence does not significantly alter the strength of the connection between a consumer's inherent urge to buy and their tendency to make impulsive purchases. Essentially, the emotional or spontaneous drive to buy appears to operate independently of celebrity influence in directly translating into an impulse purchase.

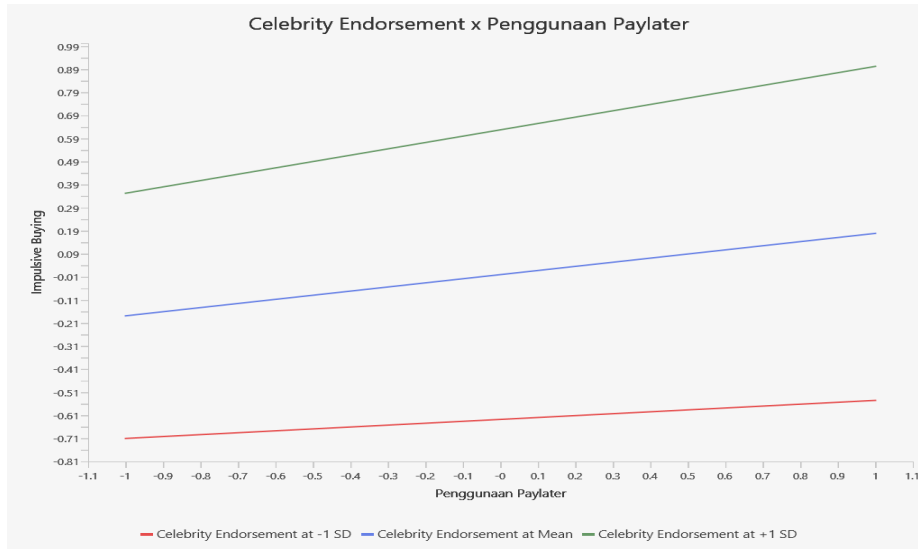


Figure 5. Celebrity Endorsement as a Moderator for Paylater Usage and Impulse Buying

In contrast, the analysis reveals that Celebrity Endorsement positively moderates the relationship between Paylater Usage and Impulse Buying. As depicted in the slope graph (Gambar 4.5), the line for high Celebrity Endorsement (+1 SD) shows a steeper incline compared to the line for low Celebrity Endorsement (-1 SD). This distinct difference in slopes signifies that when celebrity endorsement is at a higher level, the impact of Paylater Usage on Impulse Buying becomes considerably stronger. In practical terms, this means that consumers are more likely to make impulsive purchases when using Paylater services if those services are strongly associated with or promoted by celebrities. The celebrity's influence amplifies the convenience and perceived financial ease offered by Paylater, leading to greater impulsivity.

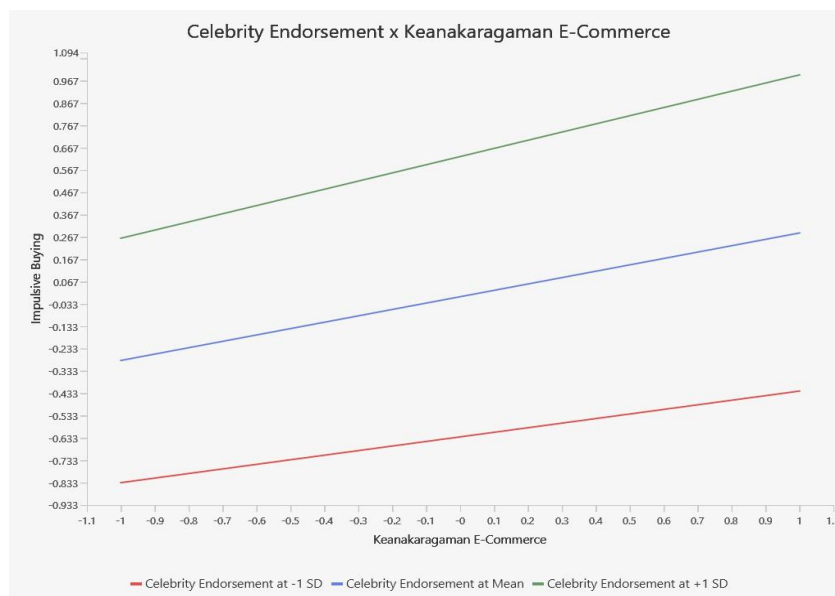


Figure 6. Celebrity Endorsement as a Moderator for E-commerce Diversity and Impulse Buying

Similarly, the results indicate that Celebrity Endorsement acts as a positive moderator in the relationship between E-commerce Diversity and Impulse Buying. The slope graph (Gambar 4.6) demonstrates that the line representing high Celebrity Endorsement (+1 SD) has a steeper gradient than the line for low Celebrity Endorsement (-1 SD). This suggests that the extensive variety of products available on an e-commerce platform has a more pronounced effect on driving impulsive purchases when celebrity endorsement is high. When celebrities promote or are associated with platforms offering diverse products, their influence enhances the consumer's exploration and spontaneous buying behavior, making them more susceptible to impulse purchases within that varied e-commerce environment.

**4.6 Second-Order Construct and Inter-Dimensional Correlation Analysis**

This section delves into the detailed analysis of second-order constructs within the research model (see Figure 7), which are used to represent complex, multidimensional concepts indirectly through their first-order dimensions. It also presents a comprehensive correlation matrix examining the relationships between all individual dimensions of the constructs, offering a finer-grained understanding of their interdependencies and contributions to the overall model. The research employs a second-order construct approach to effectively capture the intricate, multidimensional nature of key concepts like Celebrity Endorsement, Brand Image, and Impulse Buying. Unlike traditional first-order constructs measured directly by observed indicators, second-order constructs are latent variables defined by a set of first-order constructs, each of which is then measured by its own observable items. This hierarchical modeling strategy, visualized in the Structural Equation Modeling (SEM) framework (Gambar 4.1), provides a more holistic and nuanced understanding of complex phenomena. For instance, Brand Image is conceptualized as a second-order construct composed of three first-order dimensions: Komitmen (Commitment), Reputasi (Reputation), and Dipercaya (Trustworthiness). Each of these dimensions is, in turn, measured by specific indicators (e.g., BI1-BI9) with high loadings, signifying their substantial contribution to the overarching Brand Image construct. Similarly, Celebrity Endorsement is modeled as a second-order construct underpinned by Trustworthiness, Attractiveness, and Likeability, measured by indicators CE1-CE8. Impulse Buying is also structured as a second-order construct, comprising Logis (Logical) and Impulsif (Impulsive) dimensions, each represented by indicators IB1-IB6. This hierarchical structure allows for a more comprehensive interpretation of how these multifaceted variables interact and influence consumer behavior, alongside other first-order constructs such as Paylater Usage, Flash Sale, Urge to Buy, and E-commerce Diversity. While the model also visualizes moderation effects, the analysis revealed that most of these moderating paths had negligible coefficients (e.g., 0.000), indicating a lack of significant moderating influence from Celebrity Endorsement in those specific tested relationships.

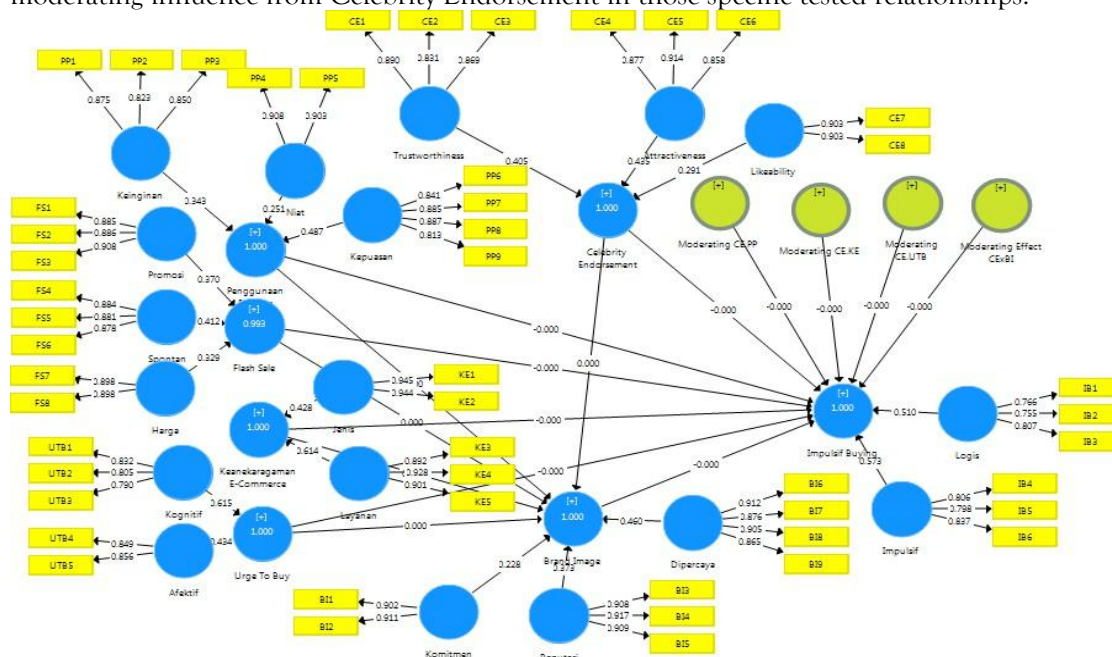


Figure 7. Second-Order Construct

Further granular insights are provided by the correlation matrix among dimensions, which elucidates the strength and direction of relationships between the specific building blocks of each construct. High correlations were observed among the dimensions forming the same second-order construct, reinforcing their conceptual consistency. For instance, within Brand Image, very strong correlations were found between *Komitmen* and *Reputasi* (0.865), *Komitmen* and *Dipercaya* (0.740), and *Reputasi* and *Dipercaya* (0.858), confirming that these three dimensions are tightly intertwined and logically cohere to form the Brand Image construct. Similarly, dimensions of Celebrity Endorsement (Trustworthiness, Attractiveness, Likeability) showed high inter-correlations (e.g., Trustworthiness and Attractiveness = 0.712), affirming their consistent measurement of consumer perceptions towards endorsers. Within Impulse Buying, the *Logis* (0.776) and *Impulsif* (0.814) dimensions also displayed strong correlations with the main Impulse Buying construct, which is theoretically sound given they are its direct components.

Analyzing cross-construct correlations, Paylater Usage dimensions, particularly "*Kepuasan*" (Satisfaction), showed strong positive correlations with both "*Logis*" (0.444) and "*Reputasi*" (0.446), and "*Keinginan*" (Desire) with "*Dipercaya*" (0.419). This indicates that positive experiences with Paylater services not only facilitate spontaneous purchases but also bolster the brand's trustworthiness and reputation. Flash Sale dimensions (*Promosi*, *Spontan*, *Harga*) exhibited moderate correlations with impulse buying behaviors (e.g., *Spontan* with *Impulsif* = 0.333) and brand image aspects (e.g., *Promosi* with *Reputasi* = 0.331), suggesting that attractive, time-sensitive promotions stimulate impulsivity and contribute to a favorable brand perception if consumer satisfaction is high. E-commerce Diversity dimensions ("*Jenis*" and "*Layanan*") demonstrated moderate correlations (ranging from 0.342 to 0.406) with both "*Logis*" and "*Impulsif*" aspects of impulse buying, indicating that variety and service quality influence purchasing decisions from both rational and emotional perspectives.

Intriguingly, while Celebrity Endorsement dimensions (Trustworthiness, Attractiveness, Likeability) showed high correlations with Impulse Buying dimensions (e.g., Likeability with *Logis* = 0.582, Likeability with *Impulsif* = 0.551), their correlations with Brand Image dimensions (*Komitmen*, *Reputasi*, *Dipercaya*) were relatively low. This suggests that while celebrity support strongly drives immediate impulsive purchases, it may not necessarily translate into a deep or lasting strengthening of core brand image attributes like commitment or trustworthiness. Similarly, *Urge to Buy* (*Kognitif*, *Afektif*) showed moderate correlations across various dimensions, with the highest for "*Afektif*" with "*Dipercaya*" (0.305) and "*Kognitif*" with "*Reputasi*" (0.294), implying that the emotional and cognitive drives for purchase are linked to positive brand perceptions. Finally, the high correlations between the dimensions of Impulse Buying and Brand Image (e.g., *Logis* with *Reputasi* = 0.507, *Impulsif* with *Dipercaya* = 0.471) underscore that impulsive buying, when coupled with a satisfying shopping experience, can indeed positively reinforce aspects of brand image. Overall, this detailed dimensional correlation matrix not only provides initial empirical evidence for the validity of the second-order constructs but also offers a nuanced understanding of how various facets of consumer behavior and marketing stimuli interact to influence both brand perception and impulsive purchasing in the e-commerce landscape.

#### 4.7 DISCUSSION

Firstly, several direct relationships significantly influenced Impulse Buying. The availability and ease of Paylater Usage positively impacted impulse purchases, as flexible payment options reduce psychological barriers to spending (Cuandra, 2022; Guttman-Kenney et al., 2022). Similarly, Flash Sale promotions significantly drove impulse buying by creating urgency and scarcity, compelling immediate action (Christian et al., 2022). E-commerce Diversity also had a significant direct effect, with a wider array of products increasing temptation and comparison-driven unplanned purchases (Hadmandho, 2022; Luthfia, 2023; Nanggala, 2020). Furthermore, the inherent *Urge to Buy* was a direct and potent trigger for impulse buying, often spurred by enticing promotions and social influences (Badgaiyan & Verma, 2015; Khodakaram Arzanagh & Danaei, 2014; Putra et al., 2022). Crucially, Brand Image itself demonstrated a significant direct positive effect on Impulse Buying, suggesting that a strong and positive brand perception fosters trust and confidence, making consumers more prone to spontaneous decisions (Syamsurizal & Ernawati, 2020; Zhao et al., 2022). Beyond direct influences on impulse buying, various antecedents were also found to significantly shape Brand Image. Both Paylater Usage and Flash Sale

positively contributed to Brand Image, as their features and promotional nature are perceived as innovative and customer-friendly (Adawiyah, 2022; Gao et al., 2024; Sari, 2021). E-commerce Diversity enhanced brand perception by positioning the platform as a comprehensive and reliable shopping solution (Kotler & Sarkar, 2018; Kotler & Wong, 2017). The Urge to Buy also positively influenced Brand Image, as a platform that successfully evokes and satisfies this urge is seen as exciting and responsive (Putra et al., 2022; Ruswanti, 2016). Notably, Celebrity Endorsement directly and significantly contributed to Brand Image, leveraging positive associations to enhance brand perception. In fact, Celebrity Endorsement emerged as the most dominant direct predictor of Impulse Buying, powerfully influencing consumer behavior through aspirational appeal and perceived trustworthiness.

The analysis of moderating effects revealed nuanced interactions. Celebrity Endorsement significantly strengthened the positive relationships between Paylater Usage and Impulse Buying, as well as between E-commerce Diversity and Impulse Buying. This indicates that celebrity influence amplifies the effect of flexible payments and product variety on spontaneous purchases. However, Celebrity Endorsement did not significantly moderate the relationship between Urge to Buy and Impulse Buying, suggesting that an inherent emotional drive for purchase operates independently of celebrity influence. Similarly, its moderation of the relationship between Brand Image and Impulse Buying was not statistically significant, implying that while both individually contribute to impulse buying, their combined interactive effect in directly pushing purchases was not amplified by celebrity endorsement. Finally, Brand Image played a critical mediating role in the relationships between several variables and Impulse Buying. The indirect effects of Paylater Usage, Flash Sale, E-commerce Diversity, Urge to Buy, and Celebrity Endorsement on Impulse Buying were all significantly mediated by Brand Image. This implies that these factors, while influencing impulse buying directly, also channel a significant portion of their impact through the consumer's positive perception of the brand. A strong Brand Image facilitates the translation of these stimuli into impulsive purchase behavior, underscoring its central role in the overall model. These findings provide a comprehensive understanding of the complex interplay of factors driving impulse buying in the dynamic e-commerce environment.

This study offers a new synthesis or conceptual framework by integrating and developing existing theories related to seven distinct variables: Paylater Usage, Flash Sale programs, E-commerce Diversity, Celebrity Endorsement, Urge To Buy, Impulse Buying, and Brand Image. While individual relationships among some of these variables have been explored in prior research, this study's unique contribution lies in weaving them together into a comprehensive model. It goes beyond examining isolated effects to understand their intricate interplay, creating a more holistic theoretical lens through which to view impulsive purchasing behavior in a contemporary e-commerce setting. This integrative approach allows for the identification of previously underexplored synergistic effects and pathways that contribute to consumer decisions. Building upon this conceptual synthesis, the research develops a novel empirical model that comprehensively integrates all seven aforementioned variables. This represents a significant advancement over fragmented studies, providing a robust framework to simultaneously analyze their direct, indirect, and moderating influences. By including diverse factors such as modern payment solutions (Paylater), dynamic promotional strategies (Flash Sale), platform characteristics (E-commerce Diversity), external influence (Celebrity Endorsement), internal psychological states (Urge To Buy), consumer outcomes (Impulse Buying), and brand perception (Brand Image), the model offers a more complete picture of the drivers of impulse buying. This integrated model allows for a more accurate assessment of the relative importance and interactive dynamics of these variables, providing a robust tool for future research and practical application.

This study provides new findings and up-to-date information derived from the empirical analysis of this integrated model. The results illuminate the specific strengths and directions of the relationships among these variables, including supported direct and indirect effects, and revealing which moderating roles are significant or not within the specified context of Tokopedia users. These findings offer fresh empirical evidence that can validate, refine, or challenge existing theoretical propositions, providing valuable insights into the contemporary digital marketplace. For instance, the specific interplay between celebrity endorsement and various e-commerce features in driving impulse buying, or the detailed mediating role of brand image, represents new knowledge derived from this unique research design and data. This

contributes directly to the academic discourse and offers practical implications for e-commerce platforms like Tokopedia.

## 5. Conclusions

Based on the comprehensive analysis of the research findings, several key conclusions can be drawn regarding the factors influencing impulse buying among Tokopedia mobile application users, with Brand Image playing a pivotal mediating role. Firstly, the study unequivocally confirms that several direct antecedents significantly drive impulse buying. These include the convenience of Paylater Usage, the urgency created by Flash Sale programs, the extensive options provided by E-commerce Diversity, and the intrinsic Urge to Buy. Each of these factors directly stimulates unplanned purchases, highlighting the importance of both external stimuli and internal consumer states. Secondly, these identified drivers of impulse buying are also instrumental in shaping the Brand Image of Tokopedia. The perceived innovation of Paylater, the appeal of Flash Sales, the breadth of product offerings, and the ability of the platform to evoke and satisfy buying desires all contribute positively to the brand's perception. This cultivated Brand Image, in turn, is a significant direct predictor of impulse buying itself, underscoring that a trusted and positively perceived brand encourages spontaneous purchases.

Thirdly, the research highlights the powerful moderating role of Celebrity Endorsement. It strengthens the positive impact of both Paylater Usage and E-commerce Diversity on impulse buying, indicating that celebrity influence can amplify the effectiveness of modern payment solutions and diverse product offerings in driving spontaneous purchases. While Celebrity Endorsement directly and strongly influences both Brand Image and impulse buying, its direct moderating effect on the relationship between Urge to Buy and Impulse Buying, as well as between Brand Image and Impulse Buying, was not found to be significant. This suggests that the inherent desire to buy and the established brand perception operate largely independently of celebrity influence in those direct interactions. Finally, Brand Image emerged as a critical mediator in the model. The positive influences of Paylater Usage, Flash Sale, E-commerce Diversity, Urge to Buy, and Celebrity Endorsement on impulse buying are significantly channeled and enhanced through the formation of a positive brand image. This confirms that while these factors may directly incite impulse purchases, a substantial portion of their effect is realized by first fostering a favorable perception of the Tokopedia brand, which then facilitates greater impulsivity. Impulse buying on Tokopedia is a complex behavior driven by a combination of direct external stimuli, internal psychological urges, and is powerfully mediated and, in some cases, moderated by a strong brand image and the strategic use of celebrity endorsement. These findings provide a holistic understanding of consumer impulsivity in the dynamic e-commerce environment.

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