

THE INFLUENCE OF STREAMER INTERACTION AND VISUAL APPEAL ON IMPULSIVE BUYING IN LIVE STREAMING SOCIAL COMMERCE

M.Shidqie Azrasyah¹, Gatot Nazir Ahmad¹, Nofriska Krissanya¹, Terrylina Aryinta Monoarfa¹

¹Department of Management, State University of Jakarta, Indonesia

Abstract

This study aims to analyze the influence of visual appeal, streamer interaction, arousal, and time pressure on impulsive buying behavior in the context of social commerce live streaming. Social commerce through live streaming has seen significant growth in Indonesia, especially as it has become highly popular among younger generations. Live streaming in social commerce successfully captures the interest of young consumers through its interactive experience and engaging video content, making it an essential marketing tool for businesses. This research adopts a quantitative approach through survey methods involving Generation Z respondents in the DKI Jakarta area as the research subjects. Data collected is analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) to identify the impact of visual appeal, streamer interaction, arousal, and time pressure on impulsive purchasing decisions. The findings of this study are expected to provide insights and recommendations for businesses on effective strategies to maximize live streaming features to enhance consumer engagement and encourage impulsive buying. This research is significant as it combines variables of visual appeal, streamer interaction, consumer arousal, and time pressure within a context relevant to social commerce trends, offering a new perspective on digital consumer behavior and contributing to the development of literature in digital marketing.

Keyword: Impulsive Buying, Visual Appeal, Streamer Interaction, Time Pressure, Live Streaming, Social Commerce

1. Introduction

The advancement of digital technology has transformed consumer shopping behavior, particularly through social commerce, which integrates social interaction with e-commerce (Chevalier, 2024). In Indonesia, social commerce has experienced rapid growth, with 49.9% of the population actively using social media in 2024 (We Are Social Indonesia, 2024). One of the key features of social commerce is live streaming, which creates an interactive shopping experience and drives impulsive buying behavior through factors such as streamer interaction, visual appeal, and time pressure (Sun et al., 2023).

Impulsive buying is characterized by quick, unplanned decisions influenced by emotions (Xu et al., 2020). Streamer interaction, visual appeal, and time pressure have been shown to enhance consumer arousal, triggering impulsive purchases (Cui et al., 2022; Kathuria & Bakshi, 2024; Xia et al., 2024). However, research in the context of live streaming in Indonesia remains limited, despite the market being dominated by Generation Z, who are highly

responsive to visual and interactive formats (Fairistha et al., 2023). This study aims to analyze the influence of these three factors on impulsive buying behavior, with consumer arousal serving as a mediating variable in Indonesia. Additionally, the research seeks to provide both theoretical and practical contributions to marketing strategies utilizing live streaming.

2. Literature Review

2.1 Impulsive Buying

Impulsive buying behavior is defined as unplanned and sudden purchasing triggered by internal or external cues during shopping (Rani & Catherine, 2023). It encompasses consumer actions driven by personal values, hedonic lifestyles (Kristiyono & Gozali, 2022), and cognitive incentives such as consumption experiences. Factors like convenience, channel integration, and consumer characteristics (e.g., extraversion and neuroticism) play significant roles in impulsive buying, which often occurs spontaneously and is influenced by personal preferences, time availability, and advertising prompts. Additionally, factors such as consumer empowerment, trust, satisfaction, perceived value, self-control, and emotional temperament influence impulsive buying behavior (Boutsouki, 2019; Wang et al., 2022).

Impulsive buying decisions are shaped by two types of stimuli: external and internal. External stimuli, such as product features, store attributes, and marketing cues, are objective and beyond the consumer's control. Meanwhile, internal stimuli, such as personal characteristics, are subjective and under the consumer's (Kimiagari & Asadi Malafe, 2021). Compared to traditional shopping, live streaming enhances the likelihood of impulsive purchases by integrating e-commerce, social interactions, and situational factors that influence users' cognition and emotional perception (Ma et al., 2023).

Social commerce enables sellers to influence users' impulsive buying behavior, which often results from strong, sudden urges to purchase products. These impulses are triggered by shopping environments, marketing efforts, and interactive features provided by sellers (Sihombing et al., 2020). Consumers with higher emotional states are more likely to engage in spontaneous shopping experiences, with less defined shopping plans compared to those with lower emotional states (Xiang et al., 2022).

Impulsive buying is characterized as a quick, hard-to-resist, and hedonically complex decision made without fully considering all relevant information (Carlini et al., 2021). While impulsive buying benefits e-commerce businesses in the short term, it poses challenges in the long term, such as unplanned spending and increased product returns (Zhang et al., 2021). Addressing these issues is critical as it provides valuable insights for e-commerce marketers and sales teams in shaping marketing strategies and understanding consumer behavior (Xiang et al., 2022).

2.2 Streamer Interaction

Real-time interactions in live streaming enable consumers to communicate with streamers and other viewers, creating a lively shopping atmosphere. These interactions foster emotional engagement, enhance perceived product value, and reduce consumer uncertainty about the product (Meng et al., 2021; Yang et al., 2020; Zhang et al., 2022). Streamers can adapt their product presentations in real time based on audience responses, such as tasting food, trying on clothing, or explaining product benefits, thereby increasing consumers' sense of inclusion and

engagement. This dynamic significantly influences purchase intentions and behaviors in e-commerce (Hu & Chaudhry, 2020; Liu, 2022).

2.3 Visual Appeal

Visual appeal refers to the overall appearance of a product's packaging or labeling, encompassing aspects such as color, shape, branding, illustrations, typography, and layout. These elements work together to create a convincing impression that enhances visual quality (Aprilia & Alfansi, 2024). Consumers tend to notice visual appeal during the initial stages, and this perception influences their views on other attributes. For instance, visual appeal can generate positive attitudes among consumers, which subsequently enhance their perception of the functional value of the activity (Chopdar & Balakrishnan, 2020).

Visuals pertain to the level of visual complexity in a product or interface, which can affect how individuals perceive, comprehend, and respond to it. A live streaming shopping platform that is visually well-designed and highly appealing can significantly enhance the shopping experience and increase consumer satisfaction (Batara et al., 2024). Platforms or interfaces rich in visual elements significantly improve users' emotional experiences, fostering feelings of excitement and enjoyment during the shopping process (Zhang et al., 2023).

2.4 Time Pressure

Time pressure refers to the subjective perception of limited or scarce time available to facilitate decision-making processes. It also incorporates perceptions of opportunity costs associated with both money and time. Particularly when a product is offered at a discounted price, delaying the purchase results in the opportunity cost reverting to its normal level quickly, causing consumers to face the potential for future losses. Consumers may worry that failing to purchase the discounted item will result in losing the chance to acquire it later (Sun et al., 2023). Limited-time promotions heighten consumer awareness of product scarcity and discounts, thereby influencing the live streaming experience and their adaptation to time pressure. Moreover, such promotions highlight the impact mechanisms of live stream information source characteristics on consumers' impulsive consumption intentions in e-commerce live streaming (Chen et al., 2020). Consumers often fear missing out on opportunities if they do not act quickly, leading them to overestimate the benefits of a product while neglecting potential risks (Zhang, 2023). Time pressure also acts as an emotional response that induces anxiety, moderating the relationship between product presentation and purchase intention (Di Vaio et al., 2021; Olschewski & Rieskamp, 2021).

2.5 Arousal

Arousal refers to the level of activation, a psychobiological state that indicates alertness or excitement. Consumers may feel aroused when exposed to the stimulating properties of a product (e.g., attractive or unattractive packaging design), which in turn leads to aesthetic judgments about the stimulus (e.g., positive or negative evaluation of the product design) (Ryu & Ryu, 2021). Online shopping sites have a significant influence on consumers' arousal and pleasure, but the pleasure and arousal evoked by the environment serve as the foundation for the emotional responses experienced by consumers (Liu et al., 2020). Arousal is a heightened emotional state, either in the form of excitement or tension, triggered by certain stimuli. In the context of online shopping, arousal is often triggered by scarcity promotions, which create a

sense of urgency or limitation in consumers. Scarcity promotions, such as limited-time offers or time-limited discounts, can increase feelings of tension or excitement within consumers, subsequently influencing their purchase decisions (Wu et al., 2021). Arousal and pleasure are emotional dimensions influenced by the environment surrounding consumers when purchasing a product. Emotions play a key mediating role, encompassing various feelings and emotional reactions triggered by persuasive advertising in live streaming broadcasts (Iyer et al., 2020).

2.6 Hypotheses

Perceived personalization and perceived responsiveness reflect the intensity of interaction with the streamer, with responsiveness indicating the speed of response to questions, and personalization representing communication tailored to the user's needs (Xia et al., 2024). In e-commerce live streaming, interactivity enables consumers to communicate with the streamer and receive timely feedback, creating an emotional exchange (Kang et al., 2021). Streamers can provide personalized recommendations, enhancing product evaluation abilities and consumer satisfaction (Sun et al., 2019). This deep interactive experience enriches the shopping experience, strengthens consumer arousal levels, and creates a positive experience (Wang et al., 2019). Unlike traditional e-commerce, interactions in live streaming are bidirectional and more dynamic (Wongkitrungrueng et al., 2020).

Hypothesis 1 (H1). Streamer Interaction Influences Arousal

Visual appeal, such as color and product aesthetics, has a significant impact on consumers' emotional responses and can influence purchase decisions (Wiedmann et al., 2019). Visually appealing elements, both on online stores and in product presentations on platforms like Shopee, can evoke arousal and pleasure that drive impulsive buying behavior, especially among Generation Z (Aires et al., 2024; Liu et al., 2020). Attractive visual presentations during live streaming also trigger strong emotional responses, increasing consumer engagement and influencing purchase decisions (Alsharif et al., 2021; Kathuria & Bakshi, 2024).

Hypothesis 2 (H2). Visual Appeal memiliki Influences Arousal

Time pressure, which creates a psychological urgency to make quick purchase decisions, stimulates interest and excitement in the shopping experience. Marketers often leverage strategies such as flash sales or limited-time offers to encourage consumers to act quickly (Gupta & Gentry, 2019). Time pressure, as an emotional response to external promotions, affects consumer decision-making (Cui et al., 2022). When promotions create time pressure, consumers experience positive emotions, such as pleasure, triggered by the live streaming atmosphere or the characteristics of the streamer (Sun et al., 2023). The arousal hypothesis suggests that the urgent need to act enhances attention and positive emotions, enriching the shopping experience (Ngo et al., 2024).

Hypothesis 3 (H3). Time Pressure memiliki Influences Arousal

Live streaming enhances authenticity and interactivity in online shopping, which encourages consumers to make impulsive purchases (Wongkitrungrueng et al., 2020). E-commerce live streaming allows consumers to get closer to the product, listen to the streamer's experiences, and see the effects of the product when tried, creating a more authentic shopping experience (Sun et al., 2019). High interactivity on electronic screens also positively impacts impulsive

consumption, with self-control playing a role (Moes et al., 2022). Real-time feedback from the streamer and effective interactions in live streaming can drive users' impulsive consumption intentions (Dong et al., 2023; Li et al., 2022).

Hypothesis 4 (H4). Streamer Interaction Influences Impulsive buying

Consumers are prone to making impulsive purchase decisions driven by emotions, especially when faced with time pressure (Liu et al., 2022). Time pressure in e-commerce creates a time constraint for decision-making, which increases vulnerability to impulsive buying, particularly when there are limited offers or discounts (Huang et al., 2024; Lee & Hong, 2021). Time limitations can intensify emotional reactions and increase the likelihood of impulsive purchases (Wang et al., 2022). Features such as countdowns and limited-time offers, along with interactive elements, encourage consumers to act immediately and enhance purchase conversion rates (Dong et al., 2023).

Hypothesis 5 (H5). Time Pressure Influences Impulsive buying

Consumers in e-commerce live streaming are easily influenced by external environmental factors, such as the appeal of the host, comment interactions, and the quality of information, which generate positive emotions such as arousal (Hou et al., 2020). Impulsive purchase intentions are influenced by emotional involvement and environmental stimuli (Li et al., 2022), with strong positive emotions increasing the likelihood of impulsive buying (Iyer et al., 2020). Intense emotional experiences drive impulsive behavior, especially when consumers experience high levels of arousal and pleasure (Ngo et al., 2024). Therefore, emotions play a crucial role in guiding impulsive purchase behavior (Shukun & Loang, 2024).

Hypothesis 6 (H6). Arousal Influences Impulsive buying

3. Material and Method

This study employs a quantitative approach aimed at identifying patterns, testing causal relationships, and drawing conclusions that can be generalized to a broader population. The research was conducted over two months, from November to December 2024, focusing on users of social commerce platforms in the DKI Jakarta area, particularly those who are active in live streaming. The population of this study consists of Generation Z individuals who have experience shopping via live streaming, with a non-probability sampling technique, specifically purposive sampling. A minimum of 200 respondents were selected based on specific characteristics to minimize invalid data (Hair et al., 2022), such as ages between 12-26 years, frequent use of the live streaming feature, and having made impulsive purchases within the last six months.

The research instrument, a questionnaire, was designed to measure five main variables: streamer interaction, visual appeal, time pressure, arousal, and impulsive buying. Each variable is broken down into specific indicators adapted from previous studies, such as the streamer's communication skills, visually appealing elements, and the urgency created by limited-time promotions. A six-point Likert scale was used, with value weights ranging from 1 (strongly disagree) to 6 (strongly agree) (Sugiyono, 2021). The collected data were analyzed using Partial Least Square - Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software. The analysis includes testing the measurement model (outer model) to

assess the validity and reliability of the instrument, as well as the structural model (inner model) to test the causal relationships between latent variables.

3.1 Design Study

This research adopts a quantitative approach aimed at examining the relationships between variables through the use of numerical data. The selection of this approach facilitates statistical analysis, enabling the generation of objective results and the identification of connections between the variables under investigation. It is particularly well-suited for studies on impulsive buying and arousal, as it allows for the mapping of perception patterns in a more measurable and systematic manner.

3.2 Data Analysis

Data analysis in this study was conducted to test the hypotheses formulated previously. The method used is Structural Equation Modeling Partial Least Squares (SEM-PLS) with SmartPLS 4.1.0.9 software. The analysis process includes testing both the measurement model (outer model) and the structural model (inner model). The measurement model is used to evaluate the validity and reliability of the data through tests such as convergent validity, discriminant validity, and instrument reliability. Validity testing is conducted by measuring the outer loading values and Average Variance Extracted (AVE), while reliability is assessed using Cronbach's Alpha and Composite Reliability (CR) with standard values greater than 0.7 (Hair et al., 2022). The structural model, on the other hand, is used to measure the relationships between latent variables, with assessments based on the coefficient of determination (R^2) and F-square (F^2) values. Hypothesis testing is performed through Path Coefficient analysis, involving the calculation of T-statistics and P-values. A hypothesis is considered significant if the T-statistics value is greater than 1.65 and the P-value is less than 0.05 (Hair et al., 2022). This method ensures the validity of the research model and identifies significant relationships between the research variables. On the basis of the aforementioned hypotheses, we build our conceptual framework as shown in Figure 1.

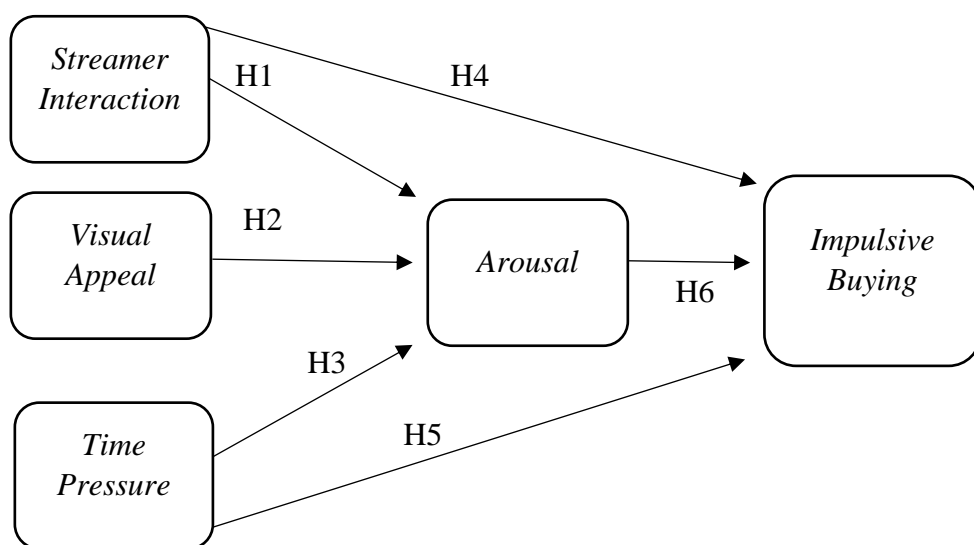


Figure 1. Research Model

4. Result

There are 203 respondents, and the demographic summary and overview of purchases made through live streaming social commerce include gender, age, residence, highest or current level of education, employment status, housing status, monthly income, and purchases made through live streaming social commerce within the past six months. The demographic summary of the respondents and the overview of live streaming social commerce purchases can be seen in Table 1.

Tabel 1. Demographic Respondents

Demographic Variabel		Amount	Percentage
Gender	Perempuan	126	62,1%
	Laki-laki	77	37,9%
Age	12-15	3	1,5%
	16-19	35	17,2%
	20-23	110	54,2%
	24-26	55	27,1%
Residence	Jakarta Timur	38	18,7%
	Jakarta Barat	56	27,6%
	Jakarta Selatan	57	28,1%
	Jakarta Pusat	38	18,7%
	Jakarta Utara	14	6,9%
highest or current level of education	< High School/Equivalent	13	6,4%
	High School/Equivalent	109	53,7%
	Diploma	10	4,9%
	Bachelor/Applied Bachelor	71	35%
	Postgraduate	0	0%
employment status	Students	113	55,7%
	Self-Employed/Entrepreneur	20	9,9%
	Government Employees	15	7,4%

Demographic Variabel		Amount	Percentage
	Private Employees	48	23,6%
	Others	7	3,4%
housing status	Family Home	128	63,1%
	Apartment	27	13,3%
	Boarding House	40	19,7%
	Student Dormitory	4	2%
	Others	4	2%
monthly income	< Rp 1.000.000	20	9,9%
	Rp 1.000.000 – Rp 3.000.000	72	35,5%
	Rp 3.000.001 – Rp 5.000.000	56	27,6%
	Rp 5.000.001 – Rp 7.000.000	40	19,7%
	> Rp 7.000.000	15	7,4%
purchases made through live streaming social commerce within the past six months	5 Times	67	33%
	7 Times	56	27,6%
	9 Times	41	20,2%
	> 10 Times	39	19,2%

Based on the convergent validity test results obtained using SmartPLS 4, it can be seen that the factor loadings on each construct are as follows.

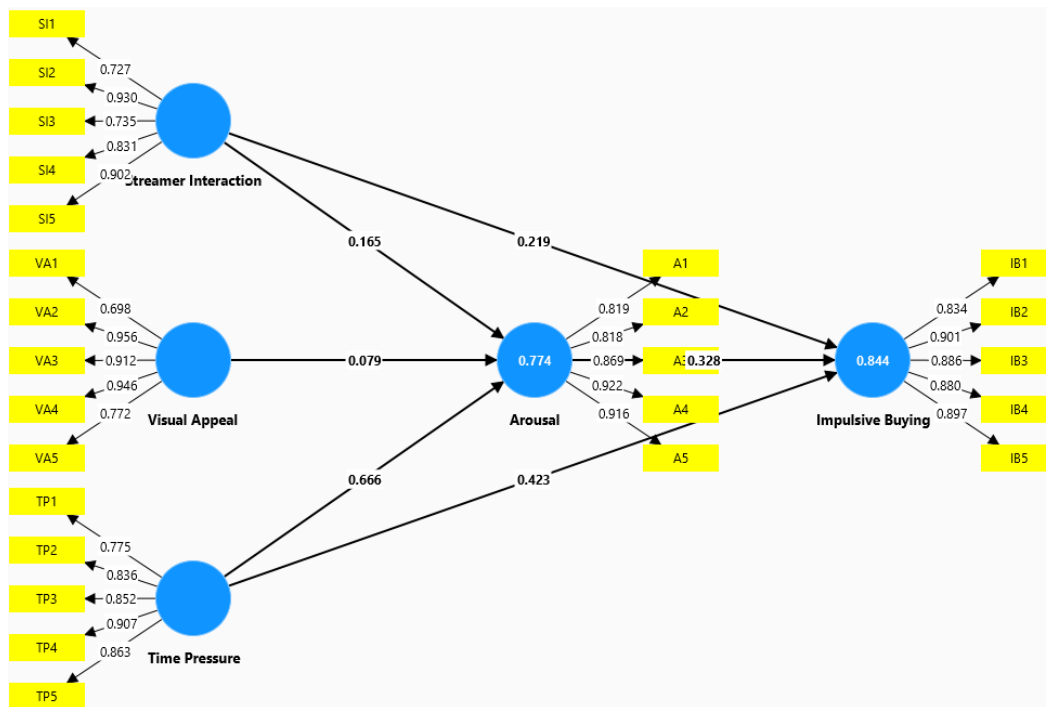


Figure 2. Research Model

Convergent validity is tested through the outer loading values and Average Variance Extracted (AVE) to determine the extent to which the indicators within a construct are correlated. When convergent validity is met, the indicators used accurately represent the intended construct (Hair et al., 2014). Each indicator within a construct must have an outer loading value greater than 0.70. A high outer loading value indicates that these indicators have a high degree of similarity and consistently support the construct they represent. This suggests that the indicators have accurately represented their respective construct (Hair et al., 2014). The AVE value represents the average variance extracted from a set of indicators used within a construct. If the AVE value reaches or exceeds 0.50, it indicates that the construct explains more than half of the variance of the measured indicators (Hair et al., 2014). Table 4.7 presents the initial outer loading values in the context of live streaming on social commerce. An indicator is considered reliable if it has a composite reliability value greater than 0.70 (Hair et al., 2022). A construct is considered to meet the reliability criteria if the Cronbach's Alpha value is equal to or greater than 0.70, indicating an acceptable level of consistency (Hair et al., 2022). Table 1 shows the values for convergent validity and reliability.

Tabel 2. Convergent Validity and Reliability

Construct	Item	Loadings	Cronbach's Alpha	Composte Realibility	AVE
Impulsive Buying	IB1	0.834	0.927	0.945	0.880
	IB2	0.901			
	IB3	0.886			
	IB4	0.880			

Construct	Item	Loadings	Cronbach's Alpha	Composte Realibility	AVE
	IB5	0.897			
Arousal	A1	0.819	0.919	0.940	0.870
	A2	0.818			
	A3	0.869			
	A4	0.922			
	A5	0.916			
Streamer Interaction	SI1	0.727	0.884	0.916	0.829
	SI2	0.930			
	SI3	0.735			
	SI4	0.831			
	SI5	0.902			
Visual Appeal	VA1	0.698	0.910	0.935	0.863
	VA2	0.956			
	VA3	0.912			
	VA4	0.946			
	VA5	0.772			
Time Pressure	TP1	0.775	0.901	0.927	0.848
	TP2	0.836			
	TP3	0.852			
	TP4	0.907			
	TP5	0.863			

The R² value is categorized into three levels 0.75, indicating a strong relationship 0.5, indicating a moderate relationship and 0.25, indicating a weak relationship (Hair et al., 2014). The results of the determination coefficient testing for live streaming in social commerce can be seen in Table 2.

Tabel 3. R²

Construct	R ²	R ² Adjusted	Information
A	0.774	0.771	Strong
IB	0.844	0.842	Strong

f^2 value of 0.02 indicates a small effect, 0.15 indicates a medium effect, and 0.35 indicates a large effect (Henseler et al., 2009). Table 3 presents the results of the f^2 evaluation for live streaming in social commerce.

Tabel 3 F^2

	A	IB	SI	TP	VA
A		0.157			
IB					
SI	0.033	0.089			
TP	0.368	0.207			
VA	0.006				

Based on the evaluation results of f^2 for live streaming in social commerce, it was found that the variable with the greatest influence on variable A is TP, with a value of 0.368, indicating a large effect. For the IB variable, the most influential variable is TP, with a value of 0.207, indicating a medium effect.

A hypothesis is considered accepted if the t-statistic value is greater than the minimum t-statistic value (1.65) and the p-value is smaller than the significance level (0.05). Table 4.16 presents the results of the path coefficient and hypothesis testing in the study related to live streaming in social commerce.

Tabel 4 Hypothesis Results

Hypothesis	Path	Path Coefficient	T Statistics	P Values	Conclusion
H1	SI → A	0.165	1.635	0.051	Rejected
H2	VA → A	0.079	0.893	0.186	Rejected
H3	TP → A	0.666	5.854	0.000	Accepted
H4	SI → IB	0.219	2.870	0.002	Accepted
H5	TP → IB	0.423	3.294	0.000	Accepted
H6	A → IB	0.328	3.190	0.001	Accepted

Based on the hypothesis test results table above, the results of the hypothesis testing analysis can be explained as follows:

- Hypothesis 1 in live streaming social commerce is rejected because it has a p-value > 0.05 (0.051) and a t-statistic < 1.65 (1.635).
- Hypothesis 2 in live streaming social commerce is rejected because it has a p-value > 0.05 (0.186) and a t-statistic < 1.65 (0.893).
- Hypothesis 3 in live streaming social commerce is accepted because it has a p-value < 0.05 (0.000) and a t-statistic > 1.65 (5.854).

- Hypothesis 4 in live streaming social commerce is accepted because it has a p-value < 0.05 (0.002) and a t-statistic > 1.65 (2.870).
- Hypothesis 5 in live streaming social commerce is accepted because it has a p-value < 0.05 (0.000) and a t-statistic > 1.65 (3.294).
- Hypothesis 6 in live streaming social commerce is accepted because it has a p-value < 0.05 (0.001) and a t-statistic > 1.65 (3.190).

5. Discussion

This study tests six hypotheses connecting Streamer Interaction, Visual Appeal, Time Pressure, and Arousal with Impulsive Buying in the context of live streaming on social commerce. The results indicate that the effect of Streamer Interaction on Arousal (H1) is not significant, which contrasts with previous studies such as Wang et al. (2019) and Xia et al. (2024). This may be due to unresponsive streamer interactions or unclear information, which triggers negative arousal such as confusion. Additionally, the effect of Visual Appeal on Arousal (H2) is also not significant, contradicting studies by Wiedmann et al. (2019) and Ngo et al. (2024), possibly due to excessive visual complexity that drains the cognitive resources of users. Conversely, Time Pressure has a positive and significant effect on Arousal (H3), supporting the findings of Ngo et al. (2024), where promotional time limits create excitement in consumers to make quick decisions.

Furthermore, Streamer Interaction positively and significantly influences Impulsive Buying (H4), in line with the research of Dong et al. (2023), which indicates that effective interaction between streamers and users drives impulsive buying behavior. Similarly, Time Pressure positively affects Impulsive Buying (H5), supporting the findings of Huang et al. (2024), which explain that time pressure in special promotions can encourage impulsive purchasing decisions. Finally, Arousal also has a positive effect on Impulsive Buying (H6), consistent with prior research indicating that intense emotional states drive impulsive behavior. Overall, this study highlights the importance of Time Pressure and Arousal as key factors influencing impulsive buying behavior in live streaming social commerce.

6. Conclusion, Implication, and Recommendation

This study aims to evaluate the influence of Streamer Interaction, Visual Appeal, and Time Pressure on Arousal and Impulsive Buying in live streaming on social commerce using a quantitative approach with a survey of 203 Generation Z respondents. The results show that Streamer Interaction significantly affects Impulsive Buying, indicating that responsive and personalized communication from streamers can enhance impulsive purchases. Additionally, Time Pressure has a significant impact on both Arousal and Impulsive Buying, with promotional time limits creating urgency that drives consumers to make quick decisions. However, Streamer Interaction and Visual Appeal did not significantly influence Arousal, suggesting that their relationship with Arousal may be indirect or dependent on consumer perception. The study also highlights the important role of Arousal as a mediator that strengthens the relationship between Streamer Interaction, Visual Appeal, and Time Pressure with Impulsive Buying through emotions such as enthusiasm and euphoria. Theoretically, this study enriches the literature on impulsive buying behavior in social commerce, while practically, the findings provide guidance for businesses to optimize streamer interactions, visual appeal, and time-based promotional strategies to enhance consumers' impulsive purchasing decisions.

This study makes a significant theoretical contribution to the development of social commerce literature, particularly in the context of live streaming, by emphasizing the role of Streamer Interaction, Visual Appeal, and Time Pressure in influencing Impulsive Buying, and highlighting the role of Arousal as a mediating variable. The findings reinforce the theory that emotional factors, such as excitement, can be enhanced through interactive and visual elements, while time pressure acts as an effective external stimulus in creating purchase urgency. Furthermore, this research enriches insights on how digital technology, through real-time interactions, builds emotional engagement between consumers and streamers. However, the lack of significant influence of Streamer Interaction and Visual Appeal on Arousal suggests that these factors may not always be strong enough to directly trigger consumer emotional excitement.

Practically, this research offers guidance for social commerce businesses to design more effective live streaming marketing strategies. The significant effect of Streamer Interaction on Impulsive Buying requires businesses to choose responsive streamers who can build personal relationships with the audience, even if they do not directly affect Arousal. Furthermore, businesses should enhance visual elements to create an enjoyable shopping experience. Time-based promotional strategies, such as exclusive discounts and countdown features, have been proven effective in creating urgency and driving impulsive purchases. By optimizing streamer interactions, visual appeal, and time pressure, businesses can improve the consumer shopping experience and increase the likelihood of impulsive buying, thereby competing more effectively in the digital age.

Future researchers are advised to expand the scope of the study to include regions beyond DKI Jakarta to obtain more representative results from diverse cultural and demographic backgrounds. Additionally, involving respondents from different age groups, such as Millennials or Generation X, would allow for comparisons of intergenerational behavior in the context of live streaming social commerce. Future studies could also consider other relevant variables, such as trust in streamers, information quality, or social factors.

7. References

- Aires, M., Dias, Á. L., & Pereira, L. F. (2024). How visual merchandising influences Generation Z purchasing behaviour in supermarkets. *International Journal of Arts and Technology*, 15(1), 13–37. <https://doi.org/10.1504/IJART.2024.137300>
- Alsharif, A. H., Md Salleh, N. Z., & Baharun, R. (2021). To Better Understand the Role of Emotional Processes in Decision-Making. *International Journal of Academic Research in Economics and Management Sciences*, 10(2), 43–59. <https://doi.org/10.6007/ijarems/v10-i2/9883>
- Aprilia, R. W., & Alfansi, L. (2024). E-commerce, Gamification, Visual Design, Impulsive Buying, Immersion. *Formosa Journal of Multidisciplinary Research (FJMR)*, 3(1), 173–190.
- Batara, L. C., Suryandari, R. T., Suryanadi, P., & Sugiarto, C. (2024). *Beyond Clicks : Enhancing Live Shopping Experiences with Visual Appeal , Social Support , and Purchase Intent Sparks*. 13(1), 37–56. <https://doi.org/10.21776/ub.apmba.2024.013.01.3>
- Boutsouki, C. (2019). Impulse behavior in economic crisis: a data driven market

- segmentation. *International Journal of Retail and Distribution Management*, 47(9), 974–996. <https://doi.org/10.1108/IJRDM-08-2018-0165>
- Chen, X., Su, L., & Carpenter, D. (2020). Impacts of Situational Factors on Consumers' Adoption of Mobile Payment Services: A Decision-Biases Perspective. *International Journal of Human-Computer Interaction*, 36(11), 1085–1093. <https://doi.org/10.1080/10447318.2020.1722400>
- Chopdar, P. K., & Balakrishnan, J. (2020). Consumers response towards mobile commerce applications: S-O-R approach. *International Journal of Information Management*, 53(June 2019), 102106. <https://doi.org/10.1016/j.ijinfomgt.2020.102106>
- Cui, Y., Liu, Y., & Gu, M. (2022). Investigating the Key Drivers of Impulsive Buying Behavior in Live Streaming. *Journal of Global Information Management*, 30(1), 1–18. <https://doi.org/10.4018/jgim.314226>
- Di Vaio, A., Hasan, S., Palladino, R., Profita, F., & Mejri, I. (2021). Understanding knowledge hiding in business organizations: A bibliometric analysis of research trends, 1988–2020. *Journal of Business Research*, 134(January), 560–573. <https://doi.org/10.1016/j.jbusres.2021.05.040>
- Digital 2024 - We Are Social Indonesia*. (n.d.). Retrieved December 2, 2024, from <https://wearesocial.com/id/blog/2024/01/digital-2024/>
- Dong, W. W., Wang, Y. Q., & Qin, J. (2023). An empirical study on impulse consumption intention of livestreaming e-commerce: The mediating effect of flow experience and the moderating effect of time pressure. *Frontiers in Psychology*, 13(January), 1–17. <https://doi.org/10.3389/fpsyg.2022.1019024>
- Fairistha, D., Bernessa, I., Cen, L. J., & Aryuni, M. (2023). The Effect of Live Streaming on Social Commerce Platforms on Generation Z's Purchase Intention. *E3S Web of Conferences*, 426. <https://doi.org/10.1051/e3sconf/202342601081>
- Gupta, S., & Gentry, J. W. (2019). 'Should I Buy, Hoard, or Hide?'- Consumers' responses to perceived scarcity. *International Review of Retail, Distribution and Consumer Research*, 29(2), 178–197. <https://doi.org/10.1080/09593969.2018.1562955>
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20(2009), 277–319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)
- Hou, F., Guan, Z., Li, B., & Chong, A. Y. L. (2020). Factors influencing people's continuous watching intention and consumption intention in live streaming: Evidence from China. *Internet Research*, 30(1), 141–163. <https://doi.org/10.1108/INTR-04-2018-0177>
- Hu, M., & Chaudhry, S. S. (2020). Enhancing consumer engagement in e-commerce live streaming via relational bonds. *Internet Research*, 30(3), 1019–1041.

<https://doi.org/10.1108/INTR-03-2019-0082>

Huang, S. C., Silalahi, A. D. K., Eunike, I. J., & Riantama, D. (2024). Understanding impulse buying in E-commerce: The Big Five traits perspective and moderating effect of time pressure and emotions. *Telematics and Informatics Reports*, 15, 100157. <https://doi.org/10.1016/J.TELER.2024.100157>

Iyer, G. R., Blut, M., Xiao, S. H., & Grewal, D. (2020). Impulse buying: a meta-analytic review. *Journal of the Academy of Marketing Science*, 48(3), 384–404. <https://doi.org/10.1007/s11747-019-00670-w>

Joseph F. Hair Jr., G. Tomas M. Hult, Christian M. Ringle, M. S. (2022). Partial least squares structural equation modeling. In *Women Entrepreneurs*. <https://doi.org/10.1201/9781032725581-7>

Kang, K., Lu, J., Guo, L., & Li, W. (2021). The dynamic effect of interactivity on customer engagement behavior through tie strength: Evidence from live streaming commerce platforms. *International Journal of Information Management*, 56(September), 102251. <https://doi.org/10.1016/j.ijinfomgt.2020.102251>

Kathuria, A., & Bakshi, A. (2024). Influence of website quality on online impulse buying behaviour: a systematic review of literature. *Marketing Intelligence and Planning*, 42(5), 816–849. <https://doi.org/10.1108/MIP-05-2023-0241/FULL/PDF>

Lee, J., & Hong, I. B. (2021). The influence of situational constraints on consumers' evaluation and use of online reviews: A heuristic-systematic model perspective. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(5), 1517–1536. <https://doi.org/10.3390/jtaer16050085>

Li, M., Wang, Q., & Cao, Y. (2022). Understanding Consumer Online Impulse Buying in Live Streaming E-Commerce: A Stimulus-Organism-Response Framework. *International Journal of Environmental Research and Public Health*, 19(7). <https://doi.org/10.3390/ijerph19074378>

Liu, L. (2022). *Factors Affecting Consumers' Purchasing Behaviours in Live Streaming E-Commerce: A Review*. 508–515. https://doi.org/10.2991/978-94-6463-036-7_75

Liu, X. S., Shi, Y., Xue, N. I., & Shen, H. (2022). The impact of time pressure on impulsive buying: The moderating role of consumption type. *Tourism Management*, 91, 104505. <https://doi.org/10.1016/J.TOURMAN.2022.104505>

Liu, Y., Li, Q., Edu, T., Jozsa, L., & Negricea, I. C. (2020). Mobile shopping platform characteristics as consumer behavior determinants. *Asia Pacific Journal of Marketing and Logistics*, 32(7), 1565–1587. <https://doi.org/10.1108/APJML-05-2019-0308>

Meng, L. (Monroe), Duan, S., Zhao, Y., Lü, K., & Chen, S. (2021). The impact of online celebrity in livestreaming E-commerce on purchase intention from the perspective of emotional contagion. *Journal of Retailing and Consumer Services*, 63(August), 102733. <https://doi.org/10.1016/j.jretconser.2021.102733>

Moes, A., Fransen, M., Fennis, B., Verhagen, T., & van Vliet, H. (2022). In-store interactive

advertising screens: the effect of interactivity on impulse buying explained by self-agency. *Journal of Research in Interactive Marketing*, 16(3), 457–474.
<https://doi.org/10.1108/JRIM-03-2021-0097>

Ngo, T. T. A., Nguyen, H. L. T., Nguyen, H. P., Mai, H. T. A., Mai, T. H. T., & Hoang, P. L. (2024). A comprehensive study on factors influencing online impulse buying behavior: Evidence from Shopee video platform. *Heliyon*, 10(15), e35743.
<https://doi.org/10.1016/j.heliyon.2024.e35743>

Olschewski, S., & Rieskamp, J. (2021). Distinguishing three effects of time pressure on risk taking: Choice consistency, risk preference, and strategy selection. *Journal of Behavioral Decision Making*, 34(4), 541–554. <https://doi.org/10.1002/bdm.2228>

Research expert: Stephanie Chevalier | Statista. (n.d.). Retrieved November 18, 2024, from <https://www.statista.com/aboutus/our-research-commitment/1654/stephanie-chevalier>

Ryu, S., & Ryu, S. (2021). Feeling excited and fluent: how consumers respond to the visual appeals of products in an online shopping environment. *Behaviour and Information Technology*, 40(11), 1219–1233. <https://doi.org/10.1080/0144929X.2021.1942989>

Shukun, L., & Loang, O. K. (2024). Impact of Broadcaster's Social Presence and Ad Content Persuasiveness on Impulsive Purchase Behaviour in China Live Streaming: A Mediation Analysis of Arousal and Emotion. *International Journal of Business and Technology Management*, 6(2), 128–139. <https://doi.org/10.55057/ijbtm.2024.6.2.12>

Sugiyono. (2021). *Pdf-Metode-Penelitian-Pendidikan-Sugiyono-2021_Compress.Pdf*.

Sun, B., Zhang, Y., & Zheng, L. (2023a). Relationship between time pressure and consumers' impulsive buying—Role of perceived value and emotions. *Heliyon*, 9(12), e23185. <https://doi.org/10.1016/j.heliyon.2023.e23185>

Sun, B., Zhang, Y., & Zheng, L. (2023b). Relationship between time pressure and consumers' impulsive buying—Role of perceived value and emotions. *Heliyon*, 9(12). <https://doi.org/10.1016/j.heliyon.2023.e23185>

Sun, Y., Shao, X., Li, X., Guo, Y., & Nie, K. (2019). How live streaming influences purchase intentions in social commerce: An IT affordance perspective. *Electronic Commerce Research and Applications*, 37(December 2018), 100886.
<https://doi.org/10.1016/j.elerap.2019.100886>

Wang, K., Pan, Z., Lu, Y., & Gupta, S. (2019). What Motives Users to Participate in Danmu on Live Streaming Platforms? The Impact of Technical Environment and Effectance. *Data and Information Management*, 3(3), 117–134. <https://doi.org/10.2478/dim-2019-0013>

Wang, Y., Pan, J., Xu, Y., Luo, J., & Wu, Y. (2022). The Determinants of Impulsive Buying Behavior in Electronic Commerce. *Sustainability (Switzerland)*, 14(12).
<https://doi.org/10.3390/su14127500>

Wiedmann, K. P., Haase, J., Bettels, J., & Reuschenbach, C. (2019). It's not all about function: investigating the effects of visual appeal on the evaluation of industrial

- products using the example of product color. *Journal of Product and Brand Management*, 28(1), 15–27. <https://doi.org/10.1108/JPBM-07-2017-1524>
- Wongkitrungrueng, A., Dehouche, N., & Assarut, N. (2020). Live streaming commerce from the sellers' perspective: implications for online relationship marketing. *Journal of Marketing Management*, 36(5–6), 488–518. <https://doi.org/10.1080/0267257X.2020.1748895>
- Wu, Y., Xin, L., Li, D., Yu, J., & Guo, J. (2021). How does scarcity promotion lead to impulse purchase in the online market? A field experiment. *Information and Management*, 58(1). <https://doi.org/10.1016/j.im.2020.103283>
- Xia, Y. X., Chae, S. W., & Xiang, Y. C. (2024). How social and media cues induce live streaming impulse buying? SOR model perspective. *Frontiers in Psychology*, 15(May), 1–15. <https://doi.org/10.3389/fpsyg.2024.1379992>
- Xu, H., Zhang, K. Z. K., & Zhao, S. J. (2020). A dual systems model of online impulse buying. *Industrial Management and Data Systems*, 120(5), 845–861. <https://doi.org/10.1108/IMDS-04-2019-0214>
- Yang, S., Lee, C., Shin, H. V., & Kim, J. (2020). Snapstream: Snapshot-based Interaction in Live Streaming for Visual Art. *Conference on Human Factors in Computing Systems - Proceedings*, 1–12. <https://doi.org/10.1145/3313831.3376390>
- Zhang, N. (2023). Product presentation in the live-streaming context: The effect of consumer perceived product value and time pressure on consumer's purchase intention. *Frontiers in Psychology*, 14(February), 1–12. <https://doi.org/10.3389/fpsyg.2023.1124675>
- Zhang, W., Leng, X., & Liu, S. (2023). Research on mobile impulse purchase intention in the perspective of system users during COVID-19. *Personal and Ubiquitous Computing*, 27(3), 665–673. <https://doi.org/10.1007/s00779-020-01460-w>
- Zhang, Z., Zhang, N., & Wang, J. (2022). The Influencing Factors on Impulse Buying Behavior of Consumers under the Mode of Hunger Marketing in Live Commerce. *Sustainability (Switzerland)*, 14(4). <https://doi.org/10.3390/su14042122>