HOW LIVE STREAMING ELEMENTS DRIVE ONLINE IMPULSE BUYING

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Abstract: Live streaming has transformed how brands connect with their audiences, offering an interactive, real-time shopping experience that drives online impulse purchases. This study explores how live streaming elements—informative content, real-time engagement, and momentary promotional pricing—drive online impulse buying, guided by the Stimulus-Organism-Response (SOR) framework. This study employed a purposive sampling technique targeting Generation Y and Z consumers in Indonesia. Data were collected via an online questionnaire and 196 valid responses were analyzed. Measurement validity and reliability were evaluated through confirmatory factor analysis (CFA), while the structural model was assessed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). Results indicate that live streaming elements significantly enhance flow experience, which in turn positively influences online impulse buying. This research highlights the importance of live streaming elements in driving online impulse purchases. By leveraging live streaming features, marketers can effectively create engaging and persuasive experiences that drive online impulse buying.

INTRODUCTION

Live streaming has changed how brands interact with their audiences, turning online shopping into an engaging, real-time experience that could trigger impulse buying. Therefore, it is necessary to study live streaming elements for their influence on online impulse buying. Companies that use live streaming have the opportunity to increase consumer engagement, showcase live product demonstrations, answer consumer questions in real time, and offer exclusive promotions available only during the live streaming session. (Hu & Chaudhry, 2020).

Live streaming started to gain popularity around early 2016 on several Asian e-commerce platforms, particularly in China through Taobao Live (Z. Zhang et al., 2022). Over time, live streaming has expanded rapidly worldwide, especially during the COVID-19 pandemic, where social restrictions forced direct consumer-brand interactions to shift to digital platforms (Merritt & Zhao, 2022). Studies have found that live streaming leads to impulse buying, where people make unplanned purchases because of excitement, urgency, or emotional connections (Huang & Suo, 2021; Feng et al., 2024).

By combining entertainment and commerce, live streaming enables brands to interact with their audiences in real time, stimulate a sense of immediacy and engagement. The success

of live streaming can be attributed to its ability to create immersive experiences that captivate viewers (Raji et al., 2024). Elements such as informative content, real-time engagement, and momentary promotional pricing enhance the appeal of live streaming sessions, influencing consumers to make spontaneous purchasing decisions in online shopping.

Online impulse buying has become a defining feature of the digital era, marked by spontaneous, unplanned purchases made without prior consideration (Chan et al., 2017). The rise of e-commerce has further facilitated this behavior, with one-click purchases and seamless payment systems creating a low-friction shopping experience that encourages impulse buying. In this context, live streaming serves as a channel to influence online impulse buying by providing dynamic, real-time interaction that heightens emotional arousal and urgency (Li & Kang, 2024). This is especially true for Generation Y and Z consumers who are more likely to be influenced by social media trends. Research conducted by Julianti (2020) and Venia et al. (2021) stated that consumers aged 20-40 years, who are generation Y and Z, have a tendency to behave impulsively in online shopping.

Informative content provides the consumer with the knowledge and details necessary to make a purchase decision. Real-time engagement creates an intense and urgent atmosphere, where consumers feel compelled to make quick decisions. Meanwhile, momentary promotional pricing provides direct incentives for consumers to make immediate purchases, triggering higher impulse buying during live streaming sessions. These three elements are presumed to create an engaging online shopping experience that not only captures consumers' attention but also encourages impulse buying.

The stimulus–organism–response (SOR) framework is applied to conceptualize the theoretical model because it offers a suitable perspective for understanding the mechanism behind online impulse buying through live streaming (Li et al., 2022), which aligns with previous impulse buying research (Kang et al., 2021; Lin et al., 2022; Liu & Yu, 2022; Lo et al., 2022). As a result, it has been extensively utilized in consumer behavior research within marketing and information systems fields. In the SOR model, innovative content, real-time engagement, and momentary promotional pricing are considered stimuli, while flow experience is considered the organism's internal state.

While recent studies have explored how social interaction and content in live-streaming influence impulsive purchases through emotions and mental states (Li et al., 2022; Lo et al., 2022), the influence of innovative content, real-time engagement, and momentary promotional pricing in creating a flow state is a new thing researcher wants to examine. Live streaming

allows brands to engage with customers in real-time, building immediacy and emotional connections to drive online impulse buying. Studying its influence on impulse buying can reveal how effective innovative content, real-time engagement and momentary promotional pricing are in driving sales compared to other marketing methods.

LITERATURE REVIEW

1. Online Impulse Buying

Online impulse buying is the unplanned, immediate, and spontaneous purchase of products or services via online platforms. This consumer behavior is marked by lack of planning in purchase consideration and is shaped by multiple factors within the digital marketplace (M. Ruby Evangelin, A.Gokulakrishnan, P.Sasikumar, 2023). Unlike in-store impulse purchases, online impulse buying relies heavily on the digital environment's specific attributes. Studies have found that consumers are more likely to engage in online impulse buying due to the ease of accessing products and the tailored marketing efforts used to encourage spontaneous decisions (Liao et al., 2016).

Live streaming has become a particularly effective channel for driving online impulse buying due to its ability to combine entertainment, interactivity, and real-time marketing efforts. For example, limited-time offers or exclusive discounts available only during a live session heighten urgency and create a fear of missing out (FOMO), influencing viewers to do online impulse buying (Feng et al., 2024).

SOR framework helps explain how various online features act as stimuli that heighten emotional arousal, ultimately leading to online impulse buying. Elements of live streaming, such as visually engaging content, direct interaction with hosts, and momentary promotions, act as stimuli that influence the organism. These stimuli heighten excitement and leading to the response of unplanned purchases.

2. The Theory of Stimulus-Organism-Response (SOR)

The S-O-R theory, developed by Mehrabian and Russell (1974), is a good fit for studying how live-streaming influences buying decision (Liu et al., 2022). Zhao (2010), utilized the S-O-R model to do research on online consumers' impulsive buying behavior. S-O-R has been successfully used to understand various consumer behaviors in e-commerce, including purchase intention and impulsive buying (Chan et al., 2017; C. C. Chen & Yao, 2018; H. Gao et al., 2022; Lou et al., 2022: Huo et al., 2023). S-O-R allows researchers to consider the unique, real-time interactions that happen in live-streaming,

creating a more dynamic model for understanding how live-streaming influences buying decisions.

The theory breaks down how external factors (Stimulus) trigger internal responses (Organism) that lead to specific actions (Response). In this context, stimulus refers to elements of live-streaming such as informative content, real-time engagement, and momentary promotional pricing, which can influence a viewer's emotional and mental state.

3. Live Streaming

Live streaming is an effective strategy that leverages real-time communication and interaction to influence consumer behavior. This allows for direct interaction between creators and viewers, creating a space for two-way communication and deeper engagement (Aji, 2022). Live-stream marketing is more dynamic and interactive than traditional e-commerce, providing an enhanced and engaging shopping experience (Wan et al., 2024). Unlike asynchronous social media, live streaming is synchronous, characterized by its simultaneity and authenticity.

Online impulse buying is assumed can be established through the interactive and dynamic nature of live streaming, which combines real-time engagement, momentary promotions, and detailed product demonstrations. Studies suggest that the high level of interactivity and the real-time features of live streaming lead to emotional arousal, which is a key driver of impulse buying (Chen et al., 2020). The features offered by live streaming are diverse, including the ability to interact directly with the audience, live polling, flash sale promotions, and live product reviews while online shopping. This type of marketing stimulates curiosity and influences consumer to do online purchases spontaneously.

Live streaming is characterized by real-time interactions, immersive content, and direct engagement with audiences which can be effectively analyzed using the SOR framework (Huang & Suo, 2021). Key elements like live demonstrations, real-time product reviews, limited-time promotions, and interactive features (e.g., chat, polls, host engagement) act as stimuli that capture consumers' attention and create a sense of urgency and excitement. In live streaming, the organism refers to the internal emotional and cognitive reactions of the viewer which trigger responses like heightened emotional involvement, trust in the host, and flow experience (an intense focus on the content). In the case of live streaming, the desired response is often impulse buying, driven by the immediacy and excitement of the live experience. This correlation shows that live

streaming marketing creates a highly interactive and engaging environment (stimulus) that influences viewers' emotional and cognitive states (organism), ultimately leading to behavioral outcomes such as impulse buying (response).

4. Informative Content

Informative Content (IC) refers to content marketing that provides valuable information to consumers about products and brands, which can help them make informed purchase decisions (Lou et al., 2019). Informative content has a stronger effect on brand loyalty than entertainment value, as consumers of these brands tend to place more emphasis on information seeking and validation before making purchase decisions. Research suggests that when live streaming sessions feature detailed, well-structured, and informative content, consumers are more likely to develop a deeper understanding of the products, leading to greater trust and higher purchase intention (Chung et al., 2019).

Informative content in live streaming serves as one of the main stimuli, providing consumers with essential product information, details on usage, benefits, and sometimes comparisons with alternatives. This informative stimulus is particularly crucial, where consumers are more likely to seek detailed information before making an online purchase decision.

5. Real-Time Engagement

In marketing, engagement refers to the extent of a person's involvement, interaction, intimacy, and influence an individual has with a brand (Haven et al., 2007). Furthermore, real-time engagement refers to the immediate interaction between individuals or systems, where data and feedback are continuously collected and analyzed in real-time. This allows for immediate response and adaptation to the current state of engagement (Santos et al., 2023).

According to Li et al. (2020), live streaming allows for the creation of a more interactive shopping experience where consumers can ask questions, participate in polls, or engage in conversations with other viewers, all of which foster a sense of community. The sense of immediacy created by real-time engagement encourages consumers to act based on the fear of missing out (FOMO), especially when combined with time-limited promotions or exclusive offers during the live stream.

As a stimulus, interactive features of an online shopping experience, such as immediate responses from hosts, live Q&A sessions, and participation in polls or chats can stimulate consumers' emotions and heighten their sense of involvement. Real-time engagement enhances the consumer experience, transforming passive viewers into active participants and making live streaming a highly effective channel for stimulating online impulse buying.

6. Momentary Promotional Pricing

Momentary promotional pricing or also known as flash sales offer products at significantly reduced prices for a limited time and in restricted quantities (Lamis et al., 2022). Momentary promotional pricing gives consumers short-term, limited-quantity deals with significant savings. To access these offers, consumers must first register as platform users, allowing them to buy items at the reduced price within the specified time(X. Liu et al., 2021). Used both as a marketing strategy and a promotional tool, flash sales are popular in online marketplaces like Shopee, Tokopedia, Lazada, and Blibli in Indonesia. These events showcase a variety of products from different sellers, spanning categories like fashion, food, and everyday essentials. Flash sales can occur during specific events like National Online Shopping Day, Ramadan, and "double date" promotions (e.g., 11.11, 12.12), but some platforms also host daily flash sales divided into multiple periods throughout the day.

Flash sales trigger arousal and pleasure, which then influence impulse buying behavior. Limited quantity scarcity and limited time scarcity affect arousal, which then leads to impulse buying. Momentary promotional pricing serves as a powerful stimulus, impacting consumers' internal states by eliciting emotional responses such as excitement and urgency (organism). These responses then increase the likelihood of a spontaneous purchase (response).

7. Flow Experience

Flow experience, popularized by Csikszentmihalyi, refers to a state of deep engagement and enjoyment that individuals feel when they are fully immersed in an activity. In the context of online shopping, experiencing flow can occur when users are browsing products or engaging in live streaming sessions where they feel a seamless and rewarding interaction. Research suggests that feeling immersed (flow experience) while

browsing online can significantly influence a person's tendency to make impulsive purchases. Studies have shown that flow experiences are a key factor in understanding online behavior (Hyun et al., 2022). Flow experiences, characterized by intense engagement, can lead online shoppers to become highly invested in their virtual experience (Bao & Yang, 2022). Research by Wu et al. (2016) confirms a positive link between flow experiences and the likelihood of making impulsive purchases online. Their later work in 2020 further solidified this connection.

Flow experience is characterized by a balance between the challenge of the activity and the skills of the individual, leading to a state of heightened focus and enjoyment. Further Research by Huo et al., (2023), stated that that flow experience can be adapted to the study of online impulse buying (Bao & Yang, 2022; Wu et al., 2020). Flow experience can positively influence consumer behavior, including online impulse buying, by prolonging engagement and increasing satisfaction with the shopping process.

Research Model and Hypotheses

Following the S-O-R approach, informative content, real-time engagement, and momentary promotional pricing are expected to influence the urge for impulsive buying. By leveraging the Stimulus-Organism-Response (SOR) framework, this study aims to identify the stimuli presented in live streaming environments that trigger emotional and psychological responses in consumers, leading to unplanned purchase decisions.

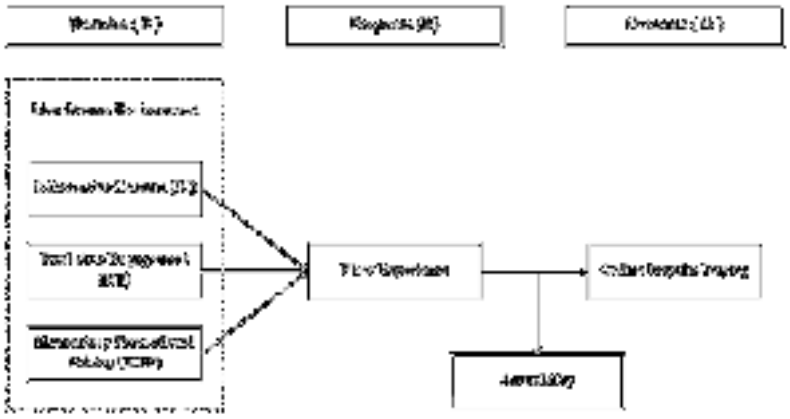

Figure 1. The Theorical Frame Work

RESEARCH METHODS

This study employs a purposive sampling technique, selecting respondents based on specific criteria that align with the research objectives. Given the difficulty in defining the actual size of the target population, the sample size was determined using the statistical power analysis. According to Faul et al. (2007), the sample size generated by G*Power can be used to support the sample size and power calculation of various statistical tests. To examine 6 variables, with a power of 0.95 and an effect size of 0.15, G*Power calculated the minimum sample size to be 196.

The population of this study comprises Generation Y and Generation Z consumers in Indonesia who have experience shopping through TikTok live streaming platforms. TikTok Shop is a rapidly growing e-commerce platform that integrates live streaming features to enhance the shopping experience (Mutia et al., 2023). These generations are chosen due to their significant participation in online shopping activities and familiarity with live streaming as a shopping medium. This study specifically targets generation Y (age 28 – 43) and generation Z (age 12 – 27) who have downloaded, installed, and used the TikTok app for online shopping (Apasrawirote & Yawised, 2022).

The data collection technique involved using a questionnaire created with Google Forms and distributed online. The Google Form questionnaire was shared with several acquaintances, through WhatsApp community and Instagram story with the expectation that they would forward it to their own contacts or networks. Relying on acquaintances, connections, and publication, the data collection was completed within five days, resulting in a total of 217 respondents. However, some respondents who had never participated in live stream online shopping were excluded from further analysis as they did not meet the criteria. This study ultimately obtained 196 valid respondents.

The questionnaire was originally designed in English, then translated to Indonesian for clarity. The translation process was thoroughly examined by a university professor specializing in marketing management who have the credibility to translate the measurement without biased and able to ensure that the meaning of each item remained unchanged. The questionnaire used measurement items adapted to the factors influencing consumers' online impulse buying, combined with the aspects specific to live-streaming shopping.

To analyze the data, the adopted method used is Partial Least Squares (PLS) method, a variance-based structural equation modeling (SEM) technique. PLS is well-suited for predictive applications and theory development, making it an appropriate choice for examining the

relationships in the theorical framework, which centers on the role of live streaming elements in online impulse buying (Lee & Chen, 2021).

To test the goodness of model fit, we followed a two-step process. First, a Confirmatory Factor Analysis (CFA) was conducted to verify the discriminant and convergent validity of each construct, ensuring that items measured their intended factors accurately and distinctly. Second, structural model analysis used to examine the significance of path coefficients and to validate the causal relationships proposed in the theoretical framework (Feng et al., 2024). Next, reliability and convergent validity were evaluated using Cronbach's alpha, factor loadings, composite reliability (CR), and average variance extracted (AVE) (Huo et al., 2023).

The questionnaire used in this study is structured into three sections. The first section includes screening questions to determine if respondents meet the criteria for participation. The second section contains multiple-choice questions designed to gather basic demographic and personal information. The third section focuses on the variables being examined in the study. To measure these constructs, a five-point Likert scale was employed, ranging from 1 (strongly disagree) to 5 (strongly agree).

All measurement items were adapted from existing literature, with minor modifications to fit the live streaming context in this study (Liu et al., 2022), (Huo et al., 2023), (Huang & Suo, 2021), (Hsu et al., 2012), (Wu et al., 2020), (Ye et al., 2022), (Li & Kang, 2024). A detailed overview of these measurement items is presented in Table 1.

Table 1. Measurements

Variable	Code	Measurements	Translation	Source
Informative Content (IC)	IC 1	When watching a live stream, the streamer's interesting explanation(s) makes it an exciting experience for them.	Saat menonton *live streaming*, penjelasan menarik dari *streamer* membuat pemirsa/pengunjung memiliki pengalaman yang menyenangkan.	(F. Liu et al., 2022)
	IC 2	I find the explanations given during the live stream detailed and helpful for my understanding.	Saya merasa penjelasan rinci yang diberikan dalam *live streaming* mendetil dan membantu pemahaman saya.	
	IC 3	The streamer recommends products suitable for me and provides detailed information about them.	*Streamer* merekomendasikan produk yang cocok bagi saya dan memberikan informasi detail tentang produk tersebut.	
	IC 4	The information presented during the live stream answers most of my questions.	Informasi yang disampaikan selama live streaming menjawab sebagian besar pertanyaan saya.	
Real-time Engagement	RE 1	When watching a live stream, the streamer always answers questions immediately.	Streamer selalu menjawab pertanyaan dengan segera saat live streaming.	(F. Liu et al., 2022)

	RE 2	When watching a live stream, the streamer is always aware of my needs	Streamer selalu memahami kebutuhan saya ketika saya menonton live streaming.	(F. Liu et al., 2022)
	RE 3	While watching a live stream, I am able to join in discussions with the streamer and other viewers.	Saat menonton live streaming, saya dapat bergabung dalam diskusi dengan streamer dan penonton lainnya.	(F. Liu et al., 2022)
	RE 4	I felt like I was having a conversation with the streamer in live streaming shopping.	Saya merasa seperti sedang berbicara langsung dengan streamer saat berbelanja melalui live streaming.	(Huo et al., 2023)
Momentary Promotional Pricing	MPP 1	I feel that the chance to purchase a flash sale product is very short, and it would be a shame to miss it.	Saya merasa bahwa kesempatan untuk membeli produk flash sale sangat singkat, dan sayang rasanya jika terlewatkan.	(Huang & Suo, 2021)
	MPP 2	I feel I have limited time to decide whether to buy a discounted item or not.	Saya merasa memiliki waktu terbatas untuk memutuskan apakah akan membeli barang yang diskon atau tidak.	
	MPP 3	I am easily attracted by flash sale price.	Saya mudah tertarik dengan harga flash sale.	
	MPP 4	The price promotion gave me a strong impulse to buy.	Harga promo memberikan dorongan kuat bagi saya untuk membeli.	
Flow Experience	FE 1	I lose track of time when watching the live stream because I am so focused on it.	Saya tidak ingat waktu saat menonton live streaming karena saya sangat fokus pada itu.	(Hsu et al., 2012), (Wu et al., 2020), (Huo et al., 2023)
	FE 2	While watching live streaming shopping, I was completely focused, and nothing else seemed important to me.	Saya sangat fokus saat menonton live streaming shopping dan seakan tidak ada hal lain yang penting bagi saya.	
	FE 3	Watching the live stream feels enjoyable and immersive.	Menonton live streaming terasa menyenangkan dan menghanyutkan.	
	FE 4	During live streaming shopping, I felt entirely absorbed in the experience.	Selama live streaming shopping, saya merasa sepenuhnya terlarut dalam pengalaman tersebut.	
Accessibility	ACC 1	I find it easy to access the products being promoted during the live stream.	Saya merasa mudah untuk mengakses produk yang dipromosikan selama live streaming.	(Ye et al., 2022)
	ACC 2	The steps required to purchase products through the live stream are straightforward.	Langkah-langkah untuk membeli produk melalui live streaming sangat mudah diikuti.	
	ACC 3	The payment process during live streaming shopping is fast and easy.	Proses pembayaran saat live streaming shopping cepat dan mudah.	
Online Impulse Buying	OIB 1	When watching live streaming commerce, I had a desire to buy items that did not pertain to my original shopping goals.	Saat menonton live streaming commerce, saya memiliki keinginan untuk membeli barang-barang yang tidak sesuai dengan tujuan awal belanja saya.	(Huo et al., 2023)
	OIB 2	I often make unplanned purchases during live streams.	Saya sering membuat pembelian tidak terencana selama live streaming.	(Ye et al., 2022)
	OIB 3	The excitement of the live stream motivates me to buy products on impulse.	Keseruan dari live streaming mendorong saya untuk membeli produk secara impulsif.	
	OIB 4	When shopping on live streaming platforms, I frequently make purchases based on my feelings at the moment.	Saat berbelanja di platform live streaming, saya sering melakukan pembelian berdasarkan perasaan saya saat itu.	(L. Li & Kang, 2024)

RESULTS AND DISCUSSION

As presented in Table 2, there are significantly more female respondents than male, with 110 females (64.71%) and 60 males (35.29%) out of 170 respondents. Most of the respondents are aged 18–23 years old (58.24%), followed by those aged 24–29 (32.35%), indicating that younger generations dominate live-stream shopping participation. A majority of respondents hold a bachelor's degree (55.3%), while 43.7% have completed high school. In terms of monthly income, the majority earn between Rp1 million and Rp5 million (61.4%), followed by those earning Rp5 million to Rp10 million (29.8%). When asked about their live-stream shopping behavior, 66% of respondents reported making a purchase through TikTok Shop live streaming within the last 1–3 weeks. These findings suggest that live-stream shopping is particularly appealing to younger, educated individuals with moderate incomes and recent purchasing activity. The detailed descriptive statistics are listed in Table 2.

Table 2. Demographic Information of Respondents

Measure	Item	Frequency	% (n=197)
Gender	Male	60	35.29%
	Female	110	64.71%
Age (years old)	Under 18	5	2.94%
	18 – 23	99	58.24%
	24 – 29	55	32.35%
	30 – 36	7	4.12%
	37 - 43	4	2.35%
Education level	High School	63	43.7%
	Bachelor Degree	105	55.3%
	Master's Degree	2	1%
Monthly Spend	< Rp1.000.000	26	15.3%
	Rp1.000.000 - Rp5.000.000	116	68.24%
	Rp5.000.000 - Rp10.000.000	22	12.93%
	Rp10.000.000 - Rp 15.000.000	5	2.94%
	>Rp15.000.000	1	0.58%
When was the last time you made a purchase via Live Streaming on TikTok Shop?	In the last 1–3 weeks	114	67.06%
	In the last 2 months	17	10%
	In the last 6 months	9	5.29%
	This year, 2024	30	17.65%

The data analysis was conducted using structural and measurement models in SmartPLS 4. Reliability was assessed through composite reliability (CR) and Cronbach's Alpha, which evaluate the stability and consistency of constructs (Hair et al., 2009). Both composite reliability and Cronbach's Alpha values exceeding 0.7 are considered acceptable

(Fornell & Larcker, 1981). As shown in Table 3, all constructs achieved composite reliability and Cronbach's Alpha values above 0.7, indicating reliability.

Construct validity was evaluated through convergent and discriminant validity. Convergent validity was measured using the Average Variance Extracted (AVE) (Hair et al., 2009), with all AVE values exceeding 0.72, well above the recommended threshold of 0.5, thereby confirming convergent validity. Discriminant validity, which ensures that a construct is distinct from others, was assessed by comparing the square root of the AVE for each construct with the correlations between that construct and others (Fornell & Larcker, 1981). As shown in Table 4, the square roots of all AVEs exceeded the correlation values with other factors, confirming acceptable discriminant validity.

Table 3. Results of Validity and Reliability Analysis

Factors	Indicators	Factor Loadings (>0.5)	Ave (>0.5)	Cr (>0.7)	Cronbach's Alpha (>0.7)
Informative Content (IC)	IC 1	0.816	0.635	0.874	0.808
	IC 2	0.701			
	IC 3	0.812			
	IC 4	0.850			
Real-Time Engagement (RE)	RE 1	0.715	0.539	0.824	0.717
	RE 2	0.776			
	RE 3	0.718			
	RE 4	0.725			
Momentary Promotional Pricing (MPP)	MPP 1	0.716	0.532	0.819	0.707
	MPP 2	0.730			
	MPP 3	0.755			
	MPP 4	0.714			
Flow Experience (FE)	FE 1	0.845	0.742	0.920	0.884
	FE 2	0.866			
	FE 3	0.870			
	FE 4	0.863			
Accessibility (ACC)	ACC 1	0.911	0.651	0.847	0.759
	ACC 2	0.752			
	ACC 3	0.746			
Online Impulse Buying (OIB)	OIB 1	0.748	0.656	0.884	0.824
	OIB 2	0.820			
	OIB 3	0.850			
	OIB 4	0.817			

Table 4. Discriminant Validity Fornell-Larcker Table

	ACC	FE	IC	MPP	OIB	RE
ACC	0.718					
FE	0.037	0.808				
IC	0.086	0.652	0.720			
MPP	0.020	0.661	0.698	0.614		
OIB	0.178	0.915	0.663	0.554	0.738	
RE	0.388	0.661	0.403	0.416	0.638	0.624

The fit indices for the measurement model demonstrate acceptable levels of model fit. The chi-square to degrees of freedom ratio (χ^2/df) is 2.2, which is within the recommended range of less than 3, indicating an acceptable model fit. The Goodness-of-Fit Index (GFI) is 0.836, and the Adjusted Goodness-of-Fit Index (AGFI) is 0.79, both of which are slightly below the commonly recommended threshold of 0.9 but still indicative of an adequate fit. The Comparative Fit Index (CFI) is 0.87, approaching the acceptable threshold of 0.9, and the Normed Fit Index (NFI) is 0.806, which is also slightly below the recommended value of 0.9 but still acceptable. The Root Mean Square Error of Approximation (RMSEA) is 0.08, meeting the upper limit of the recommended range of ≤0.08, suggesting a reasonable error of approximation. Overall, the model exhibits adequate fit, though there is room for improvement in some indices.

Table 5. Fit Indices of Measurement and structural models

Fit Indices	χ2/df	GFI	AGFI	CFI	NFI	RMSEA
Measurement Model	2.029	0.85	0.801	0.89	0.805	0.072

CONCLUSIONS AND RECOMMENDATION

This study investigated how live streaming elements—Informative Content (IC), Real-Time Engagement (RE), and Momentary Promotional Pricing (MPP)—influence Flow Experience (FE) and, in turn, drive Online Impulse Buying (OIB). The findings provide significant insights into consumer behavior in live streaming e-commerce, particularly on TikTok Shop, which has become a prominent platform for impulsive purchases among Generation Y and Z in Indonesia.

The results highlight that Informative Content (IC) is the most influential element in driving online impulse buying. Among the three elements, IC demonstrated the highest

composite reliability (CR) of 0.874, average variance extracted (AVE) of 0.635, and strong factor loadings (up to 0.850). These metrics underscore the critical role of clear, relevant, and detailed product information in capturing consumer interest and fostering a seamless shopping experience. Informative content enhances trust and satisfaction, making it a key driver of impulsive purchases.

Real-Time Engagement (RE) and Momentary Promotional Pricing (MPP) also contribute significantly to online impulse buying, but their impact is slightly lower compared to IC. RE fosters interactive and immersive experiences, enabling consumers to engage actively with sellers and other viewers, which sustains attention and triggers impulsive behavior. Meanwhile, MPP taps into consumers' fear of missing out (FOMO) by creating a sense of urgency through limited-time deals. While these elements are effective, they serve more as complementary drivers that enhance the overall flow experience rather than being primary motivators.

The study also confirmed the importance of Flow Experience (FE) as a mediator between live streaming elements and online impulse buying. A heightened flow state, characterized by focused attention and enjoyment, significantly increases the likelihood of making impulsive purchases. This finding aligns with previous research emphasizing the role of immersive experiences in driving consumer behavior in online shopping environments.

This study concludes that live streaming elements play a crucial role in shaping consumers' flow experiences and driving online impulse buying. Among the three elements examined, Informative Content (IC) stands out as the most influential factor, highlighting the need for live stream sellers to provide clear, detailed, and engaging product information to capture and retain consumer interest. Real-Time Engagement (RE) and Momentary Promotional Pricing (MPP) also contribute positively but are secondary to IC in their impact.
The findings have practical implications for live streaming e-commerce platforms and sellers. To maximize impulsive purchases, platforms should prioritize features that enhance the clarity and accessibility of product information while fostering interactive and engaging live streaming environments. Sellers can leverage momentary promotional pricing to create urgency and real-time engagement strategies to maintain consumer interest.

Future research can build upon this study by exploring other potential factors influencing online impulse buying, such as emotional appeals, social proof, and personalization, to provide a more comprehensive understanding of consumer behavior in live streaming contexts.

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