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Live Streaming Strategies and Time Pressure: Their Effect on Perceived Urgency and Impulse Buying Behavior on Shopee

Nawal Noor Zakiah

Universitas Siliwangi

nawalnoorzakiah@gmail.com

Abstract

The study aims to examine the effect of live streaming on perceived urgency and impulse buying, as well as the role of time pressure as a moderating variable in Shopee's e-commerce marketing context. Additionally, the study investigates how time pressure enhances the relationship between perceived urgency and impulse buying behavior. Data were collected from 240 respondents, consisting of Generation Z and millennial consumers. The data analysis was conducted using the Structural Equation Modeling (SEM) method with AMOS version 22 software. The results show that live streaming significantly influences perceived urgency, which in turn positively impacts impulse buying behavior. Time pressure was also found to strengthen the relationship between live streaming and perceived urgency, as well as between perceived urgency and impulse buying.

Keywords: Live Streaming, Perceived Urgency, Impulse Buying, Time Pressure

1 Introduction

Shopping through live streaming-based e-commerce platforms has experienced very rapid growth. In 2023, Shopee recorded a 500% increase in orders through the live stream feature compared to the previous year, with more than one million local streamers actively using Shopee Live. Sales through this live streaming even reached 40% of the total sales on the platform, especially among local sellers. This trend shows that more and more consumers are interested in real-time interactions and exclusive offers that are only available during the broadcast, thus encouraging them to make impulsive purchases (Retail Asia, 2023).

Live streaming provides an interactive shopping experience, where sellers can provide limited offers that are only available during the broadcast. Previous research, such as that conducted by and, found that (Li et al., 2022) (Ming et al., 2021) live streaming creates a powerful stimulus through limited supply and intense social interaction, which triggers perceived urgency and ultimately drives impulse buying. However, these studies have not fully explored the role of time pressure as a factor that strengthens the relationship between consumers' perceived urgency and impulsive behavior. Time pressure is expected to accelerate decision-making, especially in contexts where consumers feel compelled to buy immediately due to limited time.

This study aims to fill the gap by explaining the influence of live streaming on perceived urgency and its impact on impulse buying. In addition, the study will also explore how time pressure moderates the relationship between live streaming and perceived urgency and between perceived urgency and impulse buying. Using the Stimulus-Organism-Response (SOR) theoretical framework, this study aims to expand the understanding of the role of time pressure in the context of live streaming which has not been widely studied in the previous literature.

The results of this research are expected to provide new insights for marketing practitioners and sellers on e-commerce platforms such as Shopee. By understanding how perceived urgency and time pressure affect impulse buying decisions, sellers can design more effective promotional strategies, leverage live streaming to create a sense of urgency, and maximize sales through more strategic limited offers.

2 Literature Review

2.1 Live Streaming

Live streaming is a method of delivering video content directly through a digital platform that allows for instant interaction between broadcasters and viewers. In the context of e-commerce, live streaming has become an important marketing tool, where sellers can display products in real-time, provide detailed information, and offer special promotions during broadcasts. This phenomenon not only attracts the attention of consumers, but also encourages them to make impulse purchases. According to, (Li et al., 2022) live streaming can increase impulse buying behavior through perceived urgency mediation, suggesting that interactive elements in live streaming can create a sense of urgency for consumers to make a purchase immediately.

The relationship between live streaming and perceived urgency is quite significant. found that elements in (Lee & Chen, 2021) live streaming, such as live interactions and limited offers, can create a sense of urgency among consumers, which in turn influences their purchasing decisions. In addition, it highlights that the frequency of watching (Yi et al., 2023) live streams and anticipated emotions can trigger a sense of urgency, which is relevant to impulsive buying behavior.
H1: Live Streaming Has a Positive Effect on Perceived Urgency

2.2 Perceived Urgency

Perceived urgency is the sense of urgency felt by consumers when they feel that time to make a purchase is limited. This sense of urgency can be triggered by elements in the shopping experience, such as limited-time offers, exclusive discounts, or a limited number of products. When consumers experience perceived urgency, they tend to make purchase decisions quickly without much consideration, prompting them to shop impulsively (Huo et al., 2023).

The effect of perceived urgency on impulse buying is very significant. According to the elements in (Lee & Chen, 2021) live streaming commerce, such as real-time interaction and limited promotions, can create a strong sense of urgency among consumers. When consumers feel that they may be missing out on the opportunity to get the product they want, they are more likely to make a purchase without planning. This sense of urgency not only triggers the decision to buy impulsively, but can also increase consumer satisfaction after making a purchase, because they feel they have taken advantage of the existing opportunities. Therefore, a deep understanding of perceived urgency is important for marketers to design effective strategies to improve impulse buying behavior in the era of e-commerce, especially in the context of live streaming.
H2: Perceived Urgency Has a Positive Effect on Impulse Buying

2.3 Time Pressure

Time pressure refers to situations where individuals feel pressured by time to make decisions or complete tasks. In the context of live streaming, this pressure often arises when consumers are faced with limited offers or promotions that are only valid during the broadcast. Research shows that when consumers feel the pressure of time, they tend to make decisions faster, which often leads to impulse purchases. Interactive elements in live streaming, such as the announcement that a particular product will soon run out, can reinforce this feeling and encourage consumers to act faster (Huo et al., 2023).

The role of time pressure in live streaming is very significant, because it can amplify the effect of the stimulus offered during the broadcast. For example, research by shows that elements in (Lee & Chen, 2021) live streaming contribute to increased perceived urgency among consumers, and time pressure can deepen those relationships. When consumers feel pressured to make a purchase immediately, they are more likely to respond with impulsive actions, making time pressure an important factor influencing purchasing behavior on live streaming platforms.
H3: Time Pressure Moderates the Relationship between Live Streaming and Perceived Urgency

Time pressure plays a role in moderating the relationship between perceived urgency and impulse buying by strengthening the sense of urgency felt by consumers. When consumers feel that time to make decisions is limited—for example, in a live stream that offers discounts at short notice—the urgency to buy immediately increases dramatically. This triggers impulsive behavior, as consumers want to avoid missing out on opportunities. stated that (Li et al., 2022) time pressure increases the urgency felt by consumers, which ultimately accelerates impulse purchasing actions. This condition makes consumers more susceptible to impulsive decision-making without deep consideration.
H4: Time Pressure Moderates the Relationship between Perceived Urgency and Impulse Buying

2.4 Impulse Buying

Impulse buying can be defined as unplanned buying behavior, which occurs spontaneously when consumers feel compelled to buy a product after being exposed to a certain stimulus. In the context of live streaming, these stimuli can be urgent promotions, direct interactions with sellers, or limited-time offers that cause consumers to make purchases without thinking. The role of (Huo et al., 2023) impulse buying in this study is very important, because this behavior is the end result of a process triggered by perceived urgency and reinforced by time pressure. When consumers feel pressed by time—for example, through limited discounts during live streaming sessions—their sense of urgency increases, which in turn encourages impulse buying behavior (Lee & Chen, 2021).

In this study, impulse buying is described as a consumer's response to a combination of live streaming stimulus and perceived urgency. This behavior serves as the primary response in the SOR (Stimulus-Organism-Response) model, where live streaming as a stimulus creates urgency, which is amplified by time pressure, and ultimately drives impulse purchasing decisions that are often made without careful consideration.

Live streaming has the ability to create a direct interaction between sellers and consumers, often combined with special promotions or limited-time discounts. These elements create perceived urgency, which is the sense of urgency that consumers experience to buy immediately before the opportunity is lost. Research by shows that (Lee & Chen, 2021) live streams featuring limited-time promotions or limited quantities of goods can trigger this increased sense of urgency. In these situations, consumers are encouraged to make quick decisions, which often leads to impulse buying.

In addition, time pressure plays an important role in strengthening this relationship. With clear time limits, such as discounts that are only valid during live streaming sessions, this time pressure strengthens the urgency felt by consumers. Studies confirm that time pressure speeds up the decision-making process, which makes consumers more likely to make impulse purchases. Thus, (Huo et al., 2023) time pressure serves as a moderator that amplifies the effect of live streaming on perceived urgency and ultimately increases the likelihood of impulse buying.

3 Research Method

This study uses a quantitative method with the aim of finding out and measuring the influence of live streaming on perceived urgency and its impact on impulse buying, with time pressure as a moderation

variable. The population in this study consists of generation Z and millennial consumers, who are the generation that grew up in the era of rapid technology.

The sampling technique used is non-probability sampling with a type of purposive sampling. The data collection method is carried out by distributing questionnaires to respondents who meet certain criteria. The respondent criteria in this study are: (1) generation Z and millennial consumers; (2) be an Indonesian citizen and domiciled in an urban area; and (3) have made a purchase via live streaming at least once in the last six months. Each respondent was asked to indicate the level of perception on each statement item using a scale from 1-10. Ratings 1-5 indicate disapproval, while ratings 6-10 indicate approval of the statements given.

The minimum number of samples used in this study is 240 respondents. The calculation of the number of samples is carried out with the following approach:
Estimated Parameter = number of indicators × 2 + number of errors of the y variable + direction of the structural arrow

$$= 20 \times 2 + 3 + 4$$
$$= 47$$

Referring to , a representative sample size ranges from 100 to 200 respondents, with a good minimum sample size of five to ten times the number of indicators. In this study, there are 47 estimated parameters. Therefore, the minimum number of samples needed is 5 times the number of estimated parameters, which is 47 × 5 = 235. However, the study gathered 240 respondents to ensure better representativeness and validity of the results (*Multivariate Data Analysis*, n.d.).
With this approach, the study aims to produce valid and reliable findings, as well as provide deeper insights into how live streaming can affect the urgency felt by consumers and its impact on impulse buying behavior among Generation Z and millennials.
The following are the operationalization of the variables used in the study:

Table 1. Operationalization of Research Variables

Variable	Dimension	Indicator	Information
Live Streaming (Chen & Yang, 2023) (Zhang et al., 2024)	Interactive Engagement	The level of direct interaction between the host and the audience during the live stream	LS1
		The effect of interactive features (e.g., polls, Q&A) on audience purchase intent.	LS2
	Social Influence	The effect of the number of views and comments on the credibility of live streaming	LS3
		The effect of live reviews from other users during live streaming on purchase decisions	LS4
	Content Quality	Visual and audio quality from live streams that affect the viewer experience	LS5
		The relevance and depth of the content delivered during the live stream to the audience's interest	LS6

Perceived Urgency (Gong & Jiang, 2023) (Xia et al., 2024)	Scarcity Messaging	The effect of stock announcements is limited to the audience's purchase intention	PU1
		The effectiveness of urgency strategies in encouraging impulse buying	PU2
	FOMO (Fear of Missing Out)	The level of FOMO perceived when viewing direct purchases from other users	PU3
		The effect of fear of missing out on purchase intention	PU4
	Consumer Awareness	The level of consumer awareness of limited offers aired	PU5
		The influence of consumer understanding of urgency on purchasing decisions	PU6
Impulse Buying (Gong & Jiang, 2023; LI et al., 2024)	Emotional Triggering	The effect of positive emotions from hosts or live streaming content on impulse purchases	IB1
		The role of fun product visualization in triggering unplanned purchases	IB2
	Cognitive Overload	The level of cognitive load experienced by consumers when given a large selection of products quickly	IB3
		The influence of excessive information on impulsive decision-making	IB4
Time Pressure (Dong et al., 2023; LI et al., 2024)	Limited Time Offers	Effect of discount deadlines on purchasing decisions	TP1
		Speed of decision-making when offered flash promos	TP2
	Peer Pressure	Pressure to buy because of seeing others buy in a short period of time	TP3
		Feeling of urgency to buy immediately before the product runs out because of someone else	TP4

To visualize the relationship between variables, this study uses Structural Equation Modeling (SEM) analysis. SEM is a statistical modeling technique that is often used in research related to consumer behavior and the influence of digital media, including live streaming (Hox & Bechger, 1999) The SEM technique was chosen because it is very suitable for the purpose of this research, which is to test the relationships between variables in the model, both between manifest and latent variables, as well as between latent variables.

In this study, the model built aims to explain the influence of live streaming on perceived urgency and its impact on impulse buying, with time pressure as a moderating variable. AMOS software version 22 is used to analyze the data. AMOS is a commonly used SEM software for testing regression equation systems, allowing researchers to test complex relationships and interactions between variables.

This research model is designed to illustrate how live streaming can affect the urgency felt by consumers, which in turn impacts impulse buying behavior. Using SEM, this study hopes to provide a deeper understanding of the dynamics that occur between these variables and how the time pressure factor affects this relationship.

The following is a table of research models:

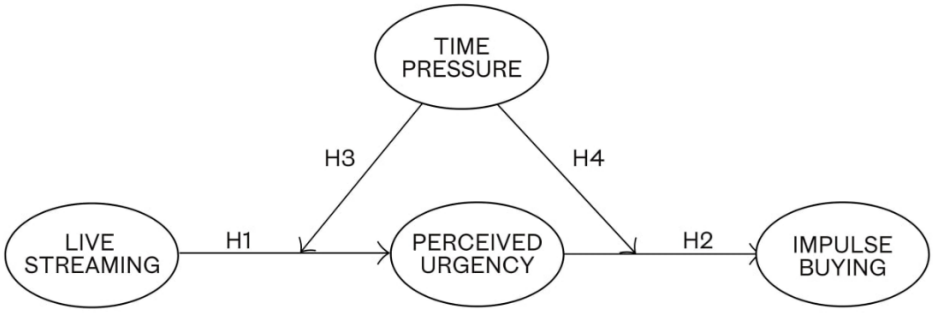

Figure 1 : Research Model

4 Result and Discussion

Data was collected from 240 respondents according to the set sample size. Respondents' characteristics are generally displayed based on variables of age, gender, occupation, and income level,

Table 2. of Respondent Characteristics

No.	Profile/Category		Number (people)	Percentage (%)
1,	Gender	Woman	141	58,8
		Man	99	41,2
	Sum		240	100
2.	Age	17-22	149	62
		23-28	57	23,9
		29-32	26	10,9
		33-38	8	3,2
	Sum		240	100
3.	Work	Students/Students	150	62,5
		Civil Servants	13	5,3
		Private Employees	39	16,2
		Businessman	9	3,7
		Content Creator	8	3,4
		Housewives	3	1,4
		Self employed	14	5,8
		Merchant	4	1,7
	Sum		240	100
4.		<Rp500.000	85	35,4

Income/allowance in one month	IDR 500,000 - IDR 1,000,000	35	14,4
	IDR 1,000,000 - IDR 1,500,000	36	15,1
	IDR 1,500,000 - IDR 2,000,000	26	11
	>Rp2.000.000	58	24,1
		240	100

Source: Data Processed by Researchers, 2024

The study involved 240 respondents with diverse demographics. The majority were women (58%) and primarily Generation Z and millennials (62%) aged 17-22, emphasizing the younger generation's role in the research. Most respondents were students (62%), followed by private employees (16%) and civil servants (5%), indicating they are mostly in education or early careers. In terms of income, 35% earned less than IDR 500,000, suggesting dependence on pocket money or parental support. Most respondents lived in urban areas, impacting their access to technology and e-commerce platforms. This demographic diversity provides insight into Generation Z and millennial consumer behavior, particularly regarding impulse buying through live streaming.

Normality Test

In the SEM model using Maximum Likelihood Estimation (MLE), it is assumed that the data are normally distributed, both univariate and multivariate (Ullman, 2006). This is assessed using the Critical Ratio (CR) of skewness and kurtosis, where a CR between -2.58 and 2.58 at a 1% significance level (0.01) indicates normal distribution.

Table 3. of Normality Test Results

Variable	skew	c.r.	kurtosis	c.r.
IB4	-.136	-.843	.558	1.726
IB3	-.144	-.889	.264	.817
IB2	-.059	-.367	.244	.755
IB1	-.082	-.507	.467	1.446
TP4	-.232	-1.437	-.870	-2.693
TP3	.169	1.048	-.214	-.662
TP2	-.141	-.872	-.450	-1.394
TP1	.097	.597	-.401	-1.241
PJ6	-.032	-.200	-.689	-2.133
PJ5	-.189	-1.172	-.373	-1.155
PJ4	.041	.251	-.325	-1.005
PJ3	-.236	-1.460	-.039	-.121
PJ2	.181	1.118	-.218	-.674
PJ1	-.191	-1.180	-.131	-.405
LS6	-.428	-2.652	-.438	-1.356
LS5	-.001	-.006	-.270	-.836
LS4	-.239	-1.481	-.360	-1.114
LS3	-.002	-.014	-.076	-.234

Variable	skew	c.r.	kurtosis	c.r.
LS2	-.301	-1.864	-.351	-1.086
LS1	-.014	-.084	-.119	-.368
Multivariate			3.780	.922

Source: Data Processed by Researchers, 2024

The results of the normality test showed that the research data had been distributed normally, because the univariate kurtosis values of all indicators were in the interval of <2.58. Meanwhile, the curtosis multivariate value obtained was 3,780 with a CR value of .922 so that it can be concluded that the data is normally distributed multivariate.

Structural Model Fit

To test the feasibility of the structural model, several fitting eligibility criteria were looked at, such as chi-square, cmin/df, GFI, AGFI, TLI, CFI RMSEA, and RMR values. The results of the modification of the fitting feasibility model are as follows.

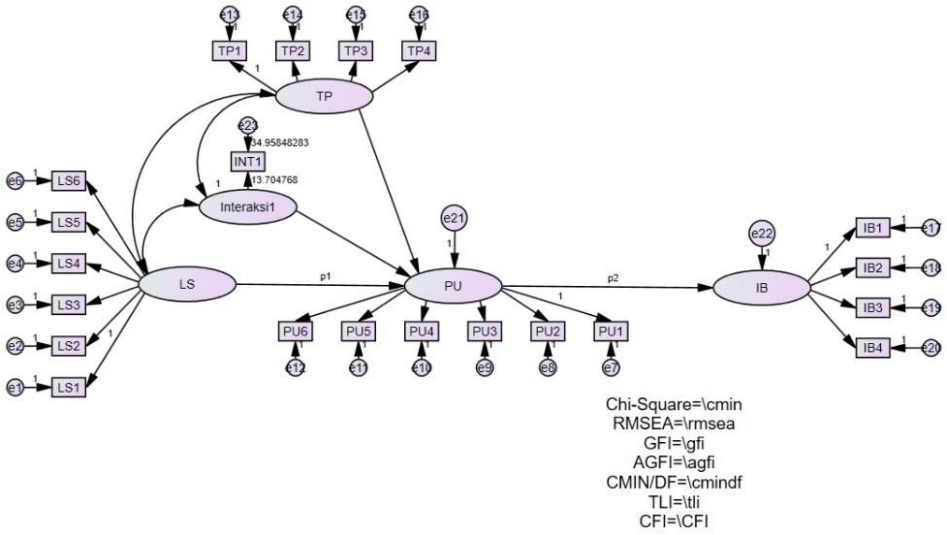

Figure 2 : Structural Model Fit
Goodness of Fit (GoF) SEM-AMOS Model

Goodness of Fit Index	Analysis Result	Cut-off Value	Model Evaluation
Chi square	266.079	Expected small	
RMSEA	0.045	≤ 0.08	Fit
GFI	0.901	≥ 0.90	Fit
AGFI	0.875	≥ 0.90	Marginal
CMIN/DF	1.454	≤ 2.00 a.m.	Fit
TLI	0.973	≥ 0.90	Fit
CFI	0.976	≥ 0.90	Fit

Source: Data Processed by Researchers, 2024

Based on the *Goodness of Fit* table in this study, it can be seen that the model used has achieved a good match with the data. A Chi-square value of 266,079 indicates that the model is still acceptable despite the expected smaller value. The CMIN/DF value of 1.454, GFI of 0.901, TLI of 0.973, CFI of 0.976, and RMSEA of 0.045 are all in the *good fit* category, indicating that this model is representative enough to explain the data. However, the AGFI value of 0.875 is in the *marginal fit* category, slightly below the ideal limit. Even so, with 6 indicators indicating *good fit*, this model is still acceptable and worthy of further analysis.

Hypothesis Testing

Based on the empirical model proposed in this study, hypothesis testing is carried out through path coefficient testing on the structural equation model. The table of SEM estimation results shows the relationship between exogenous and endogenous variables. If the p-value of the path coefficient is <0.05, then the relationship between the variables is considered significant. This hypothesis test aims to find out whether exogenous variables have a significant influence on endogenous variables in the tested model.

Table 4. Hypothesis Testing

Influence Relationship			C.R.	Probability	Information
Perceived Urgency	<---	Live Streaming	2.246	0.025	Accepted
Perceived Urgency	<---	Time Pressure	2.081	0.037	Accepted
Perceived Urgency	<---	Interaksi_1	3.584	0.000	Accepted
Impulses Buying	<---	Perceived Urgency	3.035	0.002	Accepted
Impulses Buying	<---	Time Pressure	5.825	0.000	Accepted
Impulse Buying	<---	Interaksi_2	5.533	0.000	Accepted

Source: Data Processed by Researchers, 2024

From the hypothesis test table, it can be concluded that:

1. Effect of Live Streaming on Perceived Urgency
   A p-value of 0.025 with a C.R of 2.246 indicates that live streaming significantly impacts perceived urgency. Since the p-value < 0.05, the hypothesis is accepted, showing that interactive features and limited promotions in live streaming create a sense of urgency in consumers.
2. Effect of Time Pressure on Perceived Urgency
   With a p-value of 0.037 and C.R of 2.081, time pressure significantly influences perceived urgency. This hypothesis is accepted as p-value < 0.05, proving that flash offers during live streaming reinforce urgency to make immediate purchases.
3. Effect of Interaction 1 on Perceived Urgency
   A p-value of 0.000 and C.R of 3.584 show that interaction during live streaming significantly affects perceived urgency. The hypothesis is accepted, proving that direct interaction between hosts and viewers increases consumers' sense of urgency.
4. Effect of Perceived Urgency on Impulse Buying
   Perceived urgency significantly affects impulse buying, with a p-value of 0.002 and C.R of 3.035. The hypothesis is accepted, confirming that urgency felt by consumers increases impulse buying behavior.
5. Effect of Time Pressure on Impulse Buying
   A p-value of 0.000 and C.R of 5.825 indicate that time pressure significantly impacts impulse buying. The hypothesis is accepted, showing that time pressure strongly encourages impulsive purchasing behavior.
6. Effect of Interaction 2 on Impulse Buying
   The p-value of 0.000 and C.R of 5.533 confirm that interaction in live streaming significantly influences impulse buying. The hypothesis is accepted, demonstrating that intense interaction between hosts and viewers reinforces impulsive purchases.

Overall, the study confirms that live streaming, time pressure, and interaction significantly influence perceived urgency and impulse buying. Perceived urgency mediates the relationship between live streaming and impulse buying, while time pressure amplifies this effect.

5 Conclusion and Sugestion

Based on the results of the analysis that has been carried out, it can be concluded that live streaming has a significant influence on perceived urgency, which then has a positive impact on consumer impulse buying behavior. The use of interactive elements during live streaming, such as limited offers and real-time interactions, has proven to be able to create urgency in consumers to make a purchase immediately. In addition, time pressure or time pressure acts as a moderator that strengthens the relationship between live streaming and perceived urgency, as well as the relationship between perceived urgency and impulse buying. Consumers who are faced with time constraints to make purchases become more encouraged to make decisions quickly and impulsively. Thus, this study provides an understanding that live streaming-based marketing strategies, combined with time pressure, can be an effective tool to encourage impulse purchases.

This research opens up opportunities for future research to explore several aspects that are still not explained in depth. First, it is suggested that future research may include other variables that may strengthen or mediate the relationship between live streaming and impulse buying behavior, such as social presence or fear of missing out (FOMO). Second, this research is limited to generation Z and millennials on the Shopee platform; therefore, further research can expand the research subject by including other e-commerce platforms, such as TikTok Shop or Lazada, as well as engaging other demographic groups to test whether similar results can be obtained. Finally, the increasing use of artificial intelligence technology in live streaming interactions could also be an interesting area to explore in relation to consumer buying behavior.

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