

Experimental Analysis of Impulse Buying in Indonesian Live Shopping

Tessa Handra^{1*} , Yolanda Masnita² , Husna Leila Yusran³ 

¹Faculty of Business, Universitas Multimedia Nusantara, Indonesia

^{2,3}Faculty of Economics and Business, Universitas Trisakti, Indonesia

¹tessa.handra@lecturer.umn.ac.id, ²yolandamasnita@trisakti.ac.id, ³husna.leila@trisakti.ac.id

*Corresponding Author

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ABSTRACT

The growth of live shopping in Indonesia has created a dynamic digital retail environment, yet the psychological mechanisms underlying impulse buying remain insufficiently understood. Previous studies have predominantly emphasized positive and linear relationships between perceived enjoyment, purchase-related urges, and impulse buying, with limited experimental evidence on their combined effects in the Indonesian live-commerce context. **This study examines** the effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying using a 2×2 factorial between-subject experimental design. Data were collected from 160 female Gen Z and Millennial respondents in Indonesia who actively used live-commerce platforms. Both factors were manipulated at high and low levels through simulated live-streaming videos and analyzed using Two-Way ANOVA. **The results show** that low Perceived Enjoyment produced significantly higher Customer Impulse Buying than high Perceived Enjoyment, while low Urge To Buy Impulsively also produced significantly higher impulse-buying responses than the high condition. A significant interaction was found, with the low-Perceived Enjoyment and low-Urge To Buy Impulsively condition producing the highest Customer Impulse Buying score. **These findings** indicate that stronger entertainment and purchase-related stimulation do not necessarily generate stronger impulse-buying responses. **The study** extends the Stimulus-Organism-Response framework through an interaction-based perspective and provides implications for technology innovation management and digital transformation by emphasizing balanced entertainment, information efficiency, consumer decision support, and responsible live-commerce design.

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1. INTRODUCTION

The development of digital technology has transformed impulse buying from conventional stores into digital environments where stimuli emerge through visual content, personalized recommendations, and social interaction, particularly in live shopping [1, 2]. Globally, 84% of shoppers have made impulse purchases, while Indonesia ranks fourth in Asia-Pacific live-shopping adoption at 69%, with Shopee Live and TikTok

Live among the most widely used platforms [3]. However, Indonesian consumers remain predominantly need-based shoppers (52%), whereas impulsive shoppers account for only 12% [4]. Live shopping is also relevant to Sustainable Development Goal (SDGs) 8 through digital economic participation, SDG 9 through digital retail innovation, and SDGs 12 through responsible consumption [5, 6]. Therefore, examining the interaction between Perceived Enjoyment and Urge To Buy Impulsively can provide empirical evidence for more responsible and sustainable digital-commerce practices [7]. Despite growing research on digital impulse buying, previous studies have predominantly reported positive relationships between Perceived Enjoyment, purchase urge, and impulse-buying responses [8–10]. This evidence generally supports the conventional SOR perspective, in which stronger stimuli or affective states are expected to produce stronger behavioral responses [11, 12]. However, limited attention has been given to how different levels of two internal consumer conditions jointly influence Customer Impulse Buying [13, 14]. Previous research has also frequently examined purchase intention or purchase urge rather than experimentally investigating actual impulse-buying responses under manipulated conditions [15]. To address these gaps, this study employs a 2×2 factorial experiment to examine both the individual and interaction effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying [16, 17].

Evidence from the Indonesian live-shopping context also remains limited. Findings from other markets cannot automatically be generalized to Indonesian consumers because responses to entertainment, social interaction, promotional cues, and shopping stimuli may vary across contexts [18]. Accordingly, this study extends the conventional SOR perspective from a predominantly linear explanation toward an interaction-based perspective by examining whether the combination of Perceived Enjoyment and Urge To Buy Impulsively produces different Customer Impulse Buying responses [19]. The study examines whether high Perceived Enjoyment, high Urge To Buy Impulsively, and their combination increase Customer Impulse Buying, with the main objective of determining the individual effects and interaction between these variables in Indonesian live shopping. From a digital marketing perspective, this study provides empirical evidence that live-commerce effectiveness depends not only on entertainment and promotional intensity but also on consumers' cognitive and affective processing [20]. The findings can support live-shopping strategies that balance entertainment, social interaction, product information, and consumer decision-making. The study contributes to the integration of the SOR Model, Hedonic Motivation Theory, and Latent State-Trait Theory in explaining impulse-buying responses, while also providing implications for digital consumer protection, ethical live-shopping practices, content optimization, market segmentation, and consumer awareness of impulsive decision-making [21, 22]. Operationally, Perceived Enjoyment refers to the perceived pleasure derived from live-shopping content; Urge To Buy Impulsively refers to a spontaneous affective drive to purchase immediately; and Customer Impulse Buying refers to sudden, unplanned purchasing driven by emotion or external stimuli.

2. LITERATURE REVIEW

2.1. Theoretical Foundation

The Stimulus-Organism-Response (SOR) Theory explains that behavioral responses (R) to external stimuli (S) are shaped by internal cognitive and emotional states (O), making it relevant to live-shopping stimuli such as host interaction, product presentation, limited-time offers, and social proof [23, 24]. In this study, SOR provides the framework for examining the joint effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying, extending the predominantly linear stimulus-response perspective toward an interaction-based approach [25]. Hedonic Motivation Theory complements SOR by explaining how intrinsic pleasure and enjoyment influence consumer behavior and supports the examination of Perceived Enjoyment without assuming that higher enjoyment necessarily increases impulse buying [26, 27]. Impulse Buying Theory explains spontaneous purchasing and the psychological urge preceding an impulse purchase, supporting Urge To Buy Impulsively as a transient internal state following exposure to live-shopping stimuli [28]. Together, these theories establish the research model, with SOR explaining the stimulus-organism-response relationship, Hedonic Motivation Theory supporting Perceived Enjoyment, and Impulse Buying Theory supporting Urge To Buy Impulsively. The theoretical contribution lies in experimentally testing whether their simultaneous combination produces distinct Customer Impulse Buying responses, extending previous separate positive-pathway approaches toward an interaction-based perspective [29].

2.2. Summary of Prior Research

Previous research has established important relationships among enjoyment, hedonic motivation, social-commerce stimuli, and impulse-buying responses. However, these studies differ in their variables, research contexts, and analytical approaches, particularly in how they examine the conditions underlying impulse-buying behavior [30]. Table 1 synthesizes the relevant studies by comparing their key variables, contexts, and findings and identifies the research gaps addressed by the present experimental investigation.

Table 1. Critical Summary of Prior Research

Reference	Focus / Variables	Key Findings	Research Gap / Limitation Relevant to This Study
[1]	SOR, Scarcity, Perceived Enjoyment, Urge To Buy Impulsively	Perceived Enjoyment mediates the effect of scarcity stimuli on Urge To Buy Impulsively.	Examines a mediated SOR pathway but does not directly examine the interaction between Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying.
[2]	SOR, Consumer Online Impulse Buying, Live Streaming E-Commerce	Consumer impulse buying in live-streaming e-commerce is explained through the relationships among stimulus, organism, and response factors.	Applies the SOR framework to live-streaming impulse buying but does not experimentally examine the joint effects of Perceived Enjoyment and Urge To Buy Impulsively.
[5]	Live Streaming, Impulsive Buying Behavior, Consumer Drivers	Identifies multiple factors that influence impulsive buying behavior in live-streaming environments.	Focuses on individual drivers of impulsive buying rather than experimentally testing the interaction between Perceived Enjoyment and Urge To Buy Impulsively.
[19]	Interactive Research, SOR, Live-Streaming Shopping, Impulse Buying	Shows that interactive factors can influence consumer impulse buying behavior within a live-streaming SOR context.	Uses an interactive SOR perspective but does not directly manipulate the simultaneous levels of Perceived Enjoyment and Urge To Buy Impulsively to examine their combined effect on Customer Impulse Buying.
[21]	Live Streaming, Viewing and Purchasing Behavior, Streamer-Viewer Interaction	Examines factors motivating consumers' viewing and purchasing behavior in live-streaming environments.	Addresses viewing and purchasing motivations but does not experimentally examine the interaction between Perceived Enjoyment and Urge To Buy Impulsively on actual Customer Impulse Buying.
[22]	Urge To Buy Impulsively, Social Commerce Live-Streaming	Examines the role of Urge To Buy Impulsively within a moderating–mediating model of social commerce live-streaming.	Provides evidence for the role of purchase urge but does not examine its experimental interaction with Perceived Enjoyment on Customer Impulse Buying.
[31]	Perceived Enjoyment, Online Impulsive Buying, Digital Business	Perceived Enjoyment is examined as a mediator in online impulsive buying behavior.	Examines the role of Perceived Enjoyment in online impulsive buying but does not experimentally examine the joint interaction between Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying.

Table 1 shows that the literature generally indicates a positive pathway in which Perceived Enjoyment, hedonic motivation, social-commerce stimuli, and related environmental cues strengthen consumers' internal states and impulse-buying responses [32]. Previous studies similarly associate Perceived Enjoyment and related stimuli with stronger purchase urges or impulse-related responses [33]. However, previous studies have largely examined individual relationships, mediated pathways, or impulse-related intentions, with limited attention to the interaction between Perceived Enjoyment and Urge To Buy Impulsively in producing different Customer Impulse Buying responses [34]. This study addresses this gap through a 2×2 factorial experiment that simultaneously manipulates both conditions and examines whether their effects vary according to their combination. The theoretical contribution is to extend SOR Theory beyond a predominantly positive and linear interpretation by examining whether established relationships operate differently when multiple organism-related conditions are considered simultaneously [35, 36]. By combining high and low levels of Perceived Enjoyment and Urge To Buy Impulsively, the study experimentally examines their interaction effect on Customer Impulse Buying [37]. Thus, the novelty lies in shifting the analytical focus from separate effects toward the joint configuration of two organism-related conditions and experimentally testing whether their combination produces different Customer Impulse Buying responses in Indonesian live shopping.

2.3. Conceptual Framework

This study adopts SOR Theory as its underpinning framework, positioning Perceived Enjoyment and Urge To Buy Impulsively as independent variables and Customer Impulse Buying as the dependent variable [38]. The research model examines both the individual and interaction effects of these two independent variables using a 2×2 factorial experimental design comprising four experimental conditions: low Perceived Enjoyment–low Urge To Buy Impulsively, low Perceived Enjoyment–high Urge To Buy Impulsively, high Perceived Enjoyment–low Urge To Buy Impulsively, and high Perceived Enjoyment–high Urge To Buy Impulsively [39, 40]. This factorial structure enables the study to assess the main effect of each factor and determine whether the effect of one factor on Customer Impulse Buying varies according to the level of the other factor [41]. Thus, the framework provides a direct basis for testing both the individual effects and the interaction effect of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying [42].

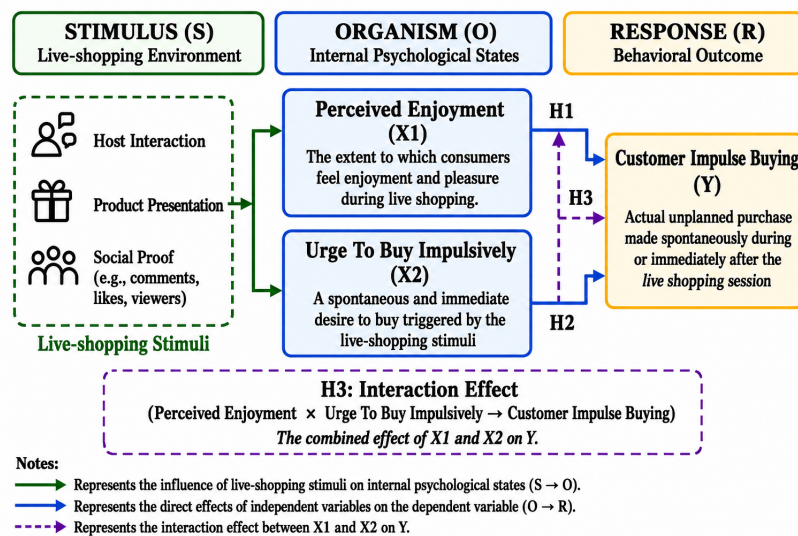


Figure 1. The Four Pillars of Authentic Engagement (Author's synthesis)

Figure 1 presents the conceptual framework, positioning Perceived Enjoyment (X1) and Urge To Buy Impulsively (X2) as experimental factors affecting Customer Impulse Buying (Y), including their interaction effect ($X1 \times X2 \rightarrow Y$) in a 2×2 factorial design [43]. Previous studies have linked Perceived Enjoyment to online impulse buying and urge-related responses in digital commerce, social commerce, and live shopping [44], while emotional engagement, purchase stimulation, and live-shopping interactions have been associated with stronger Urge To Buy Impulsively [45]. However, limited research has examined their joint effects on Customer Impulse Buying. Therefore, this study tests their individual and interaction effects under experimentally

induced high and low conditions, extending the SOR framework beyond a predominantly linear perspective. H1 proposes that high Perceived Enjoyment increases Customer Impulse Buying compared with low Perceived Enjoyment [31]; H2 proposes that high Urge To Buy Impulsively increases Customer Impulse Buying compared with low Urge To Buy Impulsively; and H3 proposes that the combination of high Perceived Enjoyment and high Urge To Buy Impulsively produces higher Customer Impulse Buying than other experimental combinations [46]. These hypotheses examine the main and interaction effects of the two experimental factors on Customer Impulse Buying.

3. RESEARCH METHODOLOGY

3.1. Research Design

This study employed a causal quantitative approach using a 2×2 factorial between-subjects design, with Perceived Enjoyment (high vs. low) and Urge To Buy Impulsively (high vs. low) as manipulated factors, producing four experimental conditions [47]. Participants were randomly assigned to one condition and exposed to a simulated live-shopping skincare video, with Perceived Enjoyment manipulated through the host's presentation style and Urge To Buy Impulsively through promotional information, viewer activity, and positive comments [48]. The high and low Urge To Buy Impulsively conditions differed in promotional cues, viewer numbers (>40 vs. <40), and positive comments, while the product category and core information remained constant. After informed consent and eligibility screening, participants viewed their assigned video [49], completed the manipulation check, and answered the main questionnaire across four conditions: high Perceived Enjoyment–high Urge To Buy Impulsively, high Perceived Enjoyment–low Urge To Buy Impulsively, low Perceived Enjoyment–high Urge To Buy Impulsively, and low Perceived Enjoyment–low Urge To Buy Impulsively. This procedure ensured that participants received only one experimental treatment and that the manipulated conditions could be compared consistently across the four groups. The experimental design therefore enabled the study to examine both the individual effects of Perceived Enjoyment and Urge To Buy Impulsively and their interaction effect on Customer Impulse Buying.

Table 2. Cell Combinations of the 2×2 Factorial Experimental Design

Condition	Perceived enjoyment	En- Urge To Buy Im- pulsively	Experimental Stimuli
A-01	High	High	Dynamic host + promotional stimuli + > 40 viewers + many positive comments
A-02	High	Low	Dynamic host + no promotional stimuli + < 40 viewers + few positive comments
B-01	Low	High	Relatively monotonous host + > 40 viewers + many positive comments
B-02	Low	Low	Relatively monotonous host + < 40 viewers + few positive comments

Table 2 presents the four experimental conditions in the 2×2 factorial design by combining the high and low levels of Perceived Enjoyment and Urge To Buy Impulsively. Each condition used a different combination of host presentation style, promotional stimuli, viewer activity, and positive comments, while the product category and core product information were kept constant across conditions. The high Perceived Enjoyment conditions used a more dynamic and engaging host presentation, whereas the low Perceived Enjoyment conditions used a more monotonous presentation style. The high Urge To Buy Impulsively conditions incorporated promotional stimuli, higher viewer activity, and more positive comments, while these cues were reduced or absent in the low-condition treatments. This controlled arrangement enabled the study to isolate the individual and combined effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying.

3.2. Experimental Procedure and Manipulation Check

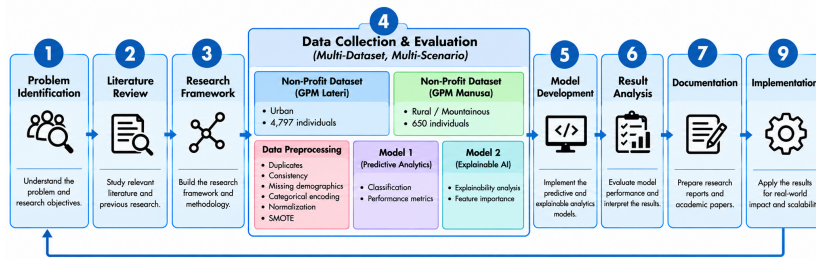


Figure 2. Experimental Procedure and Participant Allocation

Figure 2 illustrates the manipulation check conducted immediately after participants viewed their assigned treatment video and before they completed the main questionnaire. This procedure was used to determine whether the experimental stimuli successfully created the intended high and low levels of Perceived Enjoyment and Urge To Buy Impulsively. Each manipulated factor was assessed separately using the actual measurement items or indicators administered to participants [50]. The manipulation-check results must be based on the actual data obtained from the study; therefore, the measurement items and statistical results should be reported from the original questionnaire and dataset rather than inferred or generated.

The manipulation check was conducted to determine whether the experimental treatments successfully created the intended high and low conditions of Perceived Enjoyment and Urge To Buy Impulsively. For Perceived Enjoyment, participants' responses were assessed to verify whether the host's presentation style produced the intended difference in enjoyment, while Urge To Buy Impulsively was assessed based on promotional information, viewer activity, and positive comments. Statistically meaningful differences between the respective conditions would indicate that the manipulations operated as intended and strengthen the internal validity of the experiment. Thus, the manipulation-check results provide a basis for determining whether differences in Customer Impulse Buying can be attributed to the experimental conditions rather than solely to participants' pre-existing perceptions.

3.3. Participants and Sample

The target population consisted of women in Indonesia aged 18–35 years who had participated in live shopping within the previous six months. Using non-probability purposive and convenience sampling through social media, the study recruited 160 respondents, with 40 respondents assigned to each of the four experimental conditions. The eligibility criteria required participants to be female, aged 18–35 years, residing in Indonesia, and to have participated in live-shopping activities within the previous six months. After providing informed consent and completing the eligibility screening, participants were randomly assigned to one of the experimental conditions. Each participant then viewed the assigned treatment video, completed the manipulation-check questions, and answered the main questionnaire. A pre-test involving 30 respondents indicated that all measurement items were valid ($r > 0.273$) and reliable, with Cronbach's Alpha values ranging from 0.974 to 0.975. The allocation of 40 respondents to each experimental condition was maintained to provide an equal number of participants across the four treatment groups. This balanced allocation was used to support the comparison of Customer Impulse Buying across the combinations of high and low Perceived Enjoyment and Urge To Buy Impulsively. Participants were exposed to only one experimental condition to maintain the between-subjects design and reduce potential carryover effects between treatments. The participant recruitment and experimental assignment procedures were applied consistently across all four conditions.

3.4. Variables and Measurement

All study variables were measured using a 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The measurement instruments were adapted from established instruments for Perceived Enjoyment and Urge To Buy Impulsively, as well as Customer Impulse Buying. Table 4 presents the variables, dimensions, indicator codes, questionnaire items, and supporting references based on the instruments used in the study. No new measurement items were introduced beyond those contained in the original questionnaires.

Table 3. Operationalization of research variables

Variable	Number of Items	Source of Adaptation
Perceived Enjoyment (X1)	5 items	[31]
Urge To Buy Impulsively (X2)	5 items	[22]
Customer Impulse Buying (Y)	4 items	[38]

Table 3 summarizes the measurement indicators used to represent the main constructs examined in this study. Since these constructs were measured through a structured questionnaire, the wording of each indicator is important for maintaining consistency between the experimental design and the subsequent statistical analysis. Clear presentation of the measurement items also helps readers understand how Perceived Enjoyment, Urge To Buy Impulsively, and Customer Impulse Buying were operationalized in the study. The use of the original questionnaire wording is therefore important because the current manuscript provides the number and sources of the indicators but does not provide the individual indicator statements or dimensions. These details should therefore be completed using the actual questionnaire employed during data collection.

3.5. Data Analysis Technique

Data analysis comprised instrument testing, assumption testing, and hypothesis testing. Instrument testing used Pearson correlation to assess validity and Cronbach's Alpha to assess reliability, while assumption testing included normality using the Kolmogorov–Smirnov and/or Shapiro–Wilk tests, homogeneity using Levene's Test, and independence using the Durbin–Watson statistic. Hypotheses were tested using Two-Way Analysis of Variance (Two-Way ANOVA), which corresponds to the 2×2 factorial design and evaluates the main effects of Perceived Enjoyment and Urge To Buy Impulsively and their interaction effect on Customer Impulse Buying. When significant differences were identified, Tukey's HSD post hoc test was used for pairwise comparisons, and partial eta squared (η_p^2) was used to assess effect magnitude. The analytical model treated Perceived Enjoyment and Urge To Buy Impulsively as the manipulated independent factors and Customer Impulse Buying as the dependent variable, with random assignment, standardized product information, systematic stimulus manipulation, and manipulation checks supporting the experimental comparison across the four conditions.

4. RESULTS AND DISCUSSION

4.1. Respondent Profile

The study involved 160 respondents distributed evenly across the four experimental groups, with 40 respondents in each condition.

Table 4. Demographic Profile of Respondents (n = 160)

Characteristic	Dominant Category	Percentage
Gender	Female	75.6% (121 respondents)
Age	18–19 years	85.0% (136 respondents)
Education	Bachelor's Degree (S1)	80.6% (129 respondents)
Occupation	University Student	94.4% (151 respondents)
Income	< IDR 3,000,000	76.9% (123 respondents)
Live Shopping Platform	TikTok	90.6% (145 respondents)

Table 4 provides an overview of the demographic characteristics of the respondents involved in the experiment. The profile of the participants is relevant for understanding the context in which the experimental findings were obtained, particularly because live-shopping behavior may vary across demographic and platform characteristics. The respondent profile indicates that the sample was predominantly composed of female respondents aged 18–19 years, university students, respondents with a monthly income below IDR 3,000,000, and TikTok users. This concentration of respondents should be considered when interpreting the findings, as the sample characteristics may limit the generalizability of the results to broader live-shopping populations.

4.2. Descriptive Statistics

Table 5. Descriptive Statistics of Research Variables (1–5 Scale)

Variable	Mean	Std. Deviation	Category
Perceived Enjoyment	4.11	0.86	High
Urge To Buy Impulsively	4.29	0.80	Very High
Customer Impulse Buying	4.25	0.06	Very High

Table 5 presents the descriptive statistics for the three variables examined in this study. The results show that the mean scores for all variables were above the neutral point of 3.00, indicating relatively positive responses among the respondents. Perceived Enjoyment recorded a mean score of 4.11, followed by Urge To Buy Impulsively with a mean of 4.29 and Customer Impulse Buying with a mean of 4.25. These descriptive statistics indicate generally high reported levels for all three variables. However, the descriptive results do not establish the causal relationships examined in the experimental analysis; such relationships are evaluated through the subsequent inferential analysis.

4.3. Validity and Reliability Testing

All measurement items demonstrated acceptable validity, with Pearson correlation coefficients ranging from 0.507 to 0.890 and significance values below 0.05. The reliability results also indicated acceptable internal consistency, with Cronbach's Alpha values of 0.867 for Perceived Enjoyment, 0.743 for Urge To Buy Impulsively, and 0.726 for Customer Impulse Buying. All values exceeded the 0.70 threshold used in this study. These results indicate that the measurement items were significantly correlated with their respective constructs. The validity and reliability results support the use of the measurement instruments for the subsequent analysis. Therefore, the validated and reliable instruments were retained for testing the effects of the experimental conditions on Customer Impulse Buying.

4.4. Assumption Testing

The normality test indicated that the model residuals were normally distributed based on the Kolmogorov Smirnov test ($p = 0.075 > 0.05$), with 40 participants in each experimental cell. Levene's Test indicated homogeneous variances across the experimental groups, $F(3, 156) = 1.431$, $p = 0.236 > 0.05$. The between-subject design with random assignment was used to maintain independence between observations, with a reported Durbin–Watson statistic of 1.360, which should be interpreted according to the diagnostic criterion specified in the statistical procedure rather than as falling within a 1.5–2.5 range.

4.5. Two-Way ANOVA Results

Table 6. Two-Way ANOVA Results (Model $R^2 = 0.140$)

Source of Variation	F	p	Partial η^2	Interpretation
Perceived Enjoyment	13.658	0.000	0.081	Significant
Urge To Buy Impulsively	7.224	0.008	0.044	Significant
Perceived Enjoyment $\times$ Urge To Buy Impulsively	4.528	0.035	0.028	Significant

Table 6 presents the results of the Two-Way ANOVA examining the effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying. The analysis revealed significant main effects for both Perceived Enjoyment ($F = 13.658$, $p < 0.001$, partial $\eta^2 = 0.081$) and Urge To Buy Impulsively ($F = 7.224$, $p = 0.008$, partial $\eta^2 = 0.044$). However, both effects were opposite to the initial hypotheses, with the low-Perceived Enjoyment condition producing a higher mean score ($M = 18.61$) than the high condition ($M = 17.79$), and the low-Urge condition producing a higher mean ($M = 18.50$) than the high condition ($M = 17.90$). The interaction between Perceived Enjoyment and Urge To Buy Impulsively was also significant ($F = 4.528$, $p = 0.035$, partial $\eta^2 = 0.028$), indicating that the effect of one experimental factor on Customer Impulse Buying differed according to the level of the other factor.

4.6. Interaction Effect and Quadrant Analysis

Table 7. Quadrant Analysis of Perceived Enjoyment $\times$ Urge To Buy Impulsively

Quadrant	PE / UTBI	Condi- tion	Mean Buying	Impulse SD	Interpretation
I	Low PE UTBI	$\times$ High	18.075	1.591	Higher purchase-related stimulation combined with lower enjoyment
II	High PE UTBI	$\times$ High	17.725	1.301	High enjoyment combined with high purchase-related stimulation
III	Low PE UTBI	$\times$ Low	19.150	1.145	Highest observed Customer Impulse Buying score
IV	High PE UTBI	$\times$ Low	17.850	1.562	High enjoyment combined with lower purchase-related stimulation

Table 7 illustrates a non-parallel interaction pattern across the four experimental conditions. The effect of Urge To Buy Impulsively was more pronounced when Perceived Enjoyment was low, with a difference of $\Delta = 1.07$ points, compared with only $\Delta = 0.12$ points under high Perceived Enjoyment. The low-Perceived Enjoyment $\times$ low-Urge condition (Quadrant III) produced the highest Customer Impulse Buying score ($M = 19.150$), and Tukey HSD indicated that Quadrant III (B-02) differed significantly from the other three conditions ($p < 0.01$). These findings indicate that the effect of one experimental factor depended on the level of the other; however, because each factor had only two levels, the interaction does not by itself establish a specific curvilinear or inverted-U relationship.

4.7. Hypothesis Testing

Table 8. Summary of Hypothesis Testing Results ($\alpha = 0.05$)

Hypothesis	F	p	Statistical Result	Direction Relative to Hypothesis
H1: Perceived Enjoyment $\rightarrow$ Customer Impulse Buying	13.658	< 0.001	Significant effect	Opposite to predicted direction
H2: Urge To Buy Impulsively $\rightarrow$ Customer Impulse Buying	7.224	0.008	Significant effect	Opposite to predicted direction
H3: Interaction PE $\times$ UTBI $\rightarrow$ Customer Impulse Buying	4.528	0.035	Significant interaction	Observed pattern differs from predicted direction

Table 8 summarizes the hypothesis testing results, showing that Perceived Enjoyment, Urge To Buy Impulsively, and their interaction had significant effects on Customer Impulse Buying. However, the observed directions of these effects were not consistent with the predictions proposed in H1-H3. Thus, statistical significance should be distinguished from support for the predicted directions, particularly because the highest Customer Impulse Buying score occurred under the low-Perceived Enjoyment $\times$ low-Urge condition rather than the high-Perceived Enjoyment $\times$ high-Urge condition. The model explained 14.0% of the variance in Customer Impulse Buying ($R^2 = 0.140$), indicating that the two experimental factors and their interaction accounted for part of the observed variation in the dependent variable.

4.8. Discussion

4.8.1. Unexpected Effect of Perceived Enjoyment

The finding that lower Perceived Enjoyment was associated with higher Customer Impulse Buying differs from the predominantly positive relationships reported in previous studies, which generally link Perceived Enjoyment with stronger impulse buying and purchase-related urges. In contrast, the present experiment found higher Customer Impulse Buying under low Perceived Enjoyment than under high Perceived Enjoyment. This result does not invalidate previous positive relationships but suggests that the effect of Perceived Enjoyment

may depend on the configuration of other conditions in the shopping environment, as also indicated by the significant interaction between Perceived Enjoyment and Urge To Buy Impulsively.

4.8.2. Interaction Between Perceived Enjoyment and Urge To Buy Impulsively

The significant interaction indicates that Perceived Enjoyment and Urge To Buy Impulsively should not be interpreted solely as independent predictors. The difference between low and high Urge To Buy Impulsively was larger under low Perceived Enjoyment ($\Delta = 1.07$) than under high Perceived Enjoyment ($\Delta = 0.12$), demonstrating that the effect of one condition varied according to the level of the other. This interaction-based finding extends previous separate-effect approaches by examining the joint configuration of the two conditions. However, because each factor was manipulated at only high and low levels, the findings demonstrate an interaction effect but do not establish a specific curvilinear or inverted-U relationship or identify an optimal level of Perceived Enjoyment.

4.8.3. Entertainment Fatigue and Cognitive Control

The higher impulse-buying response under lower Perceived Enjoyment suggests that highly stimulating shopping environments may not always strengthen impulsive responses. One possible explanation is “entertainment fatigue,” whereby intensive entertainment and interaction may affect consumers’ processing of shopping stimuli. However, this interpretation remains tentative because the experiment did not directly measure cognitive control, cognitive fatigue, or System 2 activation. Within the Dual-Process perspective, stronger entertainment stimulation may therefore produce different behavioral responses depending on other consumer conditions. Accordingly, entertainment fatigue should be treated as a possible explanatory mechanism rather than an established psychological process, and further research using direct measures of cognitive and reflective processing is required.

4.8.4. Low Reported Urge and Impulse Buying

The finding that the low-Urge To Buy Impulsively condition produced higher Customer Impulse Buying also differs from the conventional expectation that stronger purchase urges precede stronger impulse buying. This pattern may indicate a distinction between consciously reported purchase urge and subsequent behavioral response under experimental stimuli. The term “impulse blindness” may therefore be retained only as a conceptual interpretation and not as a verified psychological mechanism, because the study did not directly measure self-awareness, inhibitory processes, or the mechanism represented by this term. The empirical evidence is limited to differences in Customer Impulse Buying across the experimental conditions, and further research is needed to examine whether reported purchase urges and subsequent impulse-buying responses are systematically differentiated.

4.8.5. Social Proof and the Indonesian Live-Shopping Context

The Low Perceived Enjoyment–High Urge To Buy Impulsively condition produced a higher mean than the High Perceived Enjoyment–High Urge To Buy Impulsively condition, although it remained below the Low Perceived Enjoyment–Low Urge To Buy Impulsively condition. Although this pattern may be related to social proof, the manipulation combined viewer activity, positive comments, and other purchase-related cues; therefore, the result should be interpreted as reflecting the overall Urge To Buy Impulsively manipulation rather than social proof alone. Consequently, “compensatory social proof” should not be treated as a demonstrated mechanism. The Indonesian context provides a relevant setting for interpretation, but cultural explanations should remain cautious because the sample was dominated by young female university students and TikTok users. Explanations involving social norms, financial prudence, or interdependent self-construal require further comparative research.

4.8.6. Comparison With International Research

The direction of the present findings differs from the dominant positive pattern reported in previous international research, which generally associates Perceived Enjoyment, emotional engagement, and live-shopping stimuli with stronger impulse-buying or urge-related responses. This difference may reflect variations in research context, experimental design, stimulus intensity, measurement, or participant characteristics. Unlike studies conducted in different digital-commerce settings, the present study used a controlled 2×2 factorial experiment with simulated live-shopping videos and simultaneously manipulated Perceived Enjoyment and Urge To Buy Impulsively. Therefore, the divergent finding should not be attributed to Indonesian culture alone. The

sample composition, particularly the predominance of 18–19-year-old university students and TikTok users, may also contribute to the observed pattern.

Overall, the findings demonstrate that live-shopping conditions do not necessarily produce the same positive impulse-buying pattern reported in previous studies. The significant interaction between Perceived Enjoyment and Urge To Buy Impulsively indicates that their combination is relevant to Customer Impulse Buying and extends the application of SOR Theory toward examining interactions among internal consumer conditions. Nevertheless, the findings remain limited to the two-level experimental design and the present sample; they demonstrate an interaction effect but do not establish a general nonlinear or inverted-U relationship or directly verify the psychological mechanisms proposed to explain the unexpected findings.

5. MANAGERIAL IMPLICATIONS

The findings provide managerial implications for live-commerce platforms, sellers, and digital marketers by showing that the significant effects of Perceived Enjoyment, Urge To Buy Impulsively, and their interaction should be considered when designing live-shopping strategies. Because higher levels of entertainment and purchase-related stimulation did not necessarily produce higher Customer Impulse Buying in the observed experimental conditions, platforms and sellers should avoid relying solely on entertainment intensity or promotional stimulation and instead balance engaging content with concise product information, social interaction, and clear decision support. Digital marketers and live-commerce hosts can use platform analytics, viewer interaction, and user-generated content to improve engagement while maintaining authentic and relevant product communication. In addition, responsible digital-commerce practices, such as transparent promotional information and consumer-control features, can support more informed purchasing decisions. For SMEs and other businesses, the findings suggest that live-commerce technology should prioritize the effectiveness and quality of consumer experiences rather than simply increasing entertainment or purchase-related cues. Overall, the managerial implication is that live-commerce innovation should integrate user engagement, purchase-related strategies, and responsible digital-commerce practices in accordance with the observed interaction between Perceived Enjoyment and Urge To Buy Impulsively.

6. CONCLUSION

This study examined the effects of Perceived Enjoyment and Urge To Buy Impulsively on Customer Impulse Buying in Indonesian live shopping using a 2×2 factorial experimental design. The findings show that low Perceived Enjoyment significantly produced higher Customer Impulse Buying than high Perceived Enjoyment, while the low-Urge To Buy Impulsively condition also produced a significantly higher level of Customer Impulse Buying than the high-Urge condition. These directions were opposite to the initial predictions. Furthermore, the interaction between Perceived Enjoyment and Urge To Buy Impulsively was significant, with the low-Perceived Enjoyment and low-Urge To Buy Impulsively condition producing the highest observed Customer Impulse Buying score. These findings indicate that stronger entertainment and stronger purchase-related stimulation did not necessarily produce stronger impulse-buying responses under the experimental conditions examined.

Theoretically, the findings extend previous SOR-based research by demonstrating that the effects of Perceived Enjoyment and Urge To Buy Impulsively should also be considered in combination rather than only as independent effects. The significant interaction provides an experimental basis for extending the conventional SOR perspective toward an interaction-based explanation of impulse buying. The findings therefore do not simply contradict previous studies reporting positive relationships; rather, they show that the observed relationship may differ according to the combination of experimental conditions. The results may be discussed in relation to reflective cognitive processing as a possible explanation for the unexpected directions. However, because cognitive control, cognitive fatigue, and System 2 processing were not directly measured, these mechanisms cannot be considered empirically established by the present study. Similarly, the findings demonstrate an interaction between two experimentally manipulated levels but do not establish a general non-linear or inverted-U relationship.

From a practical perspective, the findings suggest that live-commerce platforms, digital marketers, sellers, and SMEs should avoid assuming that increasing entertainment or purchase-related stimulation will automatically strengthen impulse buying. Live-commerce strategies should instead balance user engagement with concise product information, social interaction, and decision support. The significant interaction between

Perceived Enjoyment and Urge To Buy Impulsively also indicates the importance of considering how different platform features operate together when designing digital-commerce experiences. Nevertheless, the findings are subject to limitations related to the demographic concentration of the sample, the dominance of TikTok users, self-reported measurement, and the limited number of experimental levels. Future research can further examine these findings using broader samples, different platforms, additional experimental levels, and direct measures of behavioral or cognitive processes to determine whether the observed interaction is replicated across different consumer contexts.

7. DECLARATIONS

7.1. About Authors

Tessa Handra (TH)  <https://orcid.org/0009-0004-5375-708X>

Yolanda Masnita (YM)  <https://orcid.org/0000-0002-5758-8146>

Husna Leila Yusran (HY)  <https://orcid.org/0000-0002-0344-6062>

7.2. Author Contributions

Conceptualization: TH and YM; Methodology: HY; Software: TH and YM; Validation: HY and TH; Formal Analysis: HY and TH; Investigation: YM; Resources: HY; Data Curation: TH; Writing Original Draft Preparation: YM and HY; Writing Review and Editing: TH and YM; Visualization: HY. All authors, TH, YM and HY, have read and agreed to the published version of the manuscript.

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