

Influence of Environmental Stimuli on Impulsive Buying Behavior in Online Livestream Commerce: The Moderating Role of Livestream Viewing Frequency and Livestream Shopping Experience

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Abstract

The impact of environmental factors on consumer impulsive buying behavior in the context of e-commerce live streaming: Role of celebrity endorsements and moderating effects of live streaming frequency and shopping experience This study examined the effect of environmental factors like perceived scarcity, perceived discount, time pressure, social pressure and celebrity endorsement on the emotional arousal of online consumers, which further affects their impulse buying. Additionally, the study shed light on the role of two emerging consumer behavioral variables, namely the frequency of watching live streaming videos and live streaming shopping experience. Based on a survey conducted from an online panel of 575 consumers, partial least squares structural equation modeling (PLS-SEM) was used for empirical verification. The results confirmed that the frequency of watching live streaming videos and live streaming shopping experience are significant moderators that decrease the influence of emotional arousal on impulse buying in a statistically significant manner. These results indicated the mediating role of emotional arousal towards the relationship between environmental factors and impulse buying, however consumers having a higher live streaming shopping experience and greater exposure to live streaming videos tend to be more rational, capable of learning and thereby refraining from their impulsive buying behavior. This contributes to a better understanding of how consumers learn to restrain their impulse buying in the era of e-commerce live streaming and sheds new light in the existing theories regarding online consumer behaviors in the livestream commerce context.

Keywords: Impulsive buying, livestream viewing frequency, livestream shopping experience, e-commerce, emotional arousal, celebrity endorsement, social influence.

1. Introduction

Impulsive purchases are often encountered in modern marketing practices by companies operating in various markets and have become widespread among consumers as a result of today's marketing environment and communication methods. Research has widely discussed the occurrence of impulsive purchases in the context of online shopping, and contactless payment systems in particular (Lin & Lo, 2015). Internet and digital media have greatly increased the promotion possibilities for companies in the e-commerce sector through various marketing channels such as increased number of social media pages that facilitate communication. High frequency of communication on social media can lead to influence of numerous advertising stimuli that finally result in consumers making impulsive purchases, as also highlighted by other authors (Brashear et al., 2014; Lord et al., 2023; Ma et al., 2025; Ngo et al., 2024). Modern day marketing is a marketing era, where more and more sellers have begun using the livestream sales strategy, enabling direct interaction between the vendor and buyer through online video broadcasts on various social media platforms. Influencers have a particularly important role, as during the live broadcast they are constantly producing positive, inspirational, and trust-building content. This ensures that they create a positive image, boosting the confidence of the target audience. In the context of such live communications, vendors manage to create positive emotions in buyers, encouraging them to make immediate purchases during the live session (Zhang et al., 2022; Zheng et al., 2022). Celebrities do more than simply provide thorough information on goods and services when they show them off and engage with them in live broadcasts. They also make buying entertaining and fascinating by enabling customers and sellers interact to each other freely. This helps consumers feel things and makes them want to purchase goods right away. People who are watching the show may ask questions or write comments in the chat box to seek advice or purchase products. This makes the shopping process entertaining and exciting (Saleem & Ellahi, 2017; Zhang et al., 2019).

A lot of people use social media these days. Every day, millions of users upload various items on Facebook, Instagram, YouTube and TikTok YouTube (Siriraya et al., 2019). The impact on consumers as online shoppers, however, remains a point of interest to marketers (Han, 2023; Madhu et al., 2022). These various factors such as ads, videos, friends' posts, celebrity updates and promotions all amount to what social media marketing is today. Thus, social media can serve as a wise tool in this digital marketing era as well as play a significant role in computer age purchasing behavior (Akram et al., 2018; Aragoncillo & Orus, 2018; Shiva & Singh, 2019). Such social media platforms have many active users which aid in effective digital communication and that is how companies are able to reach out to target audience members based on their interests as well as purchasing behavior and thus many researchers agree that social media platforms aid in consumers being influenced by content marketers' work. This frequently leads to unintended purchases (Han, 2023; Qu et al., 2023). In addition, emotional triggers and user engagement, which act as important

mediating factors, have often been considered by many authors as mechanisms explaining impulsive buying behavior in the past. Such behavior usually arises from temporary emotions when customers interact on social media, where digital content creators produce highly engaging and hard-to-resist material, leading to spending without careful consideration (Chen & Wang, 2015; Rook, 1987; Stern, 1962; Zafar et al., 2021). Once consumers are drawn into limited-time discount offers, calls to action from celebrities, or the lively interaction of livestream sessions, they can be easily stimulated emotionally and make immediate purchasing decisions (Ngo et al., 2024; Xiao et al., 2026). Today, it is becoming more normal to buy things on social media without thinking about it first. This is made easier by the fact that e-commerce is now available on both social media and in multi-channel purchasing settings (Radzevičė & Banytė, 2020).

Live streaming sales have become increasingly popular because of the advent of social media sites. This is a terrific method for businesses to persuade customers to buy products on the spot (Rahman et al., 2023). Nonetheless, a study vacuum persists about the mechanisms by which customers make impulsive purchasing decisions during direct contacts with vendors via online livestream platforms. Scarcity and discounts are commonly cited as key factors affecting consumer buying behavior in the digital livestream environment. Authors such as Li (2015); Ma et al. (2025); Ngo et al. (2024); Sharma et al. (2018); Xiao et al. (2026); Zhao et al. (2019) all pointed out that scarcity and discounts are key promotional tools which can influence consumers' emotions and lead to impulse purchases on social media. In a livestream where a celebrity promotes products with a combination of prices discounts and scarcity, the purchasing intention of consumers are likely to be higher (Handayani et al., 2018; Ma et al., 2025; Zafar et al., 2021). Recent studies have revealed that emotionally driven impulsive purchase behavior is highly prevalent in the Internet age (Lord et al., 2023). Such purchases are driven by social media technologies (Radzevičė & Banytė, 2020; Xiao et al., 2026). Furthermore, the higher the level of interaction between the celebrity and the viewers during the sales event in the form of live chats, the stronger the trust and purchase desire for the product. Based on these, the viewing frequency of the celebrity sales event and the viewers' past shopping experiences through a social media platform are expected to regulate the unplanned purchasing behavior on social media livestream platforms. Many authors have looked into the function of impulsive purchase behavior in the light of the expansion of e-commerce and social media (Khoi et al., 2023; Mushtaq et al., 2019), current research still lacks an in-depth analysis of the factors that drive customer behavior in the online commerce environment. This difference is especially noticeable when celebrities are engaged since their involvement might make people want to buy things even more and make them act on those desires right away. This study identified and examined the relationships among variables such as factors affecting purchase intentions, customers' perceived risk of purchasing online, perceived trustworthiness of online reviews, attitudes toward self-disclosure in social media, frequency of livestream viewing, and experience in purchasing through livestreams. Although prior studies have consistently confirmed the importance of

emotions in influencing impulsive buying behavior in online environments, none of them has included other variables that may also influence impulsive purchases in the context of online commerce. Considering that customers and their purchasing behavior are dynamic and evolving with the rapid evolution of digital technology where customers change and adapt very quickly.

This study intends to further study factors affecting customer emotions in an online livestream environment where customer behavior changes frequently. This study aims to clarify the relationship between customer emotions and impulse purchases in the online livestream environment by taking into consideration moderating variables such as the frequency of livestream viewing and customer purchasing experience in livestreams. Currently, existing research models do not take into consideration the two factors mentioned, even though they are highly relevant and significant to the individual customers.

Therefore, this study provides several important theoretical and practical contributions. From a theoretical perspective, the research extends the application of the Stimulus–Organism–Response framework to the context of livestream commerce by clarifying how environmental stimuli such as scarcity cues, price discounts, social interaction, and celebrity endorsement influence consumers’ internal emotional states, which subsequently drive impulsive buying behavior. More importantly, by incorporating livestream viewing frequency and livestream buying experience as moderating variables, this study demonstrates that the emotion driven impulse purchasing mechanism is not static but adaptive, reflecting consumers’ learning and behavioral adjustment over time. From a practical perspective, the findings offer valuable implications for marketers, livestream platforms, and content creators by highlighting that consumers with higher exposure and experience tend to respond more rationally to emotional stimuli. This insight can assist firms in designing more effective and sustainable livestream marketing strategies that balance emotional appeal with long term customer engagement.

2. Theoretical Framework and Hypothesis Development

2.1 Theoretical Framework

Mehrabian and Russell (1974) suggested Stimulus–Organism–Response (S-O-R) theory, which explains what influences buyer behavior such as impulse buying. The Stimulus–Organism–Response model indicates that stimuli in the environment stimulate the responses of the organism of an individual, in turn generating various consumer responses. This theory links various stimuli we encounter in our surroundings and may cause a change in our personality, which in turn cause a customer to buy. Many other scholars have used Stimulus–Organism–Response theory to further research the reasons behind the impulsive purchase behavior, such as customer buying behavior in online streaming platforms. Table

1 summarized studies on stimuli related to ONSP and responses and organisms (Khoa & Thanh, 2025; Zhao et al., 2022).

Table 1. S-O-R Factors Summary

S-O-R	Main Factor Group	Specific Factors	Related Studies
S (Stimulus)	Marketing stimuli	Perceived scarcity, discount programs, time pressure	Islam et al. (2021); Zhang et al. (2021)
	Social influence and celebrity endorsement	Social influence, impact of celebrities or key opinion leaders	Islam et al. (2021); Zhang et al. (2021); Xiao et al. (2026).
	Livestream experience	Shopping atmosphere, engaging content, convenience	Shankar et al. (2021); Chen and Chi (2021)
	Product or service quality	Trustworthiness, product or service design	Jung Chang et al. (2014); Huang (2016)
O (Organism)	Emotional state	Positive emotions, negative emotions, emotional arousal	Kamal Basha et al. (2022); Zheng et al. (2019); Kim et al. (2018); Xiao et al. (2026).
	Perception and evaluation	Utilitarian value, hedonic value, consumer empowerment, brand value	Barros et al. (2019); Kim et al. (2018)
R (Response)	Consumer behavior	Purchase intention, satisfaction, loyalty, impulsive buying behavior	Kimiagari and Asadi Malafe (2021); Ampadu et al. (2022); Xiao et al. (2026).

According to the S-O-R theory and previous research, this study presumed that scarcity, discounts, limited time, social pressure and celebrity endorsements on online livestream commerce will excite consumer's emotion and then lead to impulsive buying behavior. This study bridges the gap between online livestream commerce and consumer's buying behavior. Based on the empiricism, consumers who watch online livestreams frequently and have purchased more often in the online platform tend to have a stronger relationship between affective stimuli and buying impulse. People now know more about digital marketing than ever before. They may feel differently about things based on past experiences, which might make them more or less inclined to acquire something they did

not plan to. This is still a subject where many past research have not come to an agreement or looked at it in depth. Along with the aspects in the S-O-R framework, the frequency of watching livestreams and previous experience buying through livestreams are also seen to be possible moderating variables in the link between emotional stimuli and impulsive purchase behavior. People who watch a lot of TV may learn about marketing strategies, which might either make them more or less likely to make impulse buys depending on how much they interact with the show and how the show makes them feel. The research model was proposed as Figure 1.

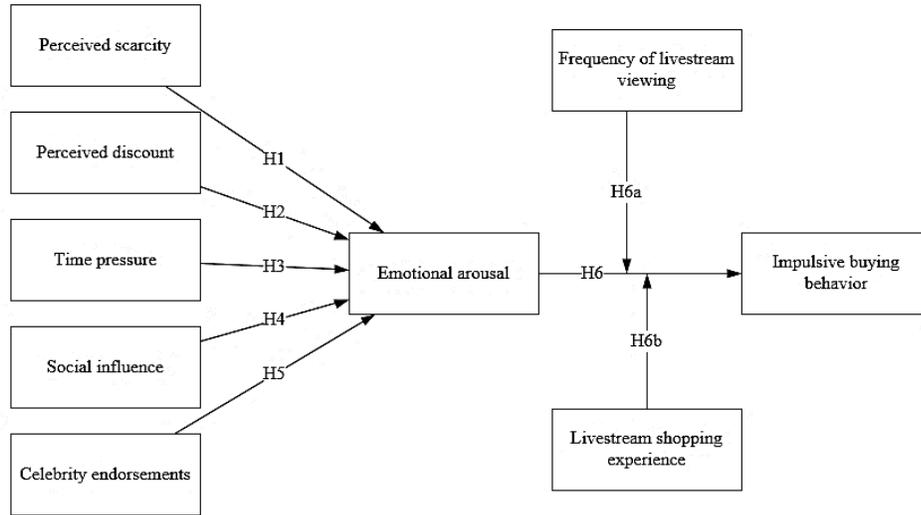


Figure 1: Research Model

2.2 Hypothesis Development

2.2.1 Perceived Scarcity

Many studies have shown that the perception of scarcity is a strong factor influencing consumer emotions and can easily lead to impulsive buying behavior. . Within the Stimulus–Organism–Response theoretical framework, perceived scarcity functions as an external stimulus that shapes consumers’ internal emotional states before translating into behavioral responses (Islam et al., 2021; Zhang et al., 2021). When customers perceive that a product is limited in quantity and time, it creates psychological pressure that motivates them to act immediately to obtain the product (Omar et al., 2021) in order to satisfy their desire. Also known as the “limited time offer” reaction, it often occurs when a consumer feels they are missing out on an opportunity to gain something from purchasing a product in a limited time frame. It is based on the assumption that products that are hard

to obtain because of limited supply and only available for a limited period of time are always worth buying (Gupta & Gentry, 2019).

The illusion of scarcity promotes impulse purchasing, and it can elicit strong emotions that prompt the consumer to make quick purchases on the site. The illusion of scarcity is one of the key psychological drivers of the internet shopper, encouraging them to make what might be considered impulsive purchases. The feeling of urgency that such messaging generates can be emotionally powerful enough to motivate consumers to take action (Jang et al., 2015; Ma et al., 2025; Ngo et al., 2024). Our research on livestream commerce confirmed that scarcity cues indeed boost the negative emotional responses of buyers by creating a sense of immediacy and exclusivity. These feelings are especially heightened in more social media environments such as live streaming platforms (Ma et al., 2025). In particular, in the context of online livestreams, scarcity cues delivered by influencers, such as “only 5 items left” or “promotion ends in 10 minutes,” are carefully designed to trigger consumers’ emotions, making them more likely to be drawn into impulsive purchasing decisions (Chen et al., 2020). Marketing through Scarcity, helps in making a product valuable to customers, at all levels of its functionality and unique features by digital content creators and in turn enhances the joy and excitement customers derive from owning such products and services as they are exclusive to few lucky people (Hamilton et al., 2018; Khoa & Huynh, 2022).

- H1: Perceived scarcity positively affect customers’ emotional arousal during livestream sessions.

2.2.2. Perceived Discount

The actual discount is the short-term drop in the advertised price that is applicable to all customers (Martínez-Ruiz et al., 2006). In addition to providing consumers with monetary savings, discounts are often linked to psychological effects which can stimulate impulse buying (Ngo et al., 2024; Xiao et al., 2026). Within the framework of the S-O-R model, perceived discount is regarded as an environmental stimulus that influences emotional states and leads to purchasing decisions. Raghurir et al. (2004) investigated the influence of a seller’s discounts on consumers through three channels — economic (save money), informational (perceive value) and emotional (feel excited). In the context of livestream marketing, the combination of time pressure and high interactivity usually triggers stronger emotions, and as a result, consumers are more likely to make instant purchases (Liu & Zhang, 2023). In addition, the discount marketing strategies launched by the influencers are aimed at meeting the psychological expectation of customers to create a sense of urgency and excitement, which will further stimulate the impulsive purchasing behaviors of consumers (Moore & Fitzsimons, 2014). This emotional amplification is further strengthened when discounts are communicated by trusted or popular influencers, as consumers tend to associate discounted prices with opportunity, achievement, and personal gain. (Ngo et al., 2024)

Earlier research has substantiated that emotions significantly influence impulsive purchasing behavior. Factors encouraged by celebrities, such as price discounts, paying less than the usual cost, or obtaining a product at a bargain, can all create a sense of excitement and desire to achieve, which leads customers to make quick purchase decisions (Xiao et al., 2026). Also, when discounts are only available for a short time and on certain items, people are more likely to want to buy the item right away, which makes them more likely to buy it on impulse (Moore & Fitzsimons, 2014). Therefore, this study proposes the following hypothesis:

- H2: Perceived discount has a positive effect on the emotional arousal of customers during livestream shopping.

2.2.3. Time Pressure

In the online livestream environment, time pressure is often created through limited promotions such as “only 10 minutes left” or “offer ends today,” which trigger immediate emotional reactions from consumers. Within the S-O-R framework, time pressure functions as an environmental stimulus that constrains consumers’ decision making processes and intensifies their emotional responses (Islam et al., 2021). We investigate the impact of time pressure on buyer behavior using marketing experiments on consumer purchasing decisions. Our research shows that when time constraints are imposed on buyers, a substantial majority of consumers experience feelings of scarcity related to surplus products (e.g. perceived urgency, fear of missing out or FOMO, and desire). This is despite marketing communications being carefully crafted so as not to convey any real sense of shortage. Further, the resulting purchasing decisions are frequently driven by price discount signals intended for a select group of buyers as part of exclusive marketing offers. Hence, marketers increasingly use targeted special offers to stimulate sales in advance of upcoming seasonal releases. But such promotional strategies for discretionary products appear to be inducing purchases that are not consistent with consumers' longer-term needs and preferences, hence undermining value (Ma et al., 2025; Ngo et al., 2024). This is explained in marketing theory as the opportunity cost when customers are torn between different options and fear losing the benefits if they do not act (Rieskamp & Hoffrage, 2008).

Several previous studies have also shown that emotions act as a mediating factor leading to impulsive buying behavior under the influence of stimulating factors. In an online environment, where many customers participate in a livestream, time pressure not only creates a sense of urgency but also triggers emotional states such as excitement, anxiety, or the desire to own the product before the opportunity disappears (Aminilari & Pakath, 2005; Shiv & Fedorikhin, 2002). These emotions, in turn, increase the immediate motivation to make a purchase during a celebrity-hosted livestream, where interactivity and popularity further amplify the effect of time limitation. Additionally, positive emotions like satisfaction and fulfillment from taking advantage of a limited-time deal in a celebrity's

sales program can make the goods seem more valuable, which might lead to impulsive purchases (Lin & Chen, 2013). Therefore, this study proposes the following hypothesis:

- H3: Time pressure has a positive effect on emotional arousal in customers during livestream shopping.

2.2.4. Social Influence

Many previous studies have also indicated that emotions can be transmitted between individuals in an online environment. Within the S-O-R framework, social influence operates as an environmental stimulus that shapes consumers' internal emotional states through social cues and interpersonal interactions (Xiao et al., 2026). This means that through imitating facial expressions, voice tones, or reading positive or negative content shared by other users, emotions can naturally and unconsciously spread among customers (Fan et al., 2018; Ngo et al., 2024). In an online livestream setting with the presence of celebrities and promotional programs, consumers are easily influenced by the emotional state of the streamer or by the attitudes of the audience interacting together, such as feeling curious and excited when viewing a new product or reacting to positive or negative feedback from the audience community. Emotional contagion spreads on social media in a matter of seconds through the many platforms customers and viewers engage with through social media by leaving comments, emoticons, or by engaging directly with the streamer and can easily cause the customers to purchase on the spot! (Del Vicario et al., 2016). Recent livestream commerce studies further argue that the visibility of audience size and interaction frequency intensifies perceived social norms, making consumers more inclined to conform to group behavior under emotionally charged conditions (Ngo et al., 2024; Xiao et al., 2026).

Also, social norm, like how a product is accepted in a community, might affect how people buy things. According to Sweeney and Soutar (2001), besides seeking the functional or hedonic values of a product, consumers also aim for social values such as gaining recognition or expressing the identity that aligns with the values of the community they are part of. In the context of online livestreaming, celebrities can have a strong impact when they provide assessments of value or share opinions from the audience community. The popularity of engaging remarks and the quantity of people watching the livestream might make people feel good, like excitement or trust, which can then make them buy things without thinking (Kalia et al., 2023). Consequently, this study posits the following hypothesis:

- H4: Social influence has a positive effect on customers' emotional arousal during livestream shopping.

2.2.5. Celebrity Endorsements

Celebrities who are well-looking, knowledgeable, and trustworthy frequently make shoppers feel good about themselves when they shop online. Their on-air interactions with consumers help them build an engaging and emotionally rich communication environment

(Sun et al., 2019). Celebrities can swiftly induce excitement in their audience members and experience subjectively positive feelings such as happiness, satisfaction and trust in the product (Lee & Wan, 2023; Park & Lin, 2020). Celebrities leverage their influence to create interactive live stream shows that use demonstration and product showcasement to communicate products in a way that will capture audience member's attention, build positive emotions such as fun and instant satisfaction.

Previous studies showed that celebrity experts with charm could improve the purchase intentions of customers (Dong & Wang, 2018; Lee & Wan, 2023; Xiao et al., 2026). In particular, celebrities showing their professional skill or telling their personal stories will not only help to increase the customers' emotional feelings but also enhance customers' trust in products, resulting in more spontaneous purchases. Recent studies on livestream commerce also confirmed that celebrity-induced emotional arousal is increased by real-time interactivity and social visibility as viewers simultaneously watch the star endorsement, the audience's responses, and customers' excitement (Ma et al., 2025; Xiao et al., 2026). The communication between viewers and the celebrities, along with the interactions of the sales situation, such as the customers' comments and likes, the view counts and emotional contagion among customers can create a beneficial interactive environment that will motivate customers to buy impulsively with minimal analysis of the product's features (Hou et al., 2019; Park & Lin, 2020). Celebrities may devise the sales strategy of the products by broadcasting the sense of urgency that the product is rare and the period of sales is limited in order to motivate customers to act with haste and therefore make impulsive purchases (Wongkitrungrueng & Assarut, 2020).

- H5: Celebrity endorsements have a positive effect on emotional arousal among customers during livestream shopping.

2.2.6. Emotional Arousal

To better understand the purchasing behavior of modern-day consumers, the impact of external factors stimulating consumers' internal feelings, which may lead to buying intentions (Mlodinow, 2022). They found that external factors that increase customer's positive emotions such as excitement, happiness or fun which will then reduce their self-control, which subsequently leads to more impulse buying. A previous study showed that in the context of online shopping, buyers interact with a large number of factors and stimuli, and because of these interactions, they are more capable in making purchasing decisions than in traditional shopping environments. In which, when customers are heavily influenced by virtual stimulation such as attractive images, promotions or persuasive host language and lively live streaming atmosphere, they are much more likely to buy more (Ji et al., 2024). The researchers' inference is that when customers are excited or satisfied by strong stimulation, they are less likely to think of themselves when they are satisfied with their current state. Conversely, customers with low stimulation will have low shopping interest or lack of energy (Chung et al., 2025). The higher the stimulation that the consumer

receives through the shopping programme, the greater will be their level of arousal, which in turn may cause them to spend more, linger longer in the stores and buy more products (Sherman et al., 1997).

Beyond arousal, many other emotions, such as pleasure, fun or joy may also play important roles in consumers' purchasing decisions in the context of e-commerce live streaming activity (Huynh & Khoa, 2025). By exploiting consumers' emotional states at various stages of the purchasing process, retailers are able to positively influence and reinforce consumers' purchasing decisions, a phenomenon that has been termed consumer euphoria or impulsive buying. Such euphoria is thought to occur when consumers are in a state of highly focused and aroused engagement during their purchasing activities, which in turn are positively influenced by the experience offered through interactive communication among consumers in the virtual shopping environment and/or through the participation of celebrities or popular influential agents. In such cases, consumers are often more than willing to part with their money and often take little or no care to carefully assess the purchases they are about to make (Caplovitz, 2025). Consumers will be more likely to take actions on the feelings they experience in the online environment when they experience feelings of happiness and pleasure in the virtual environment, and when the exciting attributes of the environment are emphasized, which in this context is the online interactive environment of the virtual shopping space (Lyroni & Spais, 2024). So for instance consumers may be entertained by joy and amusement with a live streaming activity in which a well-known celebrity is offering products with promotions.

- H6: Emotional arousal has a positive effect on consumers' impulsive buying behavior during livestreams.

2.2.7. The Moderating Role of Livestream Viewing Frequency and Livestream Shopping Experience

Celebrities' live streaming sales is a major factor of impulse purchasing online, and we investigate the effects of the frequency of watching live streaming sales conducted by celebrities and purchasing experience during live streaming sales on consumer's impulse purchasing behavior based on the emotional excitement of the live e-commerce sales (Chung & Cho, 2017). As a result, consumers with the higher frequency of watching celebrities' live streaming sales have the easier purchasing experience, by relying on the timing of purchasing in order to attain the preferred products, while, as many studies demonstrated that the occurrence of positive emotions during live streaming will strengthen the connection between customers and products, and at the same time will increase the number of actions in between the customers, while on the other hand it weakens the consumers' rational thinking, which finally strengthens the consumers' purchasing behaviors (Kusumasari et al., 2025). When people are watching a celebrity's livestream and they are greeted, given special offers, discounts, or exclusive deals during the broadcast, they are more inclined to buy things without thinking about what they really need or how much they need.

This study draws on online buying behavior and specifically online buying behavior in an online shopping buying context. The Emotional Influence of Online Buying Behavior has moderating effects such as frequency of watching the online livestream and prior buying behavior (Meng et al., 2021). Customers will generally feel joyous or feel guilty due to a sudden surge in feeling or emotion experienced when they are induced with passion on the items shown through the livestream such as flash sale promotions and interaction with celebrities as well as with other customers. These instant emotional effects will be heightened when customers view the livestream with high frequency; and customers who had good purchasing experience will tend to commit to buying the products impulsively without reflecting, because they have intended to buy and the livestream induces them to make the purchase; or on the contrary, the customers had no intention to buy but when they see the items in the livestream they will be persuaded and make a buying decision (El Hedhli et al., 2021). This study aims to investigate the emotional influences on buying behaviors in an online buying context such as the emotional effects a customer's buying behavior may encounter when customers go online to purchase goods and the variables that moderate the emotions and resultant buying behavior:

- H6a: Frequency of livestream viewing moderates the relationship between emotional arousal and impulsive buying behavior.
- H6b: Livestream shopping experience moderates the relationship between emotional arousal and impulsive buying behavior.

3. Methodology

3.1 Measurement, Sampling and Data

In this study, the adopted measuring instruments for all variables were customized and readjusted according to the study context and period. Hence, the measurements of perceived discount (PD) were adopted from Weiyi (2022) and Suhud et al. (2022). The study of Weiyi (2022) was also adopted to measure time pressure (TP). The social influence (SI) measurements were adopted from Sweeney and Soutar (2001) and Wongkitrungrueng and Assarut (2020). The celebrity endorsements (CE) measurements were adopted from Gefen and Straub (2004). While the measurements of perceived scarcity (PS) were adopted from Vannisa et al. (2020). The emotional arousal (EA) was measured from the scale adopted from Sweeney and Soutar (2001). Meanwhile, the items of impulsive buying behavior (IBB) were adopted from Lamis et al. (2022), Weiyi (2022), and Qu et al. (2023). Lastly, the measurement of Livestream Shopping Experience (LSE) comprised of 5 items (personalization, informational fit-to-task, efficiency, empathy, and real-time interactivity) that were developed from Livestreaming Commerce Service Quality Scale of Qin et al. (2024). On the other hand, the measurement of Frequency of Livestream Viewing (FLV) comprised of 5 items that were developed from the research of Ko (2022); Liu and Kim

(2021). In addition, all items in this study were adopted using a five-point Likert scale where the value range is from 1 "strongly disagree" to 5 "strongly agree."

Regarding the sampling procedure, this study employed a purposive sampling technique. This non probability sampling method was chosen because the research focused specifically on consumers who had prior experience with livestream shopping, which is a key requirement for accurately examining impulsive buying behavior in livestream commerce contexts. The target population of this study consisted of individuals who had previously participated in online livestream shopping sessions on platforms such as Facebook, TikTok, Shopee, Lazada, or similar platforms.

Data were collected through an online survey distributed to consumers with prior livestream shopping experience. A screening question was used to ensure sample relevance and validity, asking respondents whether they had purchased a product or service through livestream sessions within the past six months. This criterion helped ensure that participants' responses were based on recent and relevant consumption experiences, thereby improving the reliability of the data.

The use of purposive sampling is particularly suitable for this research design because livestream shopping remains a context specific and experience based phenomenon, and random sampling would likely include a large proportion of respondents without adequate exposure to livestream commerce. By deliberately selecting respondents who met the experiential criteria, the study was able to obtain more accurate insights into emotional arousal, livestream shopping experience, and impulsive buying behavior.

There were 618 responses collected between January and April 2025. After screening and removing responses that were incomplete or deemed unreliable, 575 valid questionnaires were retained for data analysis using SPSS and SmartPLS software. This sample size exceeded the minimum requirements for partial least squares structural equation modeling, ensuring sufficient statistical power for hypothesis testing. The demographic characteristics of the respondents are presented in Table 2.

Table 2: Demographics Descriptive Statistics

Characteristics		n	Percentage
Gender	Male	269	46.78
	Female	306	53.22
Age	Under 20	8	1.39
	20 - 24	113	19.65
	25 - 29	208	36.17
	30 - 39	203	35.30
	40 - 50	39	6.78
	Over 50	4	0.70
Education level	Middle School, High School	23	4.00
	Intermediate	38	6.61
	College	114	19.83
	University	334	58.09
	Postgraduate	66	11.48
Monthly income	Under 10 million VND	213	37.04
	From 10 million to 15 million VND	110	19.13
	15 million to 20 million VND	138	24.00
	20 million to 30 million VND	70	12.17
	Over 30 million VND	44	7.65
Occupation	Student	80	13.91
	Office staff	182	31.65
	Housewife	74	12.87
	Teacher	86	14.96
	Freelance	112	19.48
	Factory worker	41	7.13

3.2 Data Analysis Methods

The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the proposed research model. PLS-SEM is particularly suitable for predictive and exploratory research that aims to explain variance in key dependent variables and to

examine complex models involving multiple latent constructs and moderating effects, without requiring multivariate normal data distribution (Hair, Black, et al., 2019; Henseler et al., 2015).

The main objective of this study is to explain and predict impulsive buying behavior in the context of online livestream commerce, rather than to test the overall model fit of a well-established theory. Therefore, PLS-SEM with its focus on prediction and maximization of explained variance, is considered more appropriate than CB-SEM, which emphasizes evaluating the degree of fit between a theoretical model and observed data. With a sample size of 575 respondents, which is considered moderate rather than large in consumer behavior research, PLS-SEM provides methodological advantages, as it does not require excessively large samples or ideal data conditions (Hair, Black, et al., 2019). Moreover, previous methodological research has demonstrated that PLS-SEM performs more effectively than CB-SEM when estimating complex models, particularly in the presence of interaction effects and when theoretical development is still evolving. The application of PLS-SEM in this study is consistent with prior research on consumer behavior and facilitates comparison of hypothesis testing results, thereby providing a basis for comparison in future studies (Ringle et al., 2012). As a result, PLS-SEM has been widely applied in marketing, electronic commerce, and customer experience research, especially in emerging and rapidly developing contexts such as online livestream commerce.

4. Data Analysis

4.1 Measurement Model Analysis

Cronbach's alpha coefficient and Composite Reliability (CR) are two common ways that researchers use to check how reliable a measuring scale is. Hair, Risher, et al. (2019) posited that a Cronbach's alpha value between 0.70 and 0.90 indicates a substantial degree of dependability for the scale. Table 3 shows that all of the constructs have Cronbach's alpha coefficients better than 0.7 and composite reliability values greater than 0.80. This means that the scale is reliable enough. The AVE values for each concept are over 0.50, which means that the scale has good convergent validity, as shown in Table 3.

We tested for multicollinearity to evaluate whether the strategy was fair. A variance inflation factor (VIF) value over 3 indicates multicollinearity, which might mean that the model's structures are not accurate. Table 3 demonstrates that the multicollinearity test's VIF values were all less than 3. So, the model does not have multicollinearity.

Table 3: Measurement Model Validation Table

	CA	rho_A	CR	AVE	Outer Loadings	VIF
SI	0.842	0.845	0.888	0.613	0.707 – 0.824	1.491 – 1.957
TP	0.847	0.848	0.897	0.686	0.817 – 0.840	1.833 – 1.962
LSE	0.824	0.829	0.877	0.587	0.726 - 0.816	1.569 – 1.882
EA	0.875	0.875	0.914	0.727	0.834 – 0.872	1.987 – 2.376
IBB	0.877	0.881	0.910	0.669	0.798 – 0.850	1.786 – 2.412
CE	0.878	0.879	0.911	0.673	0.788 – 0.843	1.806 – 2.402
PD	0.845	0.846	0.896	0.683	0.817 – 0.832	1.844 - 1.932
PS	0.762	0.763	0.849	0.584	0.745 – 0.783	1.441 – 1.561
FLV	0.813	0.821	0.869	0.571	0.738 - 0.784	1.568 – 1.646

SI = Social Influence, TP = Time Pressure, LSE = Live Shopping Experience, EA = Emotional Arousal, IBB = Impulsive Buying Behavior, CE = Celebrity Endorsement, PD = Perceived Discount, PS = Perceived Scarcity, FLV = Frequency of Livestream Viewing

This study utilized correlation coefficients and the square root of the Average Variance Extracted (AVE) to evaluate the discriminant validity of the measuring scale (Fornell & Larcker, 1981). Table 4 shows that the correlation coefficients between any two constructs are all fewer than the square root of the AVE of the constructs in question (the values on the main diagonal). This means that the scale has good discriminant validity. The result in Table 4 reveal that the R² values for EA and IBB are 0.777 and 0.561, respectively. This suggests that the model's independent variables account for 77.7% of the difference in EA. EA explains 56.1% of the differences in IBB. In science and marketing, an R² score of more than 20 percent is regarded significant. Additionally, all Q² values are significantly greater than zero, indicating the structural model's predictive validity for each dependent component.

Table 4: Fornell and Larcker Criterion, R², Q²

	SI	TP	LSE	EA	IBB	CE	PD	PS	FLV	R ²	Q ²
SI	0.783										
TP	0.558	0.828									
LSE	0.374	0.425	0.766								
EA	0.626	0.764	0.426	0.852						0.777	0.560
IBB	0.491	0.607	0.503	0.564	0.818					0.561	0.361
CE	0.544	0.653	0.679	0.726	0.550	0.820					
PD	0.544	0.602	0.325	0.760	0.473	0.571	0.826				
PS	0.591	0.637	0.446	0.709	0.621	0.648	0.607	0.764			
FLV	0.408	0.512	0.671	0.495	0.621	0.558	0.394	0.509	0.755		

SI = Social Influence, TP = Time Pressure, LSE = Live Shopping Experience, EA = Emotional Arousal, IBB = Impulsive Buying Behavior, CE = Celebrity Endorsement, PD = Perceived Discount, PS = Perceived Scarcity, FLV = Frequency of Livestream Viewing

4.2 Structural Model Analysis

Table 5 demonstrates that the p-values for hypotheses H1, H2, H3, H4, H5, and H6 are all less than 0.05 and the beta coefficients are all more than 0. Consequently, all hypotheses are accepted. Moreover, the p-value for FLV*EA → IBB is 0.026 < 0.05, and the p-value for LSE*EA → IBB is 0.040 < 0.05 when assessing the moderating functions of FLV and LSE between EA and IBB. Consequently, hypotheses H6a and H6b are validated. The moderating effects of FLV and LSE on the link between EA and IBB have beta coefficients of -0.098 and -0.078, respectively. This means that FLV and LSE make the relationship between EA and IBB weaker.

Specifically, perceived discount exhibits the strongest effect on emotional arousal with a beta coefficient of 0.337, followed by time pressure with a coefficient of 0.291 and celebrity endorsement with a coefficient of 0.211. These results indicate that urgency related cues, economic benefits, and celebrity influence play a central role in activating consumers' emotional responses in livestream commerce, where purchase decisions are typically made quickly with limited rational deliberation. This finding is consistent with recent studies by Ngo et al. (2024); Xiao et al. (2026), which emphasize that promotional signals, time pressure, and celebrity endorsement represent the most influential environmental stimuli in driving emotional responses and impulsive buying behavior on livestream platforms.

In addition, perceived scarcity and social influence also demonstrate positive and statistically significant effects on emotional arousal, although their impacts are relatively

weaker compared to the other factors. This suggests that in the context of livestream e-commerce, consumer emotions are shaped not only by product scarcity but also by the behaviors, evaluations, and feedback of the viewing community. This result aligns with the findings of Hao and Huang (2024); Ma et al. (2025); Ngo et al. (2024), which identify social influence as an indirect yet enduring factor in shaping emotional states and impulsive buying intentions through mechanisms of social contagion.

The relationship between emotional arousal and impulsive buying behavior is also confirmed, with a beta coefficient of 0.202 at a high level of statistical significance. This reinforces the central role of emotion within the Stimulus-Organism-Response framework, in which emotional arousal functions as an internal state that transforms environmental stimuli into impulsive purchasing behavior. This finding is consistent with prior conclusions by Hao and Huang (2024); Ngo et al. (2024); Xiao et al. (2026), which suggest that heightened emotional stimulation in livestream environments weakens rational evaluation processes and promotes immediate purchasing behavior.

Notably, the moderation analysis reveals that both livestream viewing frequency and livestream shopping experience weaken the relationship between emotional arousal and impulsive buying behavior, with beta coefficients of minus 0.098 and minus 0.078 respectively. This implies that consumers who frequently watch livestreams or possess greater livestream shopping experience tend to regulate their emotions more effectively and make more rational purchasing decisions, even when experiencing emotional arousal. These results extend prior research that has predominantly emphasized the amplifying role of emotion in impulsive buying by demonstrating consumers' behavioral adaptation over time and through accumulated experience. This finding is consistent with the study by Ngo et al. (2024), which shows that consumers with higher familiarity with livestream platforms and video based selling formats develop the capacity to learn from experience and adjust their emotional responses to marketing tactics.

Table 5: Regression Model Results

Hypothesis	Relationship	Beta	t-value	p-value	Result
H₁	PS -> EA	0.129	3.996	0.000	Accepted
H₂	PD -> EA	0.337	11.218	0.000	Accepted
H₃	TP -> EA	0.291	9.303	0.000	Accepted
H₄	SI -> EA	0.089	3.239	0.001	Accepted
H₅	CE -> EA	0.211	6.620	0.000	Accepted
H₆	EA -> IBB	0.202	4.061	0.000	Accepted
H_{6a}	FLV*EA -> IBB	-0.098	2.224	0.026	Accepted
H_{6b}	LSE*EA -> IBB	-0.078	2.050	0.040	Accepted

4.3 Moderation Analysis

The results in Figure 2 show that emotional arousal (EA) affects how likely customers are to make impulsive purchases (IBB) during a live online shopping broadcast. Specifically, this relationship occurs at three different levels of the moderating variable, livestream shopping experience (LSE), which ranges from minus one to one. The slopes of all three regression lines are very different from each other. This shows that LSE has a big effect on the link between emotions and impulsive buying behavior. The blue line in this diagram corresponds to low levels of SE with a steep slope. This means that consumers with a low SE are emotionally involved when shopping online in live streaming (LSE) is low, and tend to succumb to impulse purchases more frequently. This finding is in line with other studies which have determined that with insufficient consumer knowledge, consumers are prone to lack self-control when faced with emotional buying (Xiao & Nicholson, 2012). Looking at Figure 2, we can see that the green line for high LSE has the lowest slope. This means that the more consumers know about buying goods and commodities through online live streaming, the lower their LSE. In other words, consumers with high levels of LSE are able to process more information, compare more prices, and thus maintain more self-control. This would help them to prevent them from making impulse purchases.

Figure 3 illustrates the moderating effect of frequency of livestream viewing on the relationship between emotional arousal and impulsive buying behavior. As shown in the figure, emotional arousal is positively associated with impulsive buying behavior across all levels of livestream viewing frequency, indicating that higher emotional arousal generally leads to stronger impulsive purchase tendencies. However, the strength of this relationship varies depending on the level of Frequency of Livestream Viewing. Specifically, for consumers with low livestream viewing frequency (-1 SD), the slope of the relationship between emotional arousal and impulsive buying behavior is relatively steep, suggesting that emotional arousal plays a more decisive role in triggering impulsive purchases among less frequent viewers. These consumers tend to respond more sensitively to emotional stimulation during livestream shopping, resulting in a sharper increase in impulsive buying behavior as emotional arousal rises.

In contrast, for consumers with high livestream viewing frequency ($+1$ SD), the slope of the relationship is noticeably flatter. Although emotional arousal still positively influences impulsive buying behavior, its marginal effect is weaker among frequent livestream viewers. This pattern indicates that consumers who regularly engage in livestream shopping may become more accustomed to emotionally stimulating environments, thereby reducing the incremental impact of emotional arousal on their impulsive buying decisions. This finding contrasts with the results reported by LaRose (2006), which suggest that greater consumption of digital content strengthens users' behavioral responses to external stimuli.

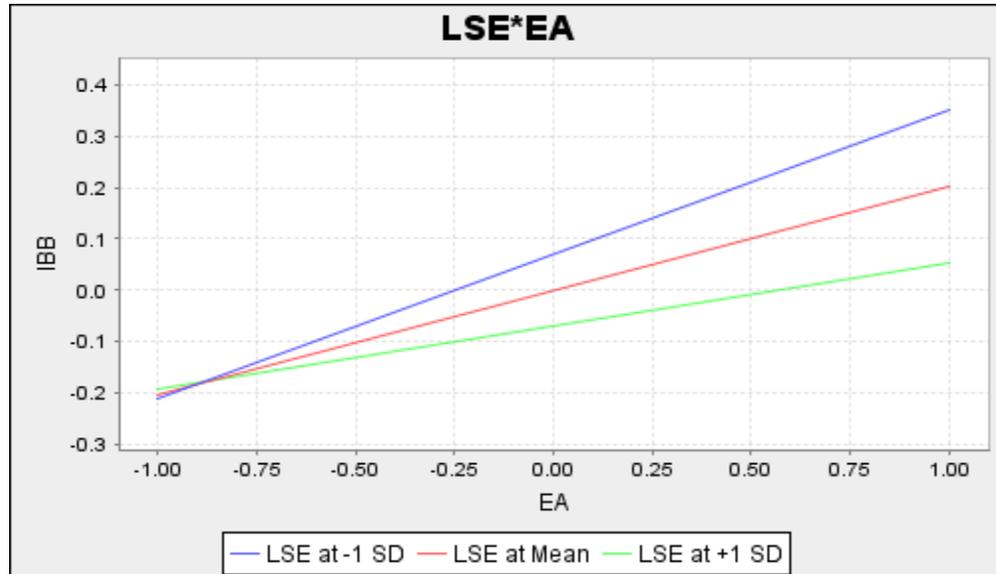


Figure 2: The Moderation Role of Livestream Shopping Experience

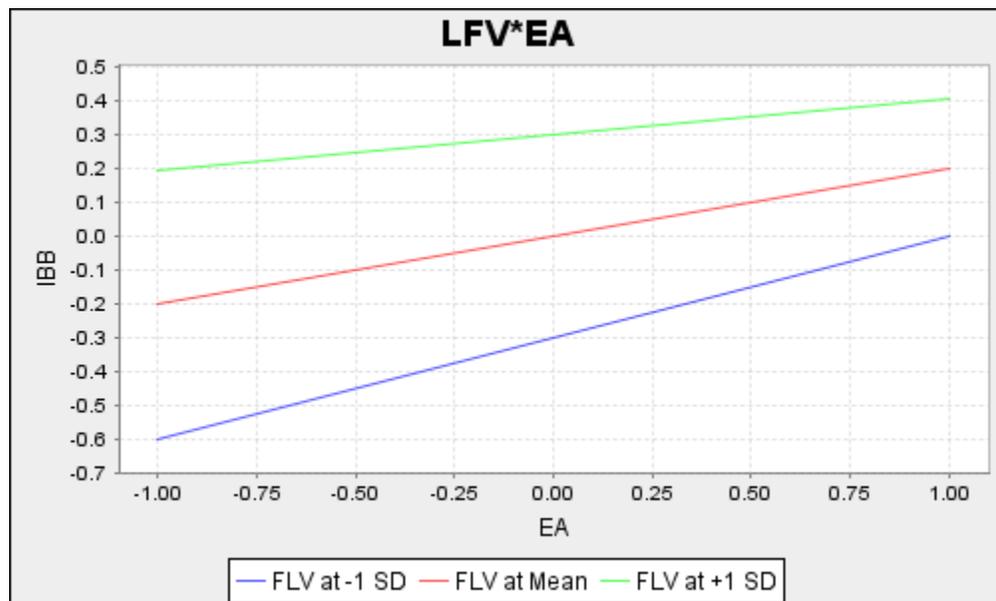


Figure 3: The Moderation Role of Frequency of Livestream Viewing

The results of this study corroborate the perspective that both FLV and LSE significantly moderate the relationship between emotional stimulation and consumers' impulsive buying behavior in the online livestream context, with FLV and LSE exhibiting a tendency to diminish the level of influence.

5. Conclusion

5.1 Discussion

The research results indicate that the stimulating factors in the online livestream shopping environment, including perceived scarcity, perceived discounts, time pressure, social influence, and celebrity endorsements, all have a positive and statistically significant effect on consumers' aroused emotions when engaging in the purchasing process on online shopping platforms. In Consumer Psychology These emotions that we feel are very crucial and actually tend to have an impact on the way a consumer perceives certain products which can then again play a very big role in whether or not the customer is tempted to buy the item on impulse or not. It's really cool that this emotion and perception have so much of an influence on our shopping behaviors because Shiv and Fedorikhin (2002), and also later on studies by Shiv and Fedorikhin (2002); Ruberg and Cullen (2019); Kim et al. (2018); Chen et al. (2020); Hao and Huang (2024); Ma et al. (2025); Xiao et al. (2026); Ngo et al. (2024) showed this phenomenon that happens when we buy on impulse.

Marketing a product with a celebrity takes more effort with large audience in order to create a sense of desperation and urgency in the customers for products with a limited quantity, in a competitive online market place. Using crowd effect theory, the study uses a framework by (Ku et al., 2013; van Herpen et al., 2009) which illustrates how the crowd effect influences the purchase of fast fashion products. The study finds out that there is high demand competition in online platform and with limited product supply, hence the crowd effect becomes more visible (Li et al., 2021). Crowd signals such as comments, social interactions, confirmed orders, views, shares and celebrity's announcements about the remaining quantities of the product all work as a purchase trigger which inculcates desire for the product and leads to impulsive purchase.

There is growing number of studies confirming that online pricing discounts greatly impact customer emotions resulting in the impulse purchases. Recently, researchers Ngo et al. (2024) demonstrated that super savings were more attractive and tended to draw in more customers, thereby causing impulse buying behavior that was evaluated to be more unethical, an attitude commonly referred to as the unethicity of misbehavior in the ethical misconduct perspective. Also recently Parsad et al. (2021) showed using different labels for a fixed level of price discount not only decreased perceived price and increased purchase intention but particularly in combination with imagery also enhanced the actual number of purchases due to the impulse buying behavior being more probable as prices are descending. Additionally, also very recently, the researchers Xiao et al. (2026) reported that adding social comparisons to discount promotions impacted both actual and intended purchases as well as customer felt obligation to purchase during the promotion. Influencers

endorse the commercial activities of companies through the channels of flash sales and buy one-day-only customer appreciation days carried out by means of online live streaming so as to urge potential customers into taking purchase decisions quickly. These purchase decision-making behaviors are considered to be the products of consumer impulse purchasing, an issue dealt with profusely in the marketing literature. Lamis et al. (2022) state that even if flash sales do not always constitute price reductions with important fall-offs (Martínez-Ruiz et al., 2006), consumers may nevertheless tend to buy things at lower prices on an instant buy or impulse purchasing basis because of a greater perception of satisfaction with these lower offers (Wu et al., 2016). Kusumasari et al. (2025) conducted a research examining online product ads that were accompanied by celebrity endorsements. Adding such elements to marketing materials along with deep discounts greatly stimulated more impulse purchases. Also recently, Baxter and Czarnecka (2025) evaluated on social media the effect of the communication styles presented in flash sales advertisements during a live online sales TV channel made by an influencer, the results contributing to advance the empirical study in the impulse buying purchasing behavior when consumers are exposed to a communication style carried out through the speech of the influencer hosting on-air; and Xiao et al. (2026) confirmed the sales impact that results when such advertising is enriched with social comparison. Also more recently, the sales effect obtained by blending various different promotion schemes in live streaming activities carried out by sales celebrities that are well-known and popular on the media such as Taobao, has been demonstrated by Liu and Zhang (2023) to result in strong purchase impulsive behavior.

When time is limited, consumers decide more rapidly and on the basis of their initial feelings, as opposed to a comprehensive evaluation of the attributes of a product (Aminilari & Pakath, 2005; Beatty & Elizabeth Ferrell, 1998; Vazquez et al., 2020). As shown in previous research, time pressure can induce consumers to adopt a purchase decision from a certain perspective (Dong et al., 2022; Ma et al., 2025). For many consumers, considering the key information and value of a product is more important than examining its functions and needs. As such, when consumers lack time to fully ponder products, they are more prone to engage in impulsive buying behavior (Lin & Chen, 2013). However, the more time that consumers have to contemplate their potential purchases, the more they tend to be deliberative in their purchasing behaviors and less prone to acting on impulse. As such, when there are stars promoting products in live broadcasts, combined with tactics such as promotional marketing, limited-time offers, and the declaration that "the goods are running out quickly," buyers feel extreme pressure and tend to spend less time deciding to buy the merchandise.

Emotions act as a mediating factor and has been proven to greatly influence the tendency of customers to make impulse purchases. In Du et al. (2010), the interaction between the celebrity and the audience can evoke positive emotions and a sense of the need to have a

product, thereby increasing the likelihood of customers making impulse purchases (Kim et al., 2018; Xiao et al., 2026). In addition, numerous studies have shown that celebrities and product-related promotions in the atmosphere of the online livestreaming environment can cause customers to purchase impulsively (Cao et al., 2025; Sun et al., 2019). Thus, in relation to the influence of celebrities in online, the emotional guidance of the celebrities and interaction from the online audiences that increase the customers' purchasing motivation have been proven to be significant (Park & Lin, 2020). Many authors agree that emotions are a major factor in impulse buying. Based on the theories provided by Simon (1993), the emotions of customers in an online shopping environment may easily be swayed and are often governed by feelings rather than by reason and judgement. The use of music, videos, and images, as well as the involvement of the online community in an online "live streaming" or video shopping event can make the experience of online shopping more exciting than traditional offline purchasing (Hoch & Loewenstein, 1991; Qin et al., 2024; Ruberg & Cullen, 2019). Therefore, in relation to internet livestreaming, one of the methods of keeping customers emotionally engaged is to encourage them to buy the products that are displayed during the "live streaming" event.

We found that customers who frequently visit the livestream platform due to the happy feeling they get from watching may be more likely to make impulse purchases. According to previous studies, the interactive live streaming platform would enable customers to experience great fun and excitement, and they have the tendency to visit the platform more frequently and purchase more frequently on the platform (Gabler et al., 2017). As a result, customers may be more susceptible to emotional influences from the platforms such as fear of missing out (FOMO) and joy of getting a good deal (Wang et al., 2023). Thereby, they may make more impulse purchases due to lack of sufficient rational thinking. Our study also reveals that the frequency of watching sales broadcasts in the livestream platform is highly correlated with customers' past purchasing experiences. Customers' frequency of watching sales broadcasts in a livestream platform will increase or decrease accordingly to their purchasing experiences. This will in turn affect customers' buying behaviors. Previous studies suggest that consumers with frequent interactions in the livestream platform and who have gained satisfactory purchasing experience especially in terms of cheap pricing for their purchases will have the perception that the platform can provide huge discounts on a consistent basis. These consumers will then have less rational thinking and will be prone to make more impulse purchases due to the easy access to the platform (Spiteri Cornish, 2020; Sun et al., 2019; Xiao et al., 2026). Our study also reveals that customers' purchasing experiences will be strengthened and reinforced by the frequency of watching sales broadcasts in the livestream platform. Customers may have the tendency to visit the platform due to the access convenience to similar purchasing experiences which may in turn increase the tendency of making impulse purchases. We found out that customers who visit the platform frequently will experience repetitive purchasing experiences which may be influenced by not only their emotions but also by their habits (Wu et al., 2021).

5.2. Contributions

5.2.1. Theoretical Contribution

This study innovates the research of online consumer behavior in three aspects. First, the (S-O-R) model was expanded by using livestream purchase specific stimuli, thus achieving the purpose of innovating the purchasing behavior of consumers. Second, based on the data analysis, this study examines the mediating role of emotional arousal in the relationship between interactive stimuli and impulsive buying behavior, so as to make up for the vacancy of psychological basis in the research of consumer behavior in the digital era. Third, the research innovation of this study lies in that two new moderating variables, FLV and LSE, are proposed in the research of consumer behavior in digital environment for the first time. The innovation makes up for the defect of qualitative research in the previous studies, and enhances the theoretical research of consumer's emotional regulation and digital environment adaptability.

5.2.2. Managerial Implications

This study makes a significant contribution to practice and offers several important implications for managers in all kinds of firms and online retailers engaged in the livestream commerce business. We know from many earlier studies in the context of online retailing that emotional key drivers such as scarcity, promotions, time pressure, social pressure and celebrity endorsements are highly effective in influencing consumers to make impulse purchases. Our research has shown, however, that these drivers are not as relevant and as effective with consumers as they have been in the past. Consumers have evolved in their online purchasing habits and there is now much more competition on line to contend with. Consumers are therefore now far more knowledgeable and can make more informed purchasing decisions than in the past. According to the new report, key buying decisions and actions generated by live video streams are being determined by commercial companies based on the frequency, timing and effectiveness of customer engagement. In particular, the report says people that regularly watch live video are more likely to be experienced buyers and therefore will react more rationally to promotion deals. As a result, companies and celebrities have to constantly change their live stream content to ensure audience engagement, build trust and for entertainment.

The study showed that emotions no longer remains the dominant factor in the impulsive buying behavior of the consumer as seen in previous studies. As times change, consumer behavior becomes more evolved, educated and evolved with time. Live streaming can then be an excellent marketing tool to enhance conversions and keep customers engaged over a period of time. As such, brands should rethink the livestream sales strategy. They should involve KOLs or celebrities in the sales process and turn the viral outbreaks into emotional sales experiences. Furthermore, brands are recommended to analyze consumer behaviors based on frequency of live streaming viewers and purchasing behaviors. This will allow

them to apply flexible approaches tailored to each segment. At the same time, sellers and content creators should develop livestream scenarios that can refresh emotions, enhance trust, and evoke positive past experiences to sustain the effectiveness of purchase stimulation.

5.3. Limitations and Future Research Directions

Despite its contributions, this study is subject to several limitations that offer avenues for future research.

First, the data were collected from a specific group of consumers with livestream shopping experience in Vietnam, which may limit the generalizability of the findings to other countries or cultural contexts. Future studies are therefore encouraged to conduct cross cultural or multi country comparisons to examine whether the proposed relationships hold across different institutional environments, levels of digital maturity, and consumption norms.

Second, the moderating variables in the current model, namely livestream viewing frequency and livestream shopping experience, were examined at a general behavioral level. Future research may refine this approach by investigating moderation effects across specific product categories or industry sectors, such as cosmetics, food, or consumer electronics, where levels of involvement, perceived risk, and hedonic value may differ substantially. Such sector specific analyses would help clarify the boundary conditions of impulsive buying behavior in livestream commerce.

From a methodological perspective, the present study employed a cross sectional research design, which limits the ability to capture dynamic changes in consumer emotions and behaviors over time. Future research could adopt longitudinal designs or experimental approaches to better observe how emotional arousal and impulsive buying tendencies evolve with repeated exposure to livestream environments. In addition, mixed methods approaches that combine quantitative modeling with qualitative insights may provide a richer understanding of consumer decision making processes in real time livestream settings.

From a theoretical standpoint, future studies may further extend the Stimulus-Organism-Response framework by incorporating complementary theories, such as self-control theory, experiential learning theory, or social learning theory, to better explain why certain consumers become less susceptible to emotional stimuli as their viewing frequency or shopping experience increases. Moreover, additional cognitive and psychological variables, including trust in streamers or key opinion leaders, perceived interactivity, parasocial interaction, or individual self-regulation capacity, may be integrated to offer a more comprehensive explanation of impulsive buying behavior in digital commerce.

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Availability of Data

The dataset is available from the corresponding author upon reasonable request.

Declaration of AI Use

ChatGPT was used to improve the readability of this paper. The authors take full responsibility for the correctness of its content.

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