



Swipe, Stream, and Splurge: Systematic Literature Review on The Triggers of Impulsive Buying in Live Streaming Commerce

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ABSTRACT

Recently live streaming has become popular media that enabling public to broadcast their video content through numerous platform (i.e., social media and e-commerce). In live streaming, live streamer could have real-time and interactive communication to their audience. Hence many people including marketer use live streaming as essential marketing tools that can shorten customer's purchase decision time, and provoke customer's impulse buying urge. Given the popularity of live steaming in numerous platform and impulse buying behavior become imperative topic in consumer behavior study, synthetizing the existing literature related to impulse buying in live streaming is needed. This study occupies the past and present of impulse buying in live streaming to gain better understanding of impulse buying in live streaming, and also gives insight about prospective of impulse buying in live streaming study for the future research. The author used secondary data from Scopus database in doing systematic literature review. In term of data extracting process, Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) is used, and 30 papers that meet the criteria are included to be reviewed. Author synthesize articles reviewed and found some findings such as studies progression, research design and methodology adopted in the reviewed article, theories used, and research theme. The research contributes to enhance theoretical and practical implications that is needed by academicians for future research directions, and practitioners to strengthen their marketing strategy using live streaming feature to trigger people buy their product impulsively.

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Introduction

Globally, the popularity of live streaming has surpassed the dominance of conventional media broadcasting live video content (i.e., television and radio), enabling the public to broadcast their video content through the internet in various platform such as e-commerce and social media. It has altered how people do communication, collaboration, or product promotion (Y. Li et al., 2020; Lo et al., 2022; Bao & Zhu, 2023). Live streaming foster informative, interactive, and immersive customers online shopping experience because it has revolutionized traditional e-commerce business model by providing real time interaction between customers and sellers (Forrester Consulting, 2022). Real time-two way communication enables customer to interact with the seller or live streamer through written communication in comment box and receive live feedback from seller or live streamer (Hu & Chaudhry, 2020; Wongkitrungrueng & Assarut, 2020; Qing & Jin, 2022). Started in May 2016, Alibaba's Taobao live has marked the beginning of new era in marketing sales. It became a pioneer in combining live

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streaming and e-commerce: viewers can watch live streaming broadcast and doing a shopping simultaneously. The business model continued to establish itself when Alibaba make an event in Taobao Live in 2021, and successfully generated \$7.5 billion transaction value within the first 30 minutes. Live streaming in some platforms (i.e., Facebook, e-commerce, Instagram, and TikTok) not only to share information regarding products and services, but also provide entertainment and instant purchasing. Currently, live streaming has become emerging novel feature in digital platform to enhance customer engagement and economic value (Xiaoyu Xu et al., 2020; McKinsey Digital, 2021).

During live streaming, real-time and highly interactive communication occurs between live streamer, who provides product information, and the audience. The live streamer displays the product's presence, function, and demonstration. Audience can inquire about product prices, shipping methods, and other product-related information, and the live streamer can respond to the audience in real-time. The prompt responses and impressive of product information often trigger audience to click embedded links, leading to purchases the product (C.-H. Lee & Chen, 2021; G. H. W. Liu et al., 2021). Prior studies stated that live streaming has become essential marketing tools for sellers globally. Compared to traditional commerce, live streaming enhances the product presentation, consumer shopping experience, and shorten customer's purchase decision time, which provokes the customer's impulsive buying mentality (Sun et al., 2019; Wongkitrungrueng & Assarut, 2020; C.-H. Lee & Chen, 2021; Y. Li et al., 2021; Lo et al., 2022; Tong et al., 2022).

The concept of impulse buying has been a topic of interest since the 1950s where unplanned buying named impulse buying could advance sales in retail stores (Clover, 1950), and has been broadly studied in the last decades by practitioners and academics (Mandolfo & Lamberti, 2021; Redine et al., 2023). Impulse buying has been studied from various perspective, some researchers perceive impulse buying as accidental and unexpected act of purchasing (X. Zheng et al., 2019; Redine et al., 2023) while others that focus on utilitarian view it as habitual repeated purchased with high arousal emotion and hedonic motivation (C.-D. Chen et al., 2019; W.-K. Chen et al., 2020). The study area related to impulse buying behavior shifted from brick-to-mortar where conventional retail marketer has applied offline promotion and advertising as an external stimuli to trigger consumer's impulse buying, to online shopping due to the proliferation of e-commerce system (Grigsby et al., 2021; Abdelsalam et al., 2020; Yi & Jai, 2020). Various studies have already conducted on impulse buying behavior in online shopping such as factor that affected impulse buying in online shopping (Febrianti et al., 2021; M. Zhang & Shi, 2022; Y. Liu et al., 2023), characteristic of platform used (X. Zheng et al., 2019; Y. Y. Lee et al., 2022; Zhou et al., 2023), and endorsing famous people (M. Chen et al., 2021). Empirical studies that specifically discussed about impulse buying in live streaming also got researchers' attention such as related to promotion and time limit (Luo et al., 2021; Marjerison et al., 2022; Tang et al., 2022; Hao & Huang, 2023; Huo et al., 2023; Xie et al., 2023; S. Zheng et al., 2023), influence of live streamer (C.-H. Lee & Chen, 2021; Hsieh et al., 2022; L. Li et al., 2022; Lv et al., 2022; Z. Zhang et al., 2022; Qu et al., 2023), shopping stimuli while watching live streaming (Hsieh et al., 2022; L. Li et al., 2022; S. Zhang et al., 2022; Hao & Huang, 2023), and post live streaming attitude (Lv et al., 2022; Marjerison et al., 2022; Su et al., 2022; Yang et al., 2022; Qu et al., 2023). Despite many studies conducted on online impulse buying behavior, systematic literature reviews that specifically synthesize impulse buying in live streaming is still limited.

Given the popularity of live steaming in numerous platform and impulse buying behavior become imperative topic in consumer behavior study (Cui et al., 2022), synthesizing the existing literature related to impulse buying in live streaming is needed. This study occupies the past and present of impulse buying in live streaming to gain better understanding of impulse buying in live streaming, and also gives insight about prospective of impulse buying in live streaming study for the future research. Therefore, this study aims to synthesize the key finding in relevant articles that engender new insight related to impulse buying in live streaming. The research contributes to enhance theoretical and practical implications that is needed by academician for future research directions, and practitioners to strengthen their marketing strategy using live streaming feature to trigger people buy their product impulsively.

Method

This study used systematic literature review. This approach was chosen due to the hype of live streaming used in various platform and impulse buying behavior still become imperative topic to be researched (Cui et al., 2022). Systematic literature review is a method that synthetizes previous scientific paper systematically to help researchers advance specific science, and it uses transparent and rigorous way for research synthesis (Lame, 2019; Nunn & Chang, 2020). In recent years, systematic literature reviews became increasingly common in management field. It combines various journals and researchers reference through keyword on research databases with employing inclusion and exclusion criteria (Phillips et al., 2015). The goal of systematic literature review is to limit prejudice in single research and non-systematic review (Chao Li et al., 2022).

This study aims to synthetize extant study related to impulse buying behavior in live streaming. It also seeks to identify the main research gaps in prior literature to suggest forthcoming research. Systematic literature review is useful because it affords methodical, categorical, and comprehensive insight of current studies as well as the gaps on impulse buying in live streaming, and it has potential impact on business that want to trigger impulsive mentality to customer while doing live streaming.

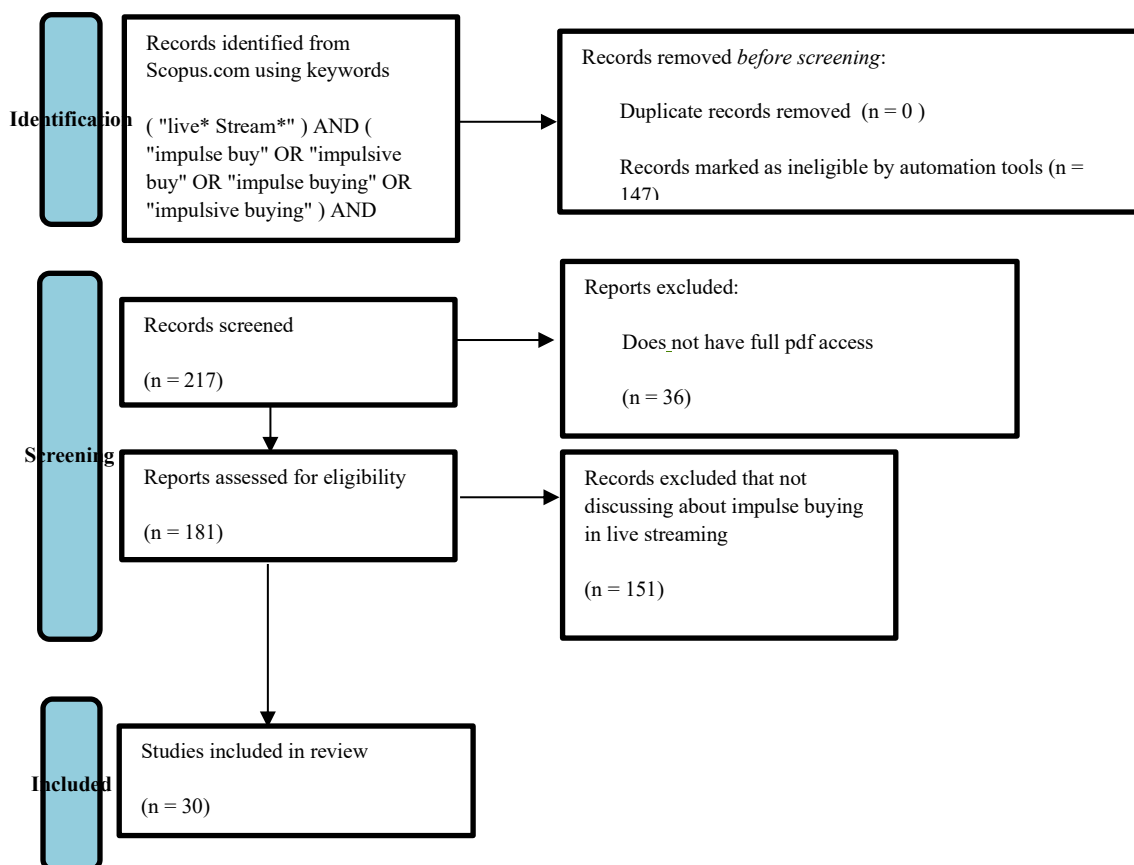


Figure 1. Article Selection Phase

To accomplish the goal of literature review, the author used secondary data from Scopus database as trusted source by various researchers in doing systematic literature review (Athanasiadou & Theriou, 2021). In term of data extracting process, Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) is used because it can make transparent and objective systematic report process

(Chao Li et al., 2022). There are four steps of article selection in PRISMA which are identification, screening, eligibility, and inclusion. In the initial phase which is identification required keyword used in the articles, and where to find the articles. Authors identified the records from Scopus database using the search query: (“live* Stream*”) AND (“impulse buy” OR “impulsive buy” OR “impulse buying” OR “impulsive buying”) AND commerce. From those keywords, 364 results are found. From this finding author checked the record duplicate, and from these records there was no duplicate record. To further limit the literature search, the author used filtering feature in the Scopus website to ensure relevancy, such as the limiting to business, management, accounting, and social science area, limiting to journal article, and limiting to publication in English. This step resulted in 217 records. Further, the author excluded results in which the full texts were not available to the author. From 217 records, 36 records were excluded. In the screening process, the author manually read the abstracts to exclude papers that do not specifically discuss impulse buying in live streaming (n=151). Finally, 30 papers are included in the final review. The steps of articles selection can be seen in Figure 1.

Results and Discussion

Scope and Coverage of The Articles

There are 30 articles recorded based on the search strategy above. Author synthesize those articles and found some findings such as studies progression, research design and methodology adopted in the reviewed article, theories used, and research theme.

Tables 1 provides articles title, authors, year of publication, and journal of publication. Regarding to those articles, impulse buying in live streaming research firstly studied in 2020. Figure 2 shows an overview of the trajectory of articles recorded while Tables 2 shows number of articles per journal of publication and the classification.

Table 1. Article Included in This Review

Author	Title	Year	Journal
Hsieh J.-K.; Kunz W.H.; Wu A.-Y.	Virtual gifting behavior on new social media: the perspectives of the community gift-giving model and face-negotiation theory	2022	Internet Research
Hao S.; Huang L.	How the time-scarcity feature of live-streaming e-commerce affects impulsive buying直播电商的时间性稀缺特征如何影响冲动购买	2023	Service Industries Journal
Li L.; Kang K.; Zhao A.; Feng Y.	The impact of social presence and facilitation factors on online consumers' impulse buying in live shopping – celebrity endorsement as a moderating factor	2022	Information Technology and People
Tian B.; Chen J.; Zhang J.; Wang W.; Zhang L.	Antecedents and Consequences of Streamer Trust in Livestreaming Commerce	2023	Behavioral Sciences
Zhang S.; Liu W.; Han W.; Xie J.; Sun M.	Influence mechanism of tourists' impulsive behavior in E-sports tourism: Mediating role of arousal	2022	Tourism Management Perspectives
Huo C.; Wang X.; Sadiq M.W.; Pang M.	Exploring Factors Affecting Consumer's Impulse Buying	2023	SAGE Open

	Behavior in Live-Streaming Shopping: An Interactive Research Based Upon SOR Model		
Su K.; Yang S.; Jin Z.; Yan X.; Hu X.; Jeong-In K.; Ju S.-W.; Lim C.-K.	A Study on the Relationship between Live Shopping Characteristics and Consumer Behavior Intention in China	2022	
Xie J.; Yoon N.; Choo H.J.	How online shopping festival atmosphere promotes consumer participation in China	2023	Fashion and Textiles
Paraman P.; Annamalah S.; Vlachos P.; Ahmed S.; Balasubramaniam A.; Kadir B.; Raman M.; Hoo W.C.	Dynamic Effect of Flow on Impulsive Consumption: Evidence from Southeast Asian Live Streaming Platforms	2022	Journal of Open Innovation: Technology, Market, and Complexity
Qu Y.; Cieřlik A.; Fang S.; Qing Y.	The role of online interaction in user stickiness of social commerce: The shopping value perspective	2023	Digital Business
Tee W.Y.; Teo S.C.; Liew T.W.	EXPLORING THE TIKTOK INFLUENCES ON CONSUMER IMPULSIVE PURCHASE BEHAVIOUR	2023	International Journal of Business and Society
Tang K.L.; Tan P.M.; Tham Y.J.A.	Impulse Buying in Live Stream Based on the Stimulus-Organism-Response Framework; [Pembelian Impuls dalam Strim Langsung Berdasarkan Rangka Kerja Stimulus-Organism-Response]	2022	Jurnal Pengurusan
Yang J.; Cao C.; Ye C.; Shi Y.	Effects of Interface Design and Live Atmosphere on Consumers' Impulse-Buying Behaviour from the Perspective of Human- Computer Interaction	2022	Sustainability (Switzerland)
Marjerison R.K.; Hu J.; Wang H.	The Effect of Time-Limited Promotion on E-Consumers' Public Self-Consciousness and Purchase Behavior	2022	Sustainability (Switzerland)
Shen H.; Zhao C.; Fan D.X.F.; Buhalis D.	The effect of hotel livestreaming on viewers' purchase intention: Exploring the role of parasocial interaction and emotional engagement	2022	International Journal of Hospitality Management
Zheng S.; Lyu X.; Wang J.; Wachenheim C.	Enhancing Sales of Green Agricultural Products through Live	2023	Sustainability (Switzerland)

	Streaming in China: What Affects Purchase Intention?		
Le T.Q.; Wu W.-Y.; Liao Y.-K.; Phung T.T.T.	The Extended S-O-R Model Investigating Consumer Impulse Buying Behavior in Online Shopping: A Meta-Analysis	2022	Journal of Distribution Science
Ho C.-I.; Liu Y.; Chen M.-C.	Antecedents and consequences of consumers' attitudes toward live streaming shopping: an application of the stimulus–organism–response paradigm	2022	Cogent Business and Management
Jin Z.; Yang S.; Su K.; Yan X.; Hu X.; Kim J.-I.; Lim C.-K.; Ju S.-W.	The Effect of Emotional Responses on Reuse Intention by Impulse Buying Types: Focused on Live Shopping in China	2022	Journal of System and Management Sciences
Apasrawirote D.; Yawised K.	Factors Influencing the Behavioral and Purchase Intention on Live-streaming Shopping	2022	Asian Journal of Business Research
Yu C.; Cheah J.-H.; Liu Y.	To stream or not to stream? Exploring factors influencing impulsive consumption through gastronomy livestreaming	2022	International Journal of Contemporary Hospitality Management
Luo H.; Cheng S.; Zhou W.; Song W.; Yu S.; Lin X.	Research on the impact of online promotions on consumers' impulsive online shopping intentions	2021	Journal of Theoretical and Applied Electronic Commerce Research
Xu Z.; Islam T.; Liang X.; Akhtar N.; Shahzad M.	'I'm like you, and I like what you like' sustainable food purchase influenced by vloggers: A moderated serial-mediation model	2021	Journal of Retailing and Consumer Services
Zhang Z.; Zhang N.; Wang J.	The Influencing Factors on Impulse Buying Behavior of Consumers under the Mode of Hunger Marketing in Live Commerce	2022	Sustainability (Switzerland)
Lv X.; Zhang R.; Su Y.; Yang Y.	Exploring how live streaming affects immediate buying behavior and continuous watching intention: A multigroup analysis	2022	Journal of Travel and Tourism Marketing
Wang D.; Luo X.R.; Hua Y.; Benitez J.	Big arena, small potatoes: A mixed-methods investigation of atmospheric cues in live-streaming e-commerce	2022	Decision Support Systems
Gong X.; Ye Z.; Liu K.; Wu N.	The effects of live platform exterior design on sustainable impulse buying: Exploring the mechanisms	2020	Sustainability (Switzerland)

	of self-efficacy and psychological ownership		
Lo P.-S.; Dwivedi Y.K.; Wei-Han Tan G.; Ooi K.-B.; Cheng-Xi Aw E.; Metri B.	Why do consumers buy impulsively during live streaming? A deep learning-based dual-stage SEM-ANN analysis	2022	Journal of Business Research
Akram U.; Junaid M.; Zafar A.U.; Li Z.; Fan M.	Online purchase intention in Chinese social commerce platforms: Being emotional or rational?	2021	Journal of Retailing and Consumer Services
Khoi N.H.; Le A.N.-H.	Real-Time Interactivity and Impulsive Buying in Livestreaming Commerce: The Focal Intermediary Role of Inspiration	2023	International Journal of Human-Computer Interaction

Source: Scopus Database

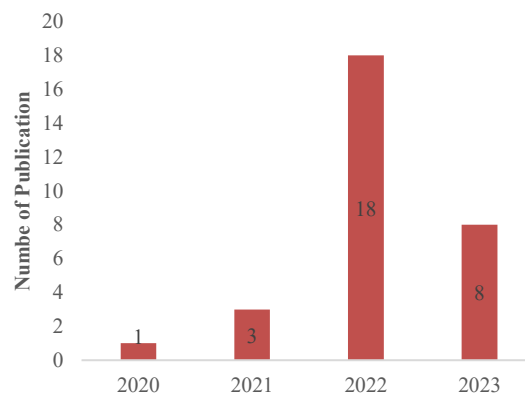


Figure 2. Number of articles by year

As Table 2 shows, the author classified the journal of publication into four areas namely Business & Management; Social and Consumer Behavior; Technology and System Information; and Economic and Social Sustainability. The main outlet for impulse buying in live streaming were in journals that classified as Business and Management field, followed by technology and information system, social and behavioral science, and economic and sustainability. If we see from publication source, Sustainability (Switzerland) was the most journal that published research on impulse buying in live streaming in amount of 5 articles.

Table 2. Article Included in This Review

Publication Classification/ Source	Number of Articles
Business and Management	
Service Industries Journal	1
Tourism Management Perspectives	1
Digital Business	1
International Journal of Business and Society	1
Jurnal Pengurusan	1
International Journal of Hospitality Management	1

Journal of Distribution Science	1
Cogent Business and Management	1
Asian Journal of Business Research	1
International Journal of Contemporary Hospitality Management	1
Journal of Theoretical and Applied Electronic Commerce Research	1
Journal of Business Research	1
Journal of Travel and Tourism Marketing	1
Social and behavioral sciences	
Behavioral Sciences	1
SAGE Open	1
Journal of Retailing and Consumer Services	2
Fashion and Textiles	1
Technology and System Information	
Internet Research	1
Information Technology and People	1
Journal of System and Management Sciences	2
Journal of Open Innovation: Technology, Market, and Complexity	1
Decision Support Systems	1
International Journal of Human-Computer Interaction	1
Economic and Social Sustainability	
Sustainability (Switzerland)	5

According to classification based on geographical, study was majority conducted in China. It might because live streaming has been growing fast in China with yearly average growth in sales of live streaming is more than 150% since 2017, and it makes live streaming in China more developed than other countries (Ho et al., 2022; H. Chen et al., 2023). The booming of live streaming appears first in 2016 on MOGU Inc, China's online shopping platform that listed on New York Stock Exchange, and it continues to rapid grow in recent years on various platform in China such as Alibaba's Taobao Live, Mugunie, Jumei, and etc. The trend to use live streaming platform to commerce product expanding globally especially in 2019 Single Day Shopping Festival that attracted 13 million viewers to Kim Kadarshian West Store (KKW) on Alibaba Tmall, business to consumer online retail that operated in China by Alibaba Group (X. Chen & Kim, 2019; Lambert Bu et al., 2019). Popularity of live streaming feature enhance during lockdowns situation in Covid-19 era, brand and retailers realize using live streaming feature is useful to engage to customers and increase sales, and makes top technology company including Facebook, Google, and Amazon launched live streaming feature on their platform (Teng Bingsheng, 2020).

Method Used in Reviewed Articles

More than half of recorded articles (93,3%) adopted quantitative research design while the rest chose to combine both qualitative and quantitative research design or mixed method (Paraman et al., 2022; Wang et al., 2022). The major study methodology to collect the data is survey, followed by in-depth interview (Paraman et al., 2022; Wang et al., 2022), and others experiment (Hao & Huang, 2023) [33], focus group discussion (FGD), and literature review (Le et al., 2022). The reason why only a few articles reviewed used experiment, in depth interview, and FGD as methodology it might because those methodologies took a long time to get an information from the sample such as when doing an interview it needs approximately 20 minutes to each interviewee, and need time to transcribed the interview result (Wang et al., 2022). Besides that it could be more expansive than survey because it used design situation given to the sample (Paraman et al., 2022; Hao & Huang, 2023). The dominant entities analysed in the studies is individuals who have had watch live-streaming on various theme such as e-sport, online shopping festival, agricultural, travel and tourism, food, and health with sample size range 155 (Hao &

Huang, 2023) to 8613 (Paraman et al., 2022) individuals. Additionally, various analysis techniques were used, and Structural Analysis Modeling were the most dominant techniques used to analyse the data.

This paper also synthesized the theories that are used in articles recorded. Table 3 shows these theoretical perspectives. According to Table 3 there were a large proportion of studies that consider Stimulus–Organism– Response (S–O–R) theory (C.-H. Lee & Chen, 2021; Luo et al., 2021; Le et al., 2022; Ho et al., 2022; L. Li et al., 2022; Yang et al., 2022; Yu et al., 2022; Z. Zhang et al., 2022; Huo et al., 2023; Khoi & Le, 2023; Qu et al., 2023; Tee et al., 2023; Xie et al., 2023; S. Zheng et al., 2023), followed by theory of emotions (Jin et al., 2022; Lo et al., 2022), and others studies used various theories that mostly related to psychology theory.

Table 3. Theories Used in Impulse Buying in Live Streaming research

Theory	Number Of Articles	References
Stimulus–organism– response (S–O–R) theory	14	(Luo et al., 2021; Ho et al., 2022; Yang et al., 2022; Z. Zhang et al., 2022; L. Li et al., 2022; Le et al., 2022; Tang et al., 2022; Yu et al., 2022; Huo et al., 2023; Khoi & Le, 2023; Qu et al., 2023; Tee et al., 2023; Xie et al., 2023; S. Zheng et al., 2023)
Theory of Emotion	2	(Jin et al., 2022; Lo et al., 2022)
The community gift-giving model	1	(Hsieh et al., 2022)
Face-negotiation theory	1	(Hsieh et al., 2022)
Social presence theory	1	(Hao & Huang, 2023)
Social facilitation theory	1	(Hao & Huang, 2023)
Cognitive-affective-conative (C-A-C) framework	1	(Tian et al., 2023)
Arousal Theory	1	(S. Zhang et al., 2022)
IS Success Model	1	(S. Zhang et al., 2022)
Stern's Impulse Buying Theory	1	(Su et al., 2022)
Regret theory	1	(Su et al., 2022)
Flow theory	1	(Paraman et al., 2022)
Temperament theory	1	(Paraman et al., 2022)
Public self-consciousness (PSC)	1	(Marjerison et al., 2022)
Parasocial interaction theory	1	(Shen et al., 2022)
Knowledge of technology acceptance model (TAM)	1	(Ho et al., 2022)
Utilitarian gratification theory (UGT)	1	(Ho et al., 2022)
The theory of reasoned action (TRA)	1	(Ho et al., 2022)
Theory of Planned Behavior (TPB)	1	(Apasrawirote & Yawised, 2022)

Similarity-attraction theory	1	(Xu et al., 2021)
AIDA Model (Attention, Interest, Desire, Action)	1	(Lv et al., 2022)
Affordance theory	1	(Wang et al., 2022)
Self-determination Theory	1	(Gong et al., 2020)
Social learning theory	1	(Akram et al., 2021)

S-O-R theory was derived from stimulus-response theory by Woodworth in 1929 and The Mehrabian-Russell model (Mehrabian & Russell, 1974; Winston, 2012), and extended by Jacoby (Jacoby, 2002) that state that environment (stimulus) can influence behavior of an organism (human) and resulted a response. Basically S-O-R theory commonly used for impulse buying research both offline and online (Hashmi et al., 2020; Ampadu et al., 2022). It is also supported by study that Redine held (Redine et al., 2023). They found that 28 out of 183 articles adopted S-O-R theory in doing research related to impulse buying, and others six most used theory on articles review are big five model, Hofstede's cultural dimensions theory, regulatory focus theory, construal level theory, latent state-trait theory, and flow theory.

Based on reviewed articles, there are various stimulus variable that can cause buying behavior as the response such as promotion (Luo et al., 2021; Tang et al., 2022; Z. Zhang et al., 2022; Huo et al., 2023; Xie et al., 2023), appearance of live streamer (L. Li et al., 2022; Tang et al., 2022; Z. Zhang et al., 2022; S. Zheng et al., 2023), interaction (L. Li et al., 2022; Xie et al., 2023), and live streaming atmosphere (Le et al., 2022; Yang et al., 2022; Xie et al., 2023). The complete stimulus of buying behavior in live streaming are presented in Table 4. The most used variable that become behavior organism is value that the human has, such as hedonic, and utilitarian values (Le et al., 2022; L. Li et al., 2022; Qu et al., 2023). Variable that categorize as organism in reviewed articles could be seen in Table 4. While the response of the stimuli and organism is buying behavior after experiences live streaming, such as impulse buying behavior (Le et al., 2022; L. Li et al., 2022; Tang et al., 2022; Yang et al., 2022; Z. Zhang et al., 2022; Huo et al., 2023), urge to purchase impulsively (Le et al., 2022; Khoi & Le, 2023; Tee et al., 2023), and continuous to watch live streaming (Ho et al., 2022; Qu et al., 2023; Xie et al., 2023).

Besides S-O-R theory that dominated used in reviewed articles, two articles use emotional theory (Jin et al., 2022; Lo et al., 2022). There are five major's theory of emotion that commonly used in human behavior research namely, James' Theory, Two-factor Theory, Emotion Appraisal Theories, Network Theories of Emotions, and Facial-Feedback Theory of Emotion. According to those theories, an experience of individual emotions began with stimuli (Bryn Farnsworth, 2019). On the reviewed paper there are difference stimuli that be researched that trigger emotional reactions namely jealousy and vanity (Jin et al., 2022) which classified as stimuli from external environment, while (Lo et al., 2022) used cognitive and affective reactions that come from the individual itself as stimuli that trigger emotional reaction. Besides that, the definition of emotion reaction on those two articles has differences. (Jin et al., 2022) use vanity and jealousy as factor that trigger individual that has impulse buying behavior to purchase same services or products continuously. While (Lo et al., 2022) use cognitive and affective reactions of the individual to have urge to buy impulsively after watch the content and anchor in live streaming.

Table 4. Stimuli (S), Organism (O), Response (R) Variable

Author	Year	S	O	R
Li L.; Kang K.; Zhao A.; Feng Y.	2022	–Live streamer appearance –Real time interaction	– Hedonic attitude – Utilitarian attitude	– Impulse buying behavior

Huo C.; Wang X.; Sadiq M.W.; Pang M.	2023	–Social presence –Sales promotion	– Flow experience	– Impulse buying behavior
Xie J.; Yoon N.; Choo H.J.	2023	–Promotional –Entertainment –Social interaction	– Excitement	– Continuous participation intention
Qu Y.; Cieřlik A.; Fang S.; Qing Y.	2023	–Perceived of use –Perceived usefulness –Social interactivity	– Hedonic shopping value – Utilitarian shopping value	– User stickiness
Tee W.Y.; Teo S.C.; Liew T.W.	2023	–Visual appeal –Product Feasibility	– Perceived enjoyment – Perceived usefulness	– Urge to purchased impulsively
Tang K.L.; Tan P.M.; Tham Y.J.A.	2022	–Attractiveness –Expertise –Promotion –Scarcity	– Perceived enjoyment – Arousal – Urge to buy	– Impulse buying
Yang J.; Cao C.; Ye C.; Shi Y.	2022	–Interface design –Live streaming atmosphere	– Visual appeal – Arousal – Consumer engagement	– Impulse buying behavior
Zheng S.; Lyu X.; Wang J.; Wachenheim C.	2023	–Anchor Characteristic	– Environmental problem perception – Green Consumption Awareness	– Consumer's purchase behavior
Le T.Q.; Wu W.-Y.; Liao Y.-K.; Phung T.T.T.	2022	–Perceived ease of use –Perceived enjoyment –Online flow experience –Product quality –Communication effectiveness –Web atmospheric –Price attribute	– Hedonic shopping value	– Urge to buy impulsively – Impulse buying behavior
Ho C.-I.; Liu Y.; Chen M.-C.	2022	–Product Strategy –Price Strategy –Promotion Strategy –Physical evidence strategy –Personnel strategy –Placement strategy –Process strategy	– Perceived value – Informative gratification – Entertainment gratification – Perceived usefulness – Social interaction – Perceived Ease of Use	– Attitudes – Purchased intention – Watching intention
Yu C.; Cheah J.-H.; Liu Y.	2022	–Gamification –Perceived professionalism –Telepresence	–Perceived innovativeness	–Impulsive consumption

Luo H.; Cheng S.; Zhou W.; Song W.; Yu S.; Lin X.	2021	–Promotion (Time and Quantity Limited)	–Regret	–Impulse online intention
Zhang Z.; Zhang N.; Wang J.	2022	–Anchor Characteristics –Online Comment –Logistics Service Quality –Promotional Incentive Information –Promotional Time Limit	–Perceived trust –Perceived value	–Impulse buying behavior
Khoi N.H.; Le A.N.-H.	2023	–Responsiveness –Personalization	–Inspired by –Inspired to –Delight	–Urge to buy impulsively

Main Research Theme

This article also synthesized the main research theme present in Table 5 with four different kinds of themes based on customer behavior in live streaming, shopping stimuli in live streaming, reason to use live streaming, and live streamer characteristic. In the article reviewed, author found that there are three types of customer shopping behavior related to impulse buying in live streaming namely urge to buy impulsively, continuous buying, and impulse buying. Basically, impulse buying is an act arose under stimulation to fulfill someone's need (Jin et al., 2022). It could be arising whether planned (Stern, 1962; Kollat & Willett, 1967), and unplanned (Zahari et al., 2021). Planned impulse buying happens when customers imagine the urgency of buying a product even though doesn't have a product knowledge (Jin et al., 2022). While unplanned impulse buying happens when customer spontaneously buy a product due to external stimuli such as store atmosphere and appealing product without considering financial mean and other aspects (Zahari et al., 2021; Jin et al., 2022). Before impulse buying happens there is a driving force behind impulse buying namely urge to buy impulsively. This behavior is initial stage before actual impulse buying occur. Urge to buy impulsively arise when people feel spontaneous and continues want to buy a thing before actual impulse buying behavior exist (Leong et al., 2018; Akram et al., 2021). This stage categorize as desire stage (Beatty & Elizabeth Ferrell, 1998). In addition, customer who enjoy the emotional state during marketing stimuli tend to ignore their shopping goal, and resulted impulsive buying behavior. That is why urge to buy impulsively influence impulse buying behaviour (Le et al., 2022; Tang et al., 2022). Impulse buying behavior could lead customer experience continuous buying behavior because continuous buying considered as long term purchased behavior while impulse buying is a short term purchased decision (Hsieh et al., 2022). In addition, the outcome of customer satisfaction when buy a thing impulsively is continuous buying behaviour (Su et al., 2022).

Customer behavior namely urge to buy, continuous buying, and impulsive buying occur in live streaming because some of stimuli namely homophily (Xu et al., 2021; Shen et al., 2022; S. Zhang et al., 2022), shopping value (Akram et al., 2021; Luo et al., 2021; Ho et al., 2022; Le et al., 2022; L. Li et al., 2022; Yu et al., 2022; Hao & Huang, 2023; Qu et al., 2023; Tian et al., 2023), arousal (Hsieh et al., 2022; Tang et al., 2022; Yang et al., 2022; S. Zhang et al., 2022), perceived enjoyment (Akram et al., 2021; Lv et al., 2022; Paraman et al., 2022; Huo et al., 2023; Tee et al., 2023; Xie et al., 2023), and external stimuli (Akram et al., 2021; Jin et al., 2022; Lo et al., 2022; Marjerison et al., 2022; Shen et al., 2022; Tang et al., 2022; Wang et al., 2022; Yu et al., 2022; S. Zhang et al., 2022).

Homophily means similarity. People tend to interact when having similar beliefs, social status, value, and degree of education (Xu et al., 2021; Shen et al., 2022). In addition people attracted to do interaction with stranger due to congruence characteristic such as appearance, value, cognitive process, and social

identity according to similarity-attraction theory (Newcomb, 1956; Byrne, 1961; Jing Zhang & Bloemer, 2008). Since similarity matters to humans (Benbasat et al., 2020), marketers often included this psychological stimuli in their marketing techniques to influence their customer purchase behavior. The higher similarity in one group could strengthen the emotion and level of arousal because characteristics of individual and cultural background matter in arousal (Steel & Taras, 2010; Uskul et al., 2014). As a result, arousal could stimulate purchase behavior in one group (S. Zhang et al., 2022) because arousal is the main emotional condition that impacts people's motivation or restraint to access consumption situations (Xiaoyu Xu et al., 2020). People that are highly aroused will be keen to join live streaming and may lead to urge to buy impulsively (C.-H. Lee & Chen, 2021). Besides that, entertainment that provides in live streaming also stimulates people to shop in live streaming events (Apasrawirote & Yawised, 2022; Ho et al., 2022; Lv et al., 2022; Yu et al., 2022). Nowadays live streamers are not only selling a product but also providing content entertainment on their live streaming event because it can increase customer shopping experience by generating fun, enjoyable, and pleasant to their customer (Kang et al., 2021; Deng et al., 2022; Lv et al., 2022). Usually live streamers associated entertainment content to hedonic product consumption (X. S. Liu et al., 2022). Through content entertainment, live streamers could influence shopping behavior of their viewers especially viewers with hedonic characteristics (Kang et al., 2021). Viewer characteristics especially shopping value could become shopping stimuli in live streaming (Le et al., 2022; L. Li et al., 2022; Qu et al., 2023; Tian et al., 2023). In this study, authors divide shopping value into two types, namely hedonic and utilitarian shopping value (Babin et al., 1994). Hedonic shopping in live streaming happens when customers buy something sudden and unplanned by perceived enjoyment when watching entertainment provided in live streaming (Le et al., 2022; Hao & Huang, 2023) while utilitarian shopping values related to function of the product. People tend to buy a product because of its function (L. Li et al., 2022; D. Liu & Yu, 2022; Hao & Huang, 2023).

Based on the reviewed articles, people use live streaming features because of their ease of use (Akram et al., 2021; Ho et al., 2022; Le et al., 2022; Qu et al., 2023), system quality (S. Zhang et al., 2022), flow (Le et al., 2022; Paraman et al., 2022), and atmosphere (Gong et al., 2020; Akram et al., 2021; Ho et al., 2022; Le et al., 2022; Tian et al., 2023; Yang et al., 2022). In addition, people use live streaming to shop because of live streamer characteristics, such as appearance (Agil et al., 2022; Lo et al., 2022; Tang et al., 2022), interaction (L. Li et al., 2022; Lo et al., 2022; Shen et al., 2022; Yang et al., 2022; Tang et al., 2022; Hao & Huang, 2023; Huo et al., 2023; Khoi & Le, 2023; Qu et al., 2023; Tian et al., 2023; Xie et al., 2023), image (Apasrawirote & Yawised, 2022; Hsieh et al., 2022), trust (Z. Zhang et al., 2022; Tian et al., 2023), and reputation (Apasrawirote & Yawised, 2022; L. Li et al., 2022; S. Zheng et al., 2023).

Table 5. Main Research Theme

Customer behavior in live streaming	Shopping stimuli in live streaming	Reason to use live streaming	Live Streamer Characteristic
– Urge to buy impulsively	– Homophily	– Ease of use	– Appearance
– Continuous buying	– Shopping value	– System Quality	– Interaction
– Impulse buying	– Arousal	– Flow	– Expertise
	– Entertainment	– Atmosphere	– Image
			– Trust
			– Reputation

Future Research Direction

This section will codify the information of the future research direction based on reviewed articles. First, mostly articles reviewed were from China (Gong et al., 2020; Akram et al., 2021; Luo et al., 2021;

Xu et al., 2021; Ho et al., 2022; Hsieh et al., 2022; L. Li et al., 2022; Lv et al., 2022; Marjerison et al., 2022; Shen et al., 2022, 2022; Su et al., 2022; Wang et al., 2022; Yang et al., 2022; Yu et al., 2022; S. Zhang et al., 2022; Z. Zhang et al., 2022; S. Zheng et al., 2023; Huo et al., 2023; Xie et al., 2023), followed by South-East Asia country such as Malaysia (Lo et al., 2022; Paraman et al., 2022; Tang et al., 2022; Tee et al., 2023), Thailand (Apasrawirote & Yawised, 2022; Paraman et al., 2022), Singapore (Paraman et al., 2022; Yang et al., 2022), Vietnam (Paraman et al., 2022; Khoi & Le, 2023), Philippines (Paraman et al., 2022), and Indonesia (Paraman et al., 2022), and Australia (Yang et al., 2022). Future studies could consider held in other countries and in other cultural context to verify whether the research model has good external validity. Besides that on reviewed article only two articles doing cross-cultural analysis (Paraman et al., 2022; Yang et al., 2022), it could be an opportunity for future article to do cross-cultural analysis to identify the connections and differences between the diverse studies. Related to live streaming media, only few studies in reviewed articles mention live streaming media. For the future studies, various live streaming platform could be researched, and author could analyze the similarities and differences of customer buying behavior on various live streaming platform.

As mention above, there were a large proportion of studies that consider Stimulus–Organism– Response (S–O–R) theory whereas other most used theories that common in impulse buying study such as big five model, Hofstede’s cultural dimensions theory, regulatory focus theory, construal level theory, latent state-trait theory, and flow theory (Redine et al., 2023), future studies could use one of those theory to analyze impulsive buying behavior in live streaming. In addition, survey is the most methodology used in reviewed article, for future studies, author could examine the survey result using qualitative techniques such as in-depth interview or FGD.

Conclusions and recommendations

This paper establishes systematic literature review of the extant academic work on impulse buying in live streaming. Live streaming, assuredly, become popular in broadcasting live video content in various platform such as social media and e-commerce. Live streaming could influence customer buying behavior including impulse buying behavior that have been shifted from in store purchase to online purchase. This study presents the synthesize of existing literature related to impulse buying in live streaming with search query in Scopus database (“live* Stream*”) AND (“impulse buy” OR “impulsive buy” OR “impulse buying” OR “impulsive buying”) AND commerce.

A total number of reviewed papers on this study is 30 related to impulse buying in live streaming. Data extracted were classified into studies progression, methodology adopted in the reviewed article, theories used, research theme, and future research direction regarding to impulse buying in live streaming. Reviewed articles on this study is gotten from scopus database using search query (“live* Stream*”) AND (“impulse buy” OR “impulsive buy” OR “impulse buying” OR “impulsive buying”) AND commerce, author got 364 articles, then to limit this study, author used filtering feature in the Scopus website to ensure relevancy, such as the limiting to business, management, accounting, and social science area, limiting to journal article, and limiting to publication in English, excluded results in which the full texts were not available to the author, and manually read the abstracts to exclude papers that do not specifically discuss impulse buying in live streaming.

In term of theoretical and practical implications, this study offers insight needed by academicians for future research directions, and practitioners to strengthen their marketing strategy using live streaming feature to trigger people buy their product impulsively. First, this paper provides impulse buying in live streaming study’s progression. Based on reviewed article study related impulse buying in live streaming has been carried out since 2020, and until now there are still prospects for doing so because transactions that occur on the live streaming feature are promising, and social media and e-commerce platforms are increasingly developing this feature. So, it is possible for future research to study more about customer behavior especially impulsive buying behavior in live streaming commerce. Besides that, author also presents journal of publication in this study for future researchers to know popular journals for publication of studies related to impulse buying on live streaming easily. Based on articles reviewed,

the main outlet for impulse buying in live streaming were in journals that classified as Business and Management field. More than half of recorded articles adopted quantitative research design while the rest chose to combine both qualitative and quantitative research design or mixed method, and the major study methodology to collect the data is survey. Only few reviewed articles using FGD and in-depth interview as method to gathered the data, though from this methods author will get deeper insight, so it is prospective for future researcher using qualitative techniques such as in-depth interview or FGD to enrich their survey data.

It also has opportunity to held study related impulse buying in live streaming outside China or using cross cultural analysis to identify the connections and differences between the diverse studies because more than half reviewed articles held in China. Other finding from reviewed articles is related to theory used. According to prior studies, there are seven most used theories that common in impulse buying study such as S-O-R theory, big five model, Hofstede's cultural dimensions theory, regulatory focus theory, construal level theory, latent state-trait theory, and flow theory. Majority reviewed articles used S-O-R theory and only one article used flow theory. It can be possible opportunity for future researcher to do deeper study related to impulse buying in live streaming using other most used theory that common in impulse buying.

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