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Live Streaming Commerce: A Review and Research Agenda

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ABSTRACT

Live streaming on social media has evolved into live streaming commerce (LSC), a subset of electronic commerce that merges real-time social interaction with digital marketing. LSC is increasingly used for enhancing customer engagement, product promotion, transaction facilitation, and improving online shopping experiences. However, LSC, as a field of study, lacks a comprehensive systematic review, highlighting a gap in understanding its development and prospective trajectories. This article aims to fill this gap by conducting a comprehensive systematic review of existing LSC studies and charting a course for its future inquiry. Utilizing the SPAR-4-SLR protocol and the TCCM framework, this study reviews relevant LSC studies from Scopus and Web of Science to reveal the key theories, contexts, characteristics, methods, and promising avenues for understanding and enriching LSC.

Introduction

The advancement of information technology has revolutionized online shopping, leading to the emergence of live streaming commerce (LSC). As a dynamic format of electronic commerce (e-commerce), LSC enriches the shopping experience with real-time interactive elements such as live chat and video, offering consumers engaging and immersive opportunities to discover and purchase products.[1] Live streaming combines real-time video content with chat interaction, enabling users to broadcast and view live video streams while participating in synchronous chat discussions.[2] LSC has gained popularity as a direct selling channel, significantly increasing online traffic and sales for businesses.[3–5] Noteworthily, LSC customers are not only consumers but also content creators, influencing the purchasing decisions of their peers.[6] Therefore, LSC has established itself as a unique and popular form of online shopping, presenting itself through three major channels:

(1) Electronic commerce sites or mobile apps integrating LSC features (e.g., Amazon, Taobao);
(2) LSC platforms incorporating commercial activities (e.g., Douyu, Live.me);
(3) Social media or social networking sites (SNSs) that add LSC features to facilitate sales (e.g., Facebook, Instagram).

In recent years, LSC has experienced significant growth, particularly post-COVID-19. Consumer preference for shopping via live streaming platforms like Amazon Live, Facebook Live, Instagram Live, and Taobao Live has surged.[7] Data from Statista[8] reveals a 76% increase in global LSC purchases during the pandemic. In China, LSC's popularity is notable: 73% of respondents are aware of online shopping platforms and physical stores offering live streaming sessions,[9] and the country has over 600 million live streaming users, more than 60% of its total internet population.[10] The growing consumer attention to social influencers and co-experiences has translated into increased orders during live streaming.[11]

Tracing back, live streaming is not a novel concept; it emerged as an interactive communication technology in the early 1990s, combining real-time video and text-based chat.[12] The popularity of LSC surged with the advent of mobile technology and social media.[13] Initially predominant in entertainment, like live music, sports, and gaming,[13] live streaming's business potential in e-commerce has recently captured marketers' and scholars' attention. Despite considerable research, the LSC literature remains disjointed. Existing LSC reviews, such as those by Fu,[14] Li et al.[15] Luo et al.[16] and Zhang & Yeap[17] offer insights but have limitations. Fu's[14] review is in Chinese, limiting its reach. Luo et al.[16] and Zhang & Yeap[17] focus publication trends using bibliometric

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analysis. Li et al.[15] reviewed only a limited range of literature, examining 22 articles from 2016 to 2021 on Google Scholar. Evidently, existing reviews fall short of providing the necessary depth for a comprehensive understanding of LSC. Furthermore, the rapid pace of LSC research in recent years, with numerous new studies, is not adequately covered in these reviews. These limitations underscore the necessity and urgency for a systematic literature review that is more comprehensive and up-to-date, so that it can encapsulate the full breadth and depth of LSC, encompassing its evolution, current trends, and future potentials. This review aims to bridge these knowledge gaps, offering a holistic view of LSC that not only synthesizes past findings but also sets the stage for future explorations in this dynamic field. In this regard, this review seeks to answer three pivotal research questions (RQs) in line with Lim et al.[18]:

RQ1. What do we know about LSC?

RQ2. How do we know about LSC?

RQ3. Where should we go with LSC?

To address these RQs, we conducted a systematic review of the LSC literature, adhering to the Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR) protocol.[19] The review was structured using the Theories, Contexts, Characteristics, and Methods (TCCM) framework.[20] The "characteristics" component of TCCM, which encompasses the Antecedents, Mediators, Moderators, Outcomes, and Control Variables (AMMO-CV) of LSC research, offers crucial insights into the complex relationships and dynamics of variables pivotal to LSC (RQ1). This not only deepens our understanding but also critically informs future LSC applications and strategies. Furthermore, our review delves into the theoretical foundations, contextual nuances, and methodological choices in existing literature, culminating in a rich, multidimensional synthesis that delineates the current state and complexities of LSC research (RQ2). This comprehensive approach not only synthesizes knowledge but also identifies gaps and areas ripe for innovation. Moreover, the review is strategically positioned to uncover and shape promising avenues for future LSC research, thereby catalyzing the evolution and practical application of LSC (RQ3). This endeavor not only highlights the importance of LSC in the contemporary e-commerce landscape but also positions this review as a cornerstone for future scholarly inquiry and practical implementation.

The remainder of this article is organized as follows: The next sections detail the review methodology, followed by insights into what and how we understand LSC. These sections illuminate the structure of AMMO-CV (RQ1) and the theoretical, contextual, and methodological elements (RQ2) of LSC research. Subsequently, we address the direction in which LSC research should progress, proposing a forward-looking research agenda (RQ3). The concluding sections discuss the theoretical and practical implications of the review.

Methodology

This study conducts a systematic review[18,21] using the TCCM framework.[20] This approach is aligned with Paul et al.,[19] who emphasize that such a framework provides a rigorous scientific design characterized by explicit, pre-specified, and reproducible methods. Therefore, the framework methodology implemented herein enables the review to deliver a reliable synthesis of literature and a structured understanding of LSC research.

To ensure transparency and replicability, we adopted the SPAR-4-SLR protocol by Paul et al.[19] The SPAR-4-SLR protocol, encompassing three sequential stages—(i) assembling (identification and acquisition of LSC literature), (ii) arranging (purification and organization of the retrieved LSC literature), and (iii) assessing (evaluation and reporting of findings related to LSC literature)—ensures a rigorous, transparent, and logical flow in the review process. This protocol is particularly suited for emerging, multidisciplinary fields like LSC due to its adaptability across various research designs, data sources, and themes. The review procedure following this protocol is detailed in Appendix A, and the resulting framework is presented in Appendix B.

Assembling

The assembling stage encompasses *identification* and *acquisition*. *Identification* entailed defining the research domain (LSC) and formulating research questions (RQ1–RQ3). For *acquisition*, we selected Scopus and Web of Science due to their extensive coverage of academic literature and rigorous quality checks for source inclusion or indexing.[19] The search period spanned from 2018 to 2023, starting from the publication of the first LSC article in 2018 to the time this review was conducted (November 2023), a practice in line with Kraus et al.[21] for ensuring a contemporary assessment. Following the approach of Vrontis et al.[22] we employed various alternative keywords

linked with Boolean operators: ("live stream*" OR "live-stream*" OR "livestream*" OR "live video stream*" OR "live broadcast*") AND ("commerce" OR "consumption" OR "shopping" OR "transaction"). This search yielded 2,884 articles (Scopus: 1,639; Web of Science: 1,245).

Arranging

The arranging stage consists of *purification* and *organization*. During *purification*, articles were filtered based on document type, source type, and language.[21] We restricted our focus to "articles" published in "journals", as they typically offer exploratory ideas and causal insights that have been fully developed, unlike alternatives like "books" and "book chapters", which are often explanatory, "conference proceedings", which tend to be work-in-progress, and "editorials" or "notes", which may not be peer reviewed.[19,21] Only English articles were considered due to its status as a *lingua franca* and the authors' language proficiency.[21] Articles irrelevant to the specific relationship between live streaming and commerce were also excluded. These included topics such as game live streaming, media live streaming, peer-to-peer (P2P) networks, sports live streaming, and political participation in live streaming. Duplicate articles were also removed, resulting in the retention of 201 relevant articles. During *organization*, these articles were methodically coded and categorized using the TCCM framework. This framework was applied to assess theories, contexts (units of analysis, platforms, industries, and countries), characteristics (years, journals, citations, AMMO-CV), and methods (qualitative, quantitative, and mixed methods).

Assessing

The assessing stage encompasses *evaluation* and *reporting*. During *evaluation*, content analysis and gap analysis were employed to build and examine the TCCM framework, pinpointing current knowledge and knowledge gaps in LSC research. This analysis informed the development of a future research agenda for LSC. In the *reporting* stage, data were conveyed through figures, tables, and words to present the insights into LSC. No funding was sought nor received for this research.

Findings

What do we know about LSC? (RQ1)

Publication (productivity) and citation (impact) trend of LSC research

In answering RQ1, we begin by presenting yearly publication and citation figures to trace the development of research over time (Appendix C). LSC research emerged in 2018, with limited publications in 2018 (*n*: 1) and 2019 (*n*: 3). Subsequently, research on LSC surged, especially during 2020–2023, attributed partly to the impact of COVID-19. The number of publications grew consistently, with 85 articles in 2023, totaling 201 publications by October 2023. Citations exhibited an upward trend from 2018 to 2020, peaking at 2,782 for 2020. Although articles from 2021 to 2023 have fewer citations due to their recency, this is expected to change over time. Overall, LSC-related articles had amassed more than 6,990 citations by the end of the review period.

Geographic coverage of LSC research

LSC research has been contributed by researchers from 23 countries/territories. From a regional perspective, the Asia Pacific, Eastern Asia, Oceania, and Southern Asia regions appear most prolific in the East, whereas the North America and Western Europe regions are most prolific in the West. Besides, Africa, Eastern Europe, Middle East, and South America regions are noticeably underexplored (Appendix D Panel A). From a country/territory-level perspective, China leads in LSC research with 76.12% of total publications, followed by Taiwan (11.44%) and South Korea (9.95%) (Appendix D Panel B). When the entire Chinese region is considered (including Hong Kong, Macau, and Taiwan), Greater China, can be considered the research leader for LSC research.

Journals publishing LSC research

LSC research has been published in 90 journals indexed in Scopus and/or Web of Science, demonstrating its acceptance in high-quality journals (Appendix E). Noteworthily, *Frontiers in Psychology* leads with 26 articles, followed by *Sustainability* (16), *Journal of Retailing and Consumer Services* (15), *Electronic Commerce Research and Applications* and *Internet Research* (7 each), and *Asia Pacific Journal of Marketing and Logistics* (5). The relevance of LSC research is also evidenced across various fields such as business (e.g., *Journal of Business Research*), electronic commerce (e.g., *Electronic Commerce Research*), information systems (e.g., *International Journal of Information Management*), information technology (e.g., *Behaviour and Information Technology*), psychology (e.g., *Frontiers in Psychology*), marketing (e.g., *European Journal of Marketing*), and service (e.g., *The Service Industries Journal*) such as hospitality (e.g., *International Journal of Contemporary Hospitality Management*) and tourism (e.g., *Tourism Management*).

Articles on LSC

The 10 most cited articles on LSC are detailed in Appendix F. The leading paper, with 692 citations, is Wongkitrungrueng and Assarut's[1] study on cultivating customer engagement and trust, indicating the significance of relational dynamics in LSC. This is followed by Sun et al.'s[12] work, cited 542 times, which explores live streaming's IT affordance and its impact on purchase intentions, underlining the technological underpinnings of LSC. Park and Lin's[23] research on the effects of match-ups in shaping consumer attitudes toward streamer-endorsed products, receiving 365 citations, highlights the role of influencer marketing in LSC.

The list further includes studies such as Kang et al.'s[24] examination of interactivity's dynamic effect on customer engagement through tie strength, and Xu et al.'s[25] investigation of drivers of consumer shopping behavior in LSC. These articles, along with others in the top 10, cover a diverse range of topics within LSC, from enhancing engagement[26] and seller perspectives[3] to uncertainty reduction[27] and the overall impact on purchase intention.[28,29] This variety in topics underscores the multifaceted nature of LSC and its relevance across different aspects of consumer behavior, e-commerce dynamics, and marketing strategies. These seminal works have significantly advanced the understanding of LSC, setting a foundational base for future research in this rapidly evolving field.

Characteristics (AMMO-CV) of LSC

This section synthesizes the antecedents, mediators, moderators, outcomes, and control variables (AMMO-CV) that have been investigated in LSC research (Figure 1). Noteworthily, most researchers have studied the impact of customer-, platform-, social- and streamer-related antecedents on behavioral outcomes (n: 159 articles), followed by relationship experience (n: 42 articles), shopping experience (n: 39 articles), and psychological outcomes (n: 39 articles).

Antecedents of LSC. Antecedents encompass the factors that could exert an influence, and as a result, they may have a direct impact and an indirect impact (through mediators) on outcomes.[30] Among 201 articles on LSC, only 15 articles do not have a conceptual framework, and thus, the antecedents that manifest across 186 articles that do have a conceptual framework were classified into four categories—namely, *customer-* (103 articles), *platform-* (66 articles), *social-* (81 articles), and *streamer-* (111 articles) *related antecedents.*

Customer-related antecedents encapsulate characteristics and perceptions of customers that could exert an impact in LSC such as *hedonic* and *utilitarian* motivation (64 articles), *perceived financial benefits* (39 articles) and *uncertainty* (eight articles), *personality traits* (11 articles), and *trust* (14 articles).
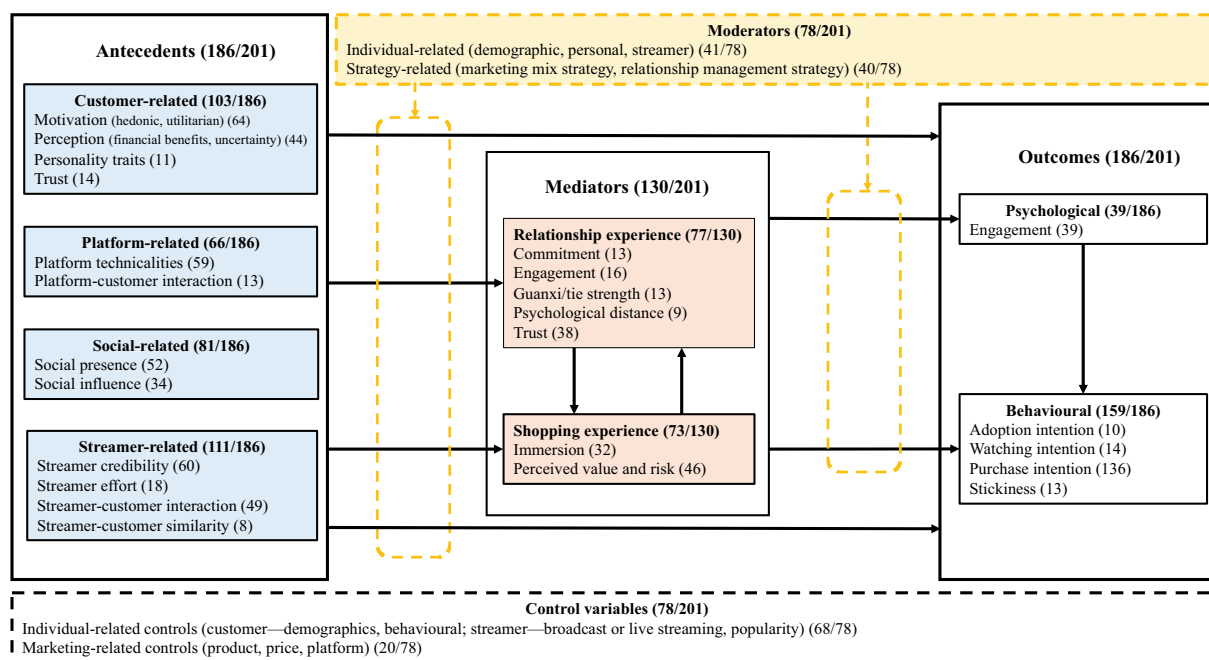

Figure 1. Customer behavior in LSC.

- *Hedonic motivation* is often associated with affective appraisal, emotion, entertainment, and enjoyment, influencing experiential (e.g., flow and parasocial interaction experiences), and relational and recreational benefits (e.g., engagement).[31,32] Besides, hedonism enhances perceived value, which, in turn, triggers stickiness,[33] engagement,[1] and (re)purchase intention.[23,34]

- *Utilitarian motivation* is driven by functionality, goals, and rationality and thus reflects the extent to which customers are motivated by the utility of products or services. Utilitarian value is among the most frequently studied customer-related antecedent, encompassing convenience and efficiency in obtaining high-quality product information (e.g., accuracy, completeness, currency, usefulness, visualization).[25,35] The literature suggests that utilitarianism influences engagement and trust,[1,34] which, in turn, triggers watching and purchase intention among customers in LSC.[36–38]

- *Perceived financial benefits* cover the financial incentives (e.g., financial bonds, financial support, financial value, discount, scarcity, rewards)[5,39] and pricing information (i.e., perceived competitive price, price transparency, perceived transaction transparency)[8,40] provided to enhance customers' overall perceived value and trust in the product. The literature on LSC suggests that customers who perceive or recognize financial benefits are likely to demonstrate commitment and trust,[26,41] which, in turn, trigger purchase intention.[42]

- *Perceived uncertainty* portrays the degree to which the future environment cannot be accurately predicted due to imperfect information.[40] Perceived uncertainty is a less-frequently explored antecedent. The literature on LSC suggests that perceived uncertainty is detrimental to purchase intention among customers.[27,40]

- *Personality traits* reflect individual characteristics that are relatively stable, consistent, and enduring, which may be inferred from a pattern of attitudes, behaviors, feelings, and habits.[6] Only two articles on LSC examine personality traits (i.e., habit, self-efficacy) as antecedents, showing that habit and self-efficacy shape engagement[6] and behavior[43] among customers.

- *Trust* reflects the broad conviction that one (e.g., customers) holds that the other party (e.g., sellers, streamers) would act in an ethically and socially suitable manner.[44] From a customer perspective, trust can manifest toward many touchpoints such as the brand, company, platform, product, and streamer. The literature on LSC suggests that customer trust is critical in developing and maintaining good customer relationship to shape behavioral intention (e.g., purchase intention).[45,46]

Platform-related antecedents encapsulate the characteristics of live streaming platforms that could impact outcomes in LSC such as *platform-customer interaction* (13 articles) and *platform technicalities* (59 articles).

- *Platform-customer interaction* denotes interactions between platforms and customers, involving aspects such as control,[47] diagnosticity,[48] and effort expectancy.[32] The literature suggests that effective platform-customer interaction (e.g., providing customers with control, valuable information, and a seamless interaction experience) can enhance customer engagement as well as their adoption and purchase intention in LSC.[43]

- *Platform technicalities* encompass the technical aspects of LSC platforms such as facilitating conditions, ease of use, gamification, guidance shopping, meta-voicing, stock-keeping unit proliferation synchronicity, usefulness, and visibility. Researchers often approach this topic from IT affordance,[12,49] operations,[50] technology adoption,[51] and socio-technicality[7,46] perspectives. The literature suggests that robust technical functions can enhance customer experience, amplifying their enjoyment, which, in turn, encourages their purchase intention in LSC.[7,52]

Social-related antecedents are related to the social aspects of LSC, reaffirming that shopping is a social act. Both *social influence* (34 articles) and *social presence* (52 articles) are commonly studied as social-related antecedents.

- *Social influence* (i.e., the influence from people particularly relevant to the individual) encapsulates aspects like endorsement, network behaviors, norms, social friend value, social status display, and symbolic value. Research suggests that social influence can mitigate uncertainty and promote engagement in LSC.[26,28]

- *Social presence* (i.e., the sense of others' presence during social activities) is a well-studied antecedent for exploring customer-customer interaction,[53] including co-viewer involvement,[35] mutuality,[47] community interactivity.[54] Research suggests that social presence strengthens relationships and shopping experiences, subsequently impacting psychological[36] and behavioral outcomes[35] among LSC customers.

Streamer-related antecedents encompass the characteristics of streamers that could impact outcomes in LSC such as *streamer credibility* (60 articles), *streamer effort* (18 articles), *streamer-customer interaction* (49 articles), and *streamer-customer similarity* (8 articles).

- *Streamer credibility*, whose evaluation could manifest through streamer endorsement, includes three major aspects, namely, attractiveness, expertise, and trustworthiness.[55] These three aspects are invariant across different cultures and important in influencing customer attitudes and intentions.[56,57] Additional streamer characteristics, like competence, humor, politeness, and warmth, have also been suggested as potential influences on customer trust in LSC.[41,58]

- *Streamer effort* includes the streamer's investment of effort, knowledge, or time in engaging and fostering a relationship with customers.[3] Research suggests that streamers' efforts in content generation,[41] personal information disclosure,[59] additional value service,[60] and their advertising strategy[29] can bridge the psychological distance between streamers and customers as well as influence the latter's purchase decision in LSC.

- *Streamer-customer interaction* examines social interactions between streamers and customers. Key variables include active control,[46] entertainment,[6] interaction quality,[61] interactivity,[41] parasocial interaction,[62] perceived emotional labor,[63] personalization,[37] reciprocity,[64] relationship reward,[59] responsiveness,[47] synchronicity,[52] and two-way communication.[46] Research suggests that this interaction can enhance relationship and shopping experience, which, in turn, shape behavioral intention among customers in LSC.[28,47]

- *Streamer-customer similarity* zooms into the similarity between customers and streamers, involving elements such as perceived familiarity, perceived likability, perceived similarity, physical characteristics similarity, and value similarity.[60,65] Research suggests that this similarity enhances the relationship between streamers and customers, which, in turn, affects the latter's purchase decision.[27]

Mediators in LSC. Among 201 LSC articles, 130 included mediators, which can be divided into two main groups—namely, *relationship* (77 articles) and *shopping* (73 articles) *experience*.

Relationship experience encapsulates the experiential factors that manifest in relationship building and management efforts felt by customers such as *commitment* (13 articles), *engagement* (16 articles), *guanxi/tie strength* (13 articles), *psychological distance* (9 articles), and *trust* (38 articles).

- *Commitment* is an essential element for establishing, developing, and maintaining relationships. *Engagement* is described as the psychological state of mind in which customers are engaged consciously or subconsciously most often through frequent interactions beyond transactional motives in a focal service relationship. *Guanxi/tie strength* embodies the quality of interpersonal relationship between streamers and customers. *Psychological distance* reflects the degree to which customers perceive a target as being distant from themselves at that moment. *Trust* is not only an antecedent but also a frequently used mediator, encompassing trust in channels/platforms, products, and streamers/sellers,[41,53] and operationalized as a multi-dimensional variable with facets of ability, benevolence, and integrity.[56]

Shopping experience is described as a pleasant or unpleasant mental state when customers are infused in LSC, which, in turn, helps them to identify the value and risk they may gain/suffer from this shopping activity. In this regard, LSC experience can include *immersion* (32 articles) and *perceived value and risk* (46 articles).

- *Immersion* is an emotional response that gives people a sense of pleasure and satisfaction, which could manifest as highly focused attention, loss of self-awareness, and unconscious behavior,[33] covering arousal,[57] authentic viewing experience,[52] dynamic brand experience,[66] immersive experience,[63] presence,[12] flow state,[53] and pleasure.[66]

- *Perceived value and risk* are subjective and personalized evaluations of the value or risk of a purchased product or service.[32,67] Perceptions of value can vary, encapsulating aspects of enjoyment,[33] information gratification,[68] hedonic value,[1] utilitarian value,[62,69] value compatibility,[70] social comparison tendency,[71] perceived competition,[72] perceived cost,[51] perceived diagnosticity,[73] perceived usefulness,[51] perceived risk,[47] product fit uncertainty,[33] and product quality uncertainty.[29,74]

Moderators in LSC. Among 201 articles on LSC, 78 articles explored moderators in their research. The

moderators can be divided into two main groups—namely, *individual-* (41 articles) and *strategy-* (40 articles) *related moderators*.

Individual-related moderators pertain to factors that relate to the customer as an individual. This ranges from *demographic factors* (six articles) such as age, education, experience, gender, and income[36,43,48] to *personal factors* (22 articles) such as independent and interdependent self-construal,[75] mindfulness,[35] impulsiveness,[76] personal sense of power,[53] regulatory focus,[63] self-monitoring personality,[77] and susceptibility to informative influence,[47] and *streamer factors* (14 articles) such as admiration,[78] attractiveness,[79] popularity,[24] streamer-product congruence,[80] and streamer communication style (task-oriented vs. social-oriented).[81]

- When *demographic factors* were included as moderators in LSC, researchers analyzed them as group comparisons.[32,36]
- When *personal factors* were treated as moderators in LSC, researchers examined its moderation effects on immersive experience,[63] perceived value, and perceived risk[72] as mediators, whereas others researched its moderation effects on affective and cognitive reactions,[82] purchase intention,[53] and stickiness[83] as outcomes.
- When *streamer factors* were used as moderators in LSC, researchers investigated its moderation effects on customer engagement,[84] guanxi/tie strength,[24] and psychological distance[78] as mediators, whereas others studied its moderation effects on customer engagement[85] as an outcome.

Strategy-related moderators relate to the strategies employed that act as moderators in LSC research such as *marketing mix strategy* (31 articles) and *relationship management strategy* (nine articles), wherein the former commonly encompass strategies relating to product (e.g., product novelty,[86] product types,[87] product-self fit,[88] product involvement,[89] price (e.g., discount, scarcity),[76] place (e.g., platform affordance),[42] and promotion (e.g., communication),[75] whereas the latter refers to the strategy to maintain an ongoing level of engagement with customers through LSC and thus includes considerations such as attachment,[90] corporate social responsibility,[91] engagement,[92] para-social relationship,[64] and tenure of membership.[24]

- When marketing mix strategy is included as a moderator in LSC, researchers examined its moderation effects on commitment,[93] immersive experience,[94] perceived value and risk,[40] psychological distance,[29] and trust[41] as mediators, whereas

others researched its moderation effects on customer engagement[95] and purchase intention[51] as outcomes.
- When relationship management strategy is used as a moderator in LSC, researchers investigated its moderation effects on commitment,[62] guanxi/tie strength,[24] and trust[62] as mediators, whereas others studied its moderation effects on adoption[91] and purchase intention[64] as outcomes.

Outcomes of LSC. Among 201 articles on LSC, 186 articles explored outcomes in their research. The outcomes can be divided into two main groups—namely, *psychological* (39 articles) and *behavioural* (159 articles) *outcomes*.

Psychological outcomes encompass conscious and unconscious phenomena involving mental states such as customer engagement (39 articles). *Customer engagement* can be defined as a psychological state of mind in which customers connect and interact with the brand or company and their activities and offerings.[61] It encapsulates aspects such as cognitive, affection, and activation processing[56,83]; social sharing[25]; and value co-creation[96] among others. The literature suggests that customer engagement in LSC is predominantly impacted by streamer-related factors (15 articles), followed by platform- (13 articles), social- (13 articles), and customer- (nine articles) related factors.

Behavioural outcomes relate to the way a person behaves, which may manifest in the form of *adoption* (10 articles), *watching* (14 articles), *purchase* (136 articles) *intention* as well as *stickiness* (13 articles) among customers in LSC. The literature suggests that behavioral outcomes were most impacted by streamer-related factors (99 articles), followed by customer- (91 articles), social- (75 articles), and platform- (62 articles) related factors.

Control variables in LSC. Among 201 articles on LSC, 78 articles included control variables in their research. The control variables can be divided into two main groups—namely, *individual-related* (68 articles) and *marketing-related* (20 articles) *controls*.

Individual-related controls pertain to the factors relating to the individual, and in the case of LSC, the customer and the streamer. From a customer perspective, individual controls include demographics such as age, education, gender, income, and marital status, as well as behavioral characteristics such as platform experience and usage, purchase experience and frequency, subscription experience, and watching frequency and length.[61,66] From a streamer standpoint, individual controls include streamer characteristics

(e.g., streamer attractiveness and popularity as signaled by followers and ratings)[73,79,97] or that infused with LSC such as duration, frequency, and time.[86,98]

Marketing-related controls relate to factors such as product, price, and platform. In terms of product, such controls can include product category, characteristic, novelty, and quantity,[52] whereas in terms of price, such controls can include discounts,[97] while in terms of platform (or place), such controls can include platform background and heterogeneity.[64]

How do we know about LSC? (RQ2)

The present section unpacks the underlying theories, contexts, and methods that underpin the characteristics of LSC research revealed in the previous section. Therefore, this section covers the remaining aspects of the TCCM framework adopted to guide the content analysis of LSC research.

Theories guiding LSC research

Theories provide a roadmap to comprehend phenomena and gain knowledge.[18] With a diverse range of 84 theories applied across 168 studies (33 articles were not guided by any specific theory), LSC researchers employ theories that span a wide spectrum of disciplines to shed light on this multifaceted field (Appendix G). These theories are discussed based on their *prevalence* in LSC research.

Out of the 84 theories identified, five shined as the most prevalent, featuring in more than 50% of theory-driven LSC studies. *Stimulus-organism-response (S-O-R) model* was the most popular theory (48 articles). This environmental psychology theory offers a parsimonious way to account for the different forms of environmental stimuli in LSC, ranging from customer-,[27] platform-,[40] social-,[25] and streamer-related[26] stimulus, enabling the exploration and understanding of the customer's cognitive and emotional states based on environmental stimuli and the likely effects on resulting behavior. The other four major theories that join the *S-O-R model* to make up the top five most-used theories for LSC research are *social presence theory* (*SPT*; 15 articles), *uses and gratification theory* (*UGT*; 11 articles), *parasocial interaction theory* (*PSI*; 9 articles), and *trust transfer theory* (*TTT*; 8 articles). These four theories highlight the importance of social stimulus,[96] customer motivations,[28] para-social interactions,[85] and trust[92] in driving consumer behavior or decision in LSC.

The rest of the theories are applied less frequently but still contribute to the understanding of specific aspects of LSC. Theories from communication and information systems such as *attention-interest-desire-action theory*, *elaboration likelihood model*, *information foraging theory*, *signal theory*, and *speech act theory* shines on consumers' decision-making, emphasizing how product information processing or communication and persuasion strategies are used in LSC.[35,74] Other reasoned action theories like *theory of reasoned action* (*TRA*) and *theory of planned behavior* (*TPB*) alongside technology adoption theories such as *technology acceptance model* (*TAM*) and *unified theory of acceptance and use of technology 2* (*UTAUT2*) illuminate the role of platform technicalities in shaping consumers' behavioral intentions in the dynamic environment of LSC.[43,51] Moreover, social psychology theories like *social exchange theory* (*SET*), *social identity theory* (*SIT*), *social learning theory* (*SLT*), *psychological arousal theory*, *psychological contract theory*, and *psychological reactance theory* shed light on the influence of social dynamics and psychological factors on consumer responses in LSC.[29,83] This diversity in theoretical application, while spanning a brief six-year period, is promising for the field of LSC. The range of theories underscores LSC's vibrancy and potential for further research and theoretical development, signifying that LSC is ripe for more extensive exploration and innovation in theory extension and testing.

Contexts explored in LSC research

Context represents the setting in which research is carried out, thereby shedding light on the circumstances and scope of that research.[18] The present review considers four variations of context—namely *population(s)*, *industry(ies)*, *platform(s)*, and *country(ies) or territory-(ies)* (Appendix H).

In terms of *population*, LSC research mainly focuses on understanding customers (86.07% of articles), with limited attention to streamers (4.48% of articles). However, 9.45% of articles sampled both, reflecting an emerging interest in examining the interconnectedness between these two groups in the LSC ecosystem. In terms of *industry*, most articles concentrated on mixed industries, with 166 articles (82.59%) looking at the industry in general and 8 articles (3.98%) focusing on a mix of popular industries. The rest delve into single industries such as tourism, agriculture, and apparel. Notably, industries like food and luxury remain nascent and thus represent potential areas for future exploration. In terms of *platform*, around 56.22% of LSC research did not specify a particular platform, indicating platform-agnosticism. The remaining studies focused on specific platform types, including Type 1 combining e-commerce and live streaming, Type 2 encompassing social media, live streaming, and commercial activities, and Type 3 signifying live streaming platforms with

commercial activities. This diversity in platform selection reflects the varied nature of LSC research and the importance of understanding the specific platforms in play within this dynamic field. Finally, in terms of *country or territory*, the predominant observation is that LSC research is overwhelmingly centered in China, with a significant majority of articles conducting their studies within this country (85.07%). This indicates a strong emphasis on Chinese contexts and platforms in LSC research. However, there is also a notable trend of internationalization in the field, as a smaller but still significant proportion of research samples and studies extend to other countries and territories, such as Australia, Malaysia, South Korea, Thailand, the UK, and the USA. This highlights a growing interest in understanding LSC across diverse international settings, revealing the potential for cross-cultural research in this field.

Methods used for LSC research

Methods relate to the way in which research is performed.[18] The present review considers two aspects of methods—namely *data collection* and *data analysis* (Appendix I).

In terms of *data collection*, most LSC research relies on self-reported data emerging from interviews and surveys (148 articles), followed by field data that may be crawled or observed (44 articles), with few using a combination of both (9 articles), indicating that much room avails for data triangulation across multiple sources.

In terms of *data analysis*, the majority of LSC research is analyzed using quantitative techniques such as structural equation modeling (161 articles) and regression analysis (30 articles), with few using qualitative techniques such as content analysis (including thematic analysis) (12 articles) and a combination of both quantitative and qualitative analyses (13 articles), implying that much room avails for unpacking subjective insights emerging out of qualitative research in tandem with that emerging from quantitative research. Moreover, experimental research remains nascent (15 articles), signaling causal insights on LSC remain scarce and thus showing that much room avails for more robust empirical evidence that can establish causes and effects in LSC.

Where should we go with LSC? (RQ3)

The present section builds on the TCCM of the existing literature and offers promising pathways to advance understanding of LSC (Table 1).

First, this review highlights the increasing productivity and impact of LSC research, with both publications and citations showing a steady rise (*1st key takeaway*). This trend suggests that LSC is a valuable research area, garnering interest across various disciplines for its innovative, engaging, and interactive approach to online shopping (*1st theoretical contribution*). Practitioners

Table 1. Summary of future directions for LSC research.

Areas		Future direction
Characteristics (C)	Novelty of LSC	• What are the core competencies of LSC, and how does live streaming promotes digital transformation in electronic and social commerce?
	Factors combination/ exploration	• What roles do streamers play in influencing customers' purchase decision, and how streamers decrease product uncertainty to facilitate customer decision-making process during live streaming shopping?
		• What are the factors contributing to impulsive buying in LSC?
		• How do (can) streamers develop different sales strategies to attract/access their targeting groups (retain existing customers and explore new customers)?
		• How does interactive relationship quality (e.g., streamer-customer, customer-customer) influence/ mediate the social exchange between two parties, and how this relationship influences customer experiences and consumption behaviors?
		• How do streamers-customers co-created contents influence customers' attitudes and behaviors within the same community (e.g., broadcasting fans group)?
Context (C)	Cross-countries investigation	• Why LSC is more popular in Asian countries compared to Western countries?
	Macro- and individual-level influences	• What are the potential macro-level factors (e.g., cultural influences, economic trends, lifestyle changes, policy changes, social behaviors) that could affect/moderate the effectiveness of LSC across different platforms/industries?
		• How do individual-level factors (e.g., baby boomers, millennials, and zoomers characteristics) affect/ moderate customer behaviors across different platforms/industries?
Methods (M)	Methodological considerations	• Utilize qualitative data and methodologies, alongside cutting-edge technologies like artificial intelligence, machine learning, and deep learning, to delve into the distinct nuances inherent in LSC.
		• Implement experimental methods to rigorously test and validate various strategic recommendations within LSC.
Theories (T)	Theoretical considerations	• Engage in theoretical integration by synthesizing and applying existing theories from diverse disciplines such as psychology, sociology, marketing, and technology to create a more comprehensive understanding of the nuances and dynamics within LSC.
		• Engage in the development of new theories specific to LSC by formulating novel theoretical frameworks that address the unique aspects of LSC to fill gaps and offer fresh perspectives.

can derive strategic insights from the most cited articles, particularly in areas of customer engagement and streamer selection. These insights underscore live streaming's unique aspects compared to traditional e-commerce, the pivotal role of trust and customer engagement, perceived value, and the influence of streamer credibility on LSC purchases. Additionally, practitioners should capitalize on the marketing and engagement opportunities offered by LSC, crafting strategies that enhance customer perceptions and satisfaction through entertaining live streaming experiences (*1st practical contribution*). Further research in LSC is encouraged, and the insights from this review can aid in identifying knowledge gaps, thereby reinforcing the foundation for future studies. Despite its potential for advancing e-retailing, there is a gap in understanding how LSC influences digital transformation in businesses.[99] Future research should delve into live streaming's core competencies and its transformative impact on enterprise operations, information management, and marketing methods (*1st set of future directions*).

Second, this review provides an evaluation of the contributors of LSC research, showing that the journals publishing in this space are multidisciplinary, though contributions are predominantly coming from the Chinese region (*2nd key takeaway*). This observation implies that LSC is highly popular among the Chinese and thus signaling that a large market is available for the digital economy—potentially billions of dollars and people—through this mode of electronic and social commerce (*2nd practical contribution*), and more importantly, the field, as this review shows, is evidently not context nor disciplinary specific (*2nd theoretical contribution*), and thus, future explorations can be pursued through multidisciplinary teams to offer enriching insights across different contexts from various perspectives. For instance, future research could compare the use of LSC between Eastern and Western countries (*2nd set of future directions*).

Third, this review details the key constructs and relationships that explain customer behavior in LSC, wherein customer-, platform-, social-, and streamer-related antecedents affect the relationship and shopping experience, which, in turn, shapes the psychological and behavioral outcomes among customers in LSC, though their relationships may be conditional on the presence of individual-, marketing-, and strategy-related factors (*3rd key takeaway*). This observation implies that customer behavior in LSC can manifest in many ways (outcomes) and be understood (controls), influenced (moderators), and shaped across multiple experiences (mediators) and touchpoints (antecedents) (*3rd*

theoretical implication), indicating that an undifferentiated strategy for LSC is unlikely to work, and thus, sellers and streamers will need to pursue a differentiated strategy, particularly conducting market segmentation to attract, persuade, and convert different live stream audiences (e.g., age, gender, income level) that have different marketing mix expectations (i.e., different promotion and discount strategies, different persuading and interaction skills) into actual followers and customers (*3rd practical implication*). Therefore, future explorations that can reveal the combination of factors that need to avail to gain specific types of desired customer behavior in LSC should be highly valuable and thus strongly encouraged. According to the characteristics (AMMO-CV) analysis, streamer-related factors are the most frequently cited antecedents, underscoring the importance of streamers in LSC. Building on current understanding, streamers in LSC play diverse roles, such as salesperson, product selector, endorser, entertainer, and network builder.[3,23,78] Since these roles are linked to specific characteristics,[39] future research could examine the unique traits associated with streamers' various roles in LSC. This exploration should include how these attributes (e.g., communication skills, engagement techniques, product knowledge) contribute to their success and influence viewers' responses and decisions (e.g., stickiness, engagement, purchase decisions) during and after live streaming sessions. In terms of sales, streamers provide several affordances (e.g., product expertise, source diversity)[49] in consumer decision-making. However, the challenge remains in sparking impulsive buying desires for products or services.[61,82] Impulsive buying, distinct from general purchase intentions, has different drivers.[100] Given the limited attention this aspect has received, future research should investigate additional factors that influence impulsive buying decisions in LSC. Moreover, further research is needed on streamer strategies, such as sales tactics, relationship management, and solution selling, to retain existing customers and attract new ones. For example, less-explored non-sales behaviors, such as value co-creation and customer engagement, warrant further investigation. Value co-creation is an outcome of customer engagement through sharing and integrating information resources.[101] The live streaming community generates its own language and culture from the interaction between content creators (i.e., streamers and customers).[102] This type of co-creation strengthens ties within the community and enhances information dissemination outside it.[96] Nevertheless, certain areas remain underexplored. Specifically, research should examine the role and impact of value co-creation on customer trust and loyalty, as well as how customer

engagement fosters social exchange between parties, thereby influencing customer experiences and consumption behaviors (3rd set of future directions).

Fourth, this review uncovers the theories that have been employed to guide LSC research, revealing 84 theories that have been adopted and used by 168 articles (4th *key takeaway*). The widespread adoption of these theories suggests that the majority of the research in this field is oriented toward theory utilization and testing. These theories come from diverse disciplines, collectively providing a comprehensive understanding of this multifaceted field (4th *theoretical implication*). This observation implies that LSC is inherently more intricate and multifaceted when compared to traditional e-commerce. The convergence of disciplines such as marketing, psychology, sociology, and technology within the realm of LSC creates a unique and complex environment for both businesses and consumers. As a consequence, e-retailers shifting from e-commerce to LSC should be especially diligent in refining their strategies and deepening their understanding of consumer behavior to attract and retain customers in this dynamic community (4th *practical implication*). Yet, in order for the field, and by extension, the larger body of knowledge, to progress, it is important that new theories are developed, wherein the context of LSC, which tends to be immersive due to its interactive nature in real time, could potentially serve as an avenue for new theories to emerge, and thus, should be explored, and if possible, prioritized, in future research (4th *set of future directions*).

Fifth, this review unpacks the contexts that have been explored in LSC research, revealing that the field has an encompassing footprint across populations, industries, platforms, and countries or territories (5th *key takeaway*). This observation highlights the spinoff of digital platforms like social media in democratizing access to customers and products for both buyers and sellers while stimulating commercial activities and growth in the digital economy (5th *theoretical implication*), thereby reaffirming the value of LSC as a glocal (global and local) mechanism for facilitating electronic and social commerce transactions across industries and platforms (5th *practical implication*). Yet, empirical evidence remains largely among customers and the Chinese, and thus, there is a clear need to expand this scope to other populations across regions as well as sellers (e.g., industries, marketing goals)[103,104] and streamers (e.g., professional streamers versus traditional celebrities),[105] though customers should not be neglected and instead studied in new ways (e.g., experienced versus novice shoppers), so that a more comprehensive understanding can be obtained to advance both knowledge and practice of LSC. Furthermore, potential macro-level factors (e.g., cultural influences, economic trends, lifestyle changes, policy changes, social behaviors) and individual-level factors (e.g., baby boomers, millennials, and zoomers characteristics) may impact the effectiveness of live streaming on different platforms (i.e., Taobao and TikTok) and industries (e.g., food, luxury, tourism). Future studies should account for these factors in their research designs (5th *set of future directions*).

Finally, this review reveals the methods that have been used to study LSC, both in terms of its data source as well as its analytical techniques, wherein quantitative data and techniques (not including experimentation) appear to be mainstream in this field of research (6th *key takeaway*). This finding holds two important implications. In terms of theory, the lack of qualitative research implies that existing insights on LSC are deductive rather than inductive and thus may overlook the unique peculiarities of this mode of electronic and social commerce given the lack of naturally emerging observations and voices from the field (6th *theoretical implication*). In terms of practice, the lack of experimentation implies that recommendations emerging from existing LSC research have not been fully tested, wherein what have been tested are predominantly associations (correlations) between key predictors of customer behavior, thereby signaling that existing recommendations should be treated with caution (6th *practical implication*). In this regard, future research is encouraged to engage in exploratory investigations that rely on qualitative data and techniques, and even use new-age technologies such as artificial intelligence, machine learning, and deep learning, which remain underutilized, in order to facilitate the discovery of peculiarities unique to LSC while equivalent recommendations could be tested using a conditional approach involving experimentation so as to develop solid evidence with regards to the effectiveness of strategies intended to solicit desired customer behavior in LSC (6th *set of future directions*).

Conclusion

Existing reviews lacked the depth necessary for a comprehensive understanding of LSC research and did not fully represent the current literature. By applying the TCCM with AMMO-CV framework to structure the LSC literature, we have executed a more rigorous and up-to-date review, adhering to the standards expected of a systematic review.[21,30] Our review encompassed 201 articles from Scopus and Web of Science. Addressing our first research question on *what do we know about LSC*, we noted that LSC research, which began in 2018, has seen substantial growth through 2023. These publications span diverse fields, including business and e-commerce. Our findings culminated in the AMMO-CV

conceptual framework, which maps the factors influencing customer behavior in LSC. In response to the second research question on *how do we know about LSC*, we identified the most frequently used theories in LSC research, such as SOR, SPT, UGT, PSI, and TTT, and found a predominance of quantitative methods like SEM and regression. Regarding the third research question on *where should we go with LSC*, we identified critical research gaps and suggested future directions to enhance the body of knowledge in the LSC field. Therefore, this review not only maps the trajectory of LSC research but also serves as a beacon, illuminating the path for future explorations that promise to expand the boundaries of knowledge and practice in the dynamic landscape of LSC.

Disclosure statement

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References

1. Wongkitrungrueng A, Assarut N. The role of live streaming in building consumer trust and engagement with social commerce sellers. J Bus Res. 2020;7:543–556. doi:10.1016/j.jbusres.2018.08.032.
2. Dang-Van T, Vo-Thanh T, Vu TT, Wang J, Nguyen N. Do consumers stick with good-looking broadcasters? The mediating and moderating mechanisms of motivation and emotion. J Bus Res. 2023;156:113483. doi:10.1016/j.jbusres.2022.113483.
3. Wongkitrungrueng A, Dehouche N, Assarut N. Live streaming commerce from the sellers' perspective/implications for online relationship marketing. J Mark Manag. 2020;36(5–6):488–518. doi:10.1080/0267257X.2020.1748895.
4. Xue J, Liu MT. Investigating the live streaming sales from the perspective of the ecosystem- the structures, processes and value flow. Asia Pac J Mark Logist. 2022;35(5):1157–1186. doi:10.1108/APJML-11-2021-0822.
5. Yu F, Zheng R. The effects of perceived luxury value on customer engagement and purchase intention in live streaming shopping. Asia Pac J Mark Logist. 2021;34(6):1303-1323. doi:10.1108/APJML-08-2021-0564.
6. Cao J, Li J, Wang Y, Ai M. The impact of self-efficacy and perceived value on customer engagement under live streaming commerce environment. Secur Commun Netw. 2022;2022:1–13. doi:10.1155/2022/2904447.
7. Li Y, Li X, Cai J. How attachment affects user stickiness on live streaming platforms: a socio-technical approach perspective. J Retail Consum Serv. 2021;60:102478. doi:10.1016/j.jretconser.2021.102478.
8. Change in livestream purchases from before to during the COVID-19 pandemic in selected regions worldwide in 2021. Statista; 2021 Jul [accessed 2023 Oct 22]. https://www.statista.com/statistics/1276981/change-livestream-commerce-usage-worldwide-region/.
9. Share of people who had participated in or heard of a live streaming shopping event in selected countries worldwide in 2022. Statista; 2022 Nov [accessed 2023 Oct 21]. https://www.statista.com/statistics/1272759/livestream-online-platforms-awareness-worldwide/.
10. The 52nd statistical report on China's internet development. CNNIC; 2023 Aug [accessed 2023 Nov 6]. https://www.cnnic.net.cn/n4/2023/0828/c88-10829.html.
11. Live e-commerce shopping consumer satisfaction online survey report. CCA; 2020 Mar 31 [accessed 2023 Nov 6]. http://www.cca.org.cn/jmxf/detail/29533.html.
12. Sun Y, Shao X, Li X, Guo Y, Nie K. How live streaming influences purchase intentions in social commerce: an IT affordance perspective. Electron Commer Res Appl. 2019;37:100886. doi:10.1016/j.elerap.2019.100886.
13. Hilvert-Bruce Z, Neill JT, Sjöblom M, Hamari J. Social motivations of live-streaming viewer engagement on twitch. Comput Hum Behav. 2018;84:58–67. doi:10.1016/j.chb.2018.02.013.
14. Fu Y Live streaming commerce: a review and prospects. 3rd International Conference on Economic Management and Cultural Industry; 2021 Dec 15; China, Guangzhou: Atlantis Press, p. 2546–2552.
15. Li C, Yeap JA, Ramayah T. A systematic literature review and analysis of live streaming commerce: implications for future. Glob J Manag Bus Res. 2022;14:1148–1156.
16. Luo X, Cheah JH, Lim XJ, Ng SI. A bibliometric review of user behaviors research in live streaming commerce. J Mark Adv Pract. 2022;4:32–49.
17. Zhang L, Yeap JA. Live streaming commerce: a systematic review and implication for future research. In: International conference on entrepreneurship, business and technology. Singapore: Springer; 2023. p. 361–370.
18. Lim WM, Yap SF, Makkar M. Home sharing in marketing and tourism at a tipping point- what do we know, how do we know, and where should we be heading? J Bus Res. 2021;122:534–66. doi:10.1016/j.jbusres.2020.08.051.
19. Paul J, Lim WM, O'Cass A, Hao AW, Bresciani S. Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR). Int J Consum Stud. 2021;45(4):O1–O16. doi:10.1111/ijcs.12695.
20. Paul J, Rosado-Serrano A. Gradual internationalization vs born-global/international new venture models: a review and research agenda. Int Mark Rev. 2019;36(6):830–58. doi:10.1108/IMR-10-2018-0280.
21. Kraus S, Breier M, Lim WM, Dabić M, Kumar S, Kanbach D, Mukherjee D, Corvello V, Piñeiro-Chousa J, Liguori E, et al. Literature reviews as independent studies: Guidelines for academic practice. Rev Manag Sci. 2022;16(8):2577–95. doi:10.1007/s11846-022-00588-8.
22. Vrontis D, Makrides A, Christofi M, Thrassou A. Social media influencer marketing: a systematic review, integrative framework and future research agenda. Int J Consum Stud. 2021;45(4):617–44. doi:10.1111/ijcs.12647.
23. Park HJ, Lin LM. The effects of match-ups on the consumer attitudes toward internet celebrities and

their live streaming contents in the context of product endorsement. J Retail Consum Serv. 2020;52:101934. doi:10.1016/j.jretconser.2019.101934.

24. Kang K, Lu J, Guo L, Li W. The dynamic effect of interactivity on customer engagement behavior through tie strength: evidence from live streaming commerce platforms. Int J Inf Manage. 2020;56:102251. doi:10.1016/j.ijinfomgt.2020.102251.

25. Xu X, Wu JH, Li Q. What drives consumer shopping behavior in live streaming commerce? Electron Commer Res. 2020;21:144–167.

26. Hu M, Chaudhry SS. Enhancing consumer engagement in e-commerce live streaming via relational bonds. Internet Res. 2020;30(3):1066–2243. doi:10.1108/INTR-03-2019-0082.

27. Lu B, Chen Z. Live streaming commerce and consumers' purchase intention: an uncertainty reduction perspective. Inform Manag. 2021;58(7):103509. doi:10.1016/j.im.2021.103509.

28. Hou F, Guan Z, Li B, Chong AYL. Factors influencing people's continuous watching intention and consumption intention in live streaming: evidence from China. Internet Res. 2019;30(1):141–163. doi:10.1108/INTR-04-2018-0177.

29. Zhang M, Qin F, Wang GA, Luo C. The impact of live video streaming on online purchase intention. Serv Ind J. 2020;40(9–10):656–681. doi:10.1080/02642069.2019.1576642.

30. Lim WM, Kumar S, Ali F. Advancing knowledge through literature reviews: what, why, and how to contribute. Serv Ind J. 2022;42(7–8):481–513. doi:10.1080/02642069.2022.2047941.

31. Qin C, Zeng X, Liang S, Zhang K. Do live streaming and online consumer reviews jointly affect purchase intention? Sustainability. 2023;15(8):6992. doi:10.3390/su15086992.

32. Sun X. Consumer intention and usage behavior of live-streaming shopping: an extension of the unified theory of acceptance and use of technology. J Behav Sci. 2022;17:106–124.

33. Chen H, Chen H, Tian X. The dual-process model of product information and habit in influencing consumers' purchase intention: the role of live streaming features. Electron Commer Res Appl. 2022;53:101150. doi:10.1016/j.elerap.2022.101150.

34. Wu Y, Huang H. Influence of perceived value on consumers' continuous purchase intention in live-streaming E-Commerce—mediated by consumer trust. Sustainability. 2023;15(5):4432. doi:10.3390/su15054432.

35. Gao X, Xu XY, Tayyab SMU, Li Q. How the live streaming commerce viewers process the persuasive message: An ELM perspective and the moderating effect of mindfulness. Electron Commer Res Appl. 2021;49:101087. doi:10.1016/j.elerap.2021.101087.

36. Lv X, Zhang R, Su Y, Yang Y. Exploring how live streaming affects immediate buying behavior and continuous watching intention: a multigroup analysis. J Travel Tour Mark. 2022;39(1):109–135. doi:10.1080/10548408.2022.2052227.

37. Wu D, Wang X, Ye HJ. Transparentizing the "Black Box" of live streaming: impacts of live interactivity on viewers' experience and purchase. IEEE Trans Eng Manag. 2023; ahead of print.

38. Ma Y. To shop or not- understanding Chinese consumers' live-stream shopping intentions from the perspectives of uses and gratifications, perceived network size, perceptions of digital celebrities, and shopping orientations. Telemat Inform. 2021;59:101562. doi:10.1016/j.tele.2021.101562.

39. Luo H, Cheng S, Zhou W, Yu S, Lin X. A study on the impact of linguistic persuasive styles on the sales volume of live streaming products in social E-Commerce environment. Mathematics. 2021;9(13):1576. doi:10.3390/math9131576.

40. Guo J, Li Y, Xu Y, Zeng K. How live streaming features impact consumers' purchase intention in the context of cross-border E-Commerce? A research based on SOR theory. Front Psychol. 2021;12:767876. doi:10.3389/fpsyg.2021.767876.

41. Chandrruangphen E, Assarut N, Sinthupinyo S. The effects of live streaming attributes on consumer trust and shopping intentions for fashion clothing. Cogent Bus. 2022;9(1):2034238. doi:10.1080/23311975.2022.2034238.

42. Xu Y, Jiang W, Li Y, Guo J. The influences of live streaming affordance in cross-border E-Commerce platforms: an information transparency perspective. J Glob Inf Manag. 2021;30(2):1–24. doi:10.4018/JGIM.20220301.oa3.

43. Zhou M, Huang J, Wu K, Huang X, Kong N, Campy KS. Characterizing Chinese consumers' intention to use live e-commerce shopping. Technol Soc. 2021;67:101767. doi:10.1016/j.techsoc.2021.101767.

44. Guo L, Hu X, Lu J, Ma L. Effects of customer trust on engagement in live streaming commerce- mediating role of swift guanxi. Internet Res. 2021;31(5):1718–1744. doi:10.1108/INTR-02-2020-0078.

45. Heo J, Kim Y, Yan J. Sustainability of live video streamer's strategies: live streaming video platform and audience's social capital in South Korea. Sustainability. 2020;12(5):1969. doi:10.3390/su12051969.

46. Zhang M, Liu Y, Wang Y, Zhao L. How to retain customers- understanding the role of trust in live streaming commerce with a socio-technical perspective. Comput Hum Behav. 2022;127:107052. doi:10.1016/j.chb.2021.107052.

47. Xue J, Liang X, Xie T, Wang H. See now, act now- how to interact with customers to enhance social commerce engagement? Inform Manag. 2020;57(6):103324. doi:10.1016/j.im.2020.103324.

48. Bao Z, Zhu Y. Understanding customers' stickiness of live streaming commerce platforms- an empirical study based on modified e-commerce system success model. Asia Pac J Mark Logist. 2023;35(3):775–793. doi:10.1108/APJML-09-2021-0707.

49. Hua Y, Wang D, Luo X, Chang FK, Xie Y. Discovering the juxtaposed affordances in digitally transformed live streaming e-commerce: a mixed-methods study from a vicarious learning perspective. Eur J Inf Syst. 2023;1–32. doi:10.1080/0960085X.2023.2178978.

50. Lyu W, Qi Y, Liu J. Proliferation in live streaming commerce, and key opinion leader selection. Electron

Commer Res. 2022:1–34. doi:10.1007/s10660-022-09605-0.

51. Wang S, Esperança JP, Wu Q. Effects of live streaming proneness, engagement and intelligent recommendation on users' purchase intention in short video community: take TikTok (DouYin) online courses as an example. Int J Hum-Comput Int. 2023;39(15):3071–3083. doi:10.1080/10447318.2022.2091653.

52. Ang T, Wei S, Anaza NA. Livestreaming vs pre-recorded- how social viewing strategies impact consumers' viewing experiences and behavioral intentions. Eur J Mark. 2018;52(9/10):2075–2104. doi:10.1108/EJM-09-2017-0576.

53. Ming J, Zeng JQ, Bilal M, Akram U, Fan M. How social presence influences impulse buying behavior in live streaming commerce? The role of SOR theory. Int J Web Inf Syst. 2021;17(4):300–320. doi:10.1108/IJWIS-02-2021-0012.

54. Hsu LC. Enhancing relationship strategies with the live stream influencers. Mark Intell Plan. 2022;41(2):141–155. doi:10.1108/MIP-01-2022-0027.

55. Ohanian R. Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. J Advert. 1990;19(3):39–52. doi:10.1080/00913367.1990.10673191.

56. Qiu L, Chen X, Lee TJ. How can the celebrity endorsement effect help consumer engagement? A case of promoting tourism products through live streaming. Sustainability. 2021;13(15):8655. doi:10.3390/su13158655.

57. Wang L, Wang Z, Wang X, Zhao Y. Assessing word-of-mouth reputation of influencers on B2C live streaming platforms: the role of the characteristics of information source. Asia Pac J Mark Logist. 2021;4(7):1544–1570. doi:10.1108/APJML-03-2021-0197.

58. Chen C, Zhang D. 2023. Understanding consumers' live-streaming shopping from a benefit–risk perspective. J Serv Mark. ahead of print.

59. Quan Y, Choe JS, Im I. The economics of para-social interactions during live streaming broadcasts: a study of wanghongs. Asia Pac J Inf Syst. 2020;30(1):143–165. doi:10.14329/apjis.2020.30.1.143.

60. Gao W, Jiang N, Guo Q. How do virtual streamers affect purchase intention in the live streaming context? A presence perspective. J Retail Consum Serv. 2023;73:103356. doi:10.1016/j.jretconser.2023.103356.

61. Luo X, Cheah JH, Hollebeek LD, Lim XJ. Boosting customers' impulsive buying tendency in live-streaming commerce: the role of customer engagement and deal proneness. J Retail Consum. 2023;77:103644. doi:10.1016/j.jretconser.2023.103644.

62. Chen YH, Chen MC, Keng CJ. Measuring online live streaming of perceived servicescape. Internet Res. 2020;30(3):737–762. doi:10.1108/INTR-11-2018-0487.

63. Shi Y, Ma C, Zhu Y. The impact of emotional labor on user stickiness in the context of livestreaming service—evidence from China. Front Psychol. 2021;12:698510. doi:10.3389/fpsyg.2021.698510.

64. Xu P, Fu B, Lyu B. The influence of streamer's social capital on purchase intention in live streaming E-commerce. Front Psychol. 2022;12:6194. doi:10.3389/fpsyg.2021.748172.

65. Zhang G, Cao J, Liu D, Fan M. Examining the influence of information overload on consumers' purchase in live streaming: a heuristic-systematic model perspective. Plos one. 2023;18(8):e0284466. doi:10.1371/journal.pone.0284466.

66. Li G, Jiang Y, Chang L. The influence mechanism of interaction quality in live streaming shopping on consumers' impulsive purchase intention. Front Psychol. 2022;13:918196. doi:10.3389/fpsyg.2022.918196.

67. Shou M, Yu J, Dai R. Identify the effect of government regulations on the live streaming e-commerce. Ind Manag Data Syst. 2023; ahead-of-print. doi:10.1108/IMDS-10-2022-0655.

68. Ho CI, Liu Y, Chen MC. Antecedents and consequences of consumers' attitudes toward live streaming shopping an application of the stimulus–organism–response paradigm. Cogent Bus Manag. 2022;9(1):2145673. doi:10.1080/23311975.2022.2145673.

69. Fu JR, Hsu CW. Live-streaming shopping: the impacts of para-social interaction and local presence on impulse buying through shopping value. Ind Manag Data Syst. 2023;123(7):1861–1886. doi:10.1108/IMDS-03-2022-0171.

70. Clement AP, Fang J, Li L. Green advertising and purchase decisions in live-streaming B2C and C2C interactive marketing. Int J Inf Manag Sci. 2020;31:191–212.

71. Ren J, Yang J, Liu E, Huang F. Consumers' willingness to pay premium under the influence of consumer community culture: from the perspective of the content creator. Front Psychol. 2022;13. doi:10.3389/fpsyg.2022.1009724.

72. Lou L, Jiao Y, Jo MS, Koh J. How do popularity cues drive impulse purchase in live streaming commerce? The moderating role of perceived power. Front Psychol. 2022;13:948634. doi:10.3389/fpsyg.2022.948634.

73. Liu Z, Li J, Wang X, Guo Y. How search and evaluation cues influence consumers' continuous watching and purchase intentions: an investigation of live-stream shopping from an information foraging perspective. J Bus Res. 2023;168:114233. doi:10.1016/j.jbusres.2023.114233.

74. Men J, Zheng X, Davison RM. 2023. The role of vicarious learning strategies in shaping consumers' uncertainty: the case of live-streaming shopping. Internet Res. ahead of print.

75. Hou J, Han B, Chen L, Zhang K. Feeling present matters: effects of social presence on live-streaming workout courses' purchase intention. J Prod Brand Manag. 2023;32(7):1082–1092. doi:10.1108/JPBM-03-2022-3926.

76. Guo Y, Chen X, Wang C. Consumer information search in live-streaming: product involvement and the moderating role of scarcity promotion and impulsiveness. Sustainability. 2023;15(14):11361. doi:10.3390/su151411361.

77. Su Q, Zhou F, Wu YJ. Using virtual gifts on live streaming platforms as a sustainable strategy to stimulate consumers' green purchase intention. Sustainability. 2020;12(9):3783. doi:10.3390/su12093783.

78. Gong X, Ye Z, Wu Y, Liu K, Wu N. Moderated mediation of the link between live streaming information content and impulse purchase: the role of psychological distance and streamer admiration. Rev Argentina de Clin. 2020;29:121.
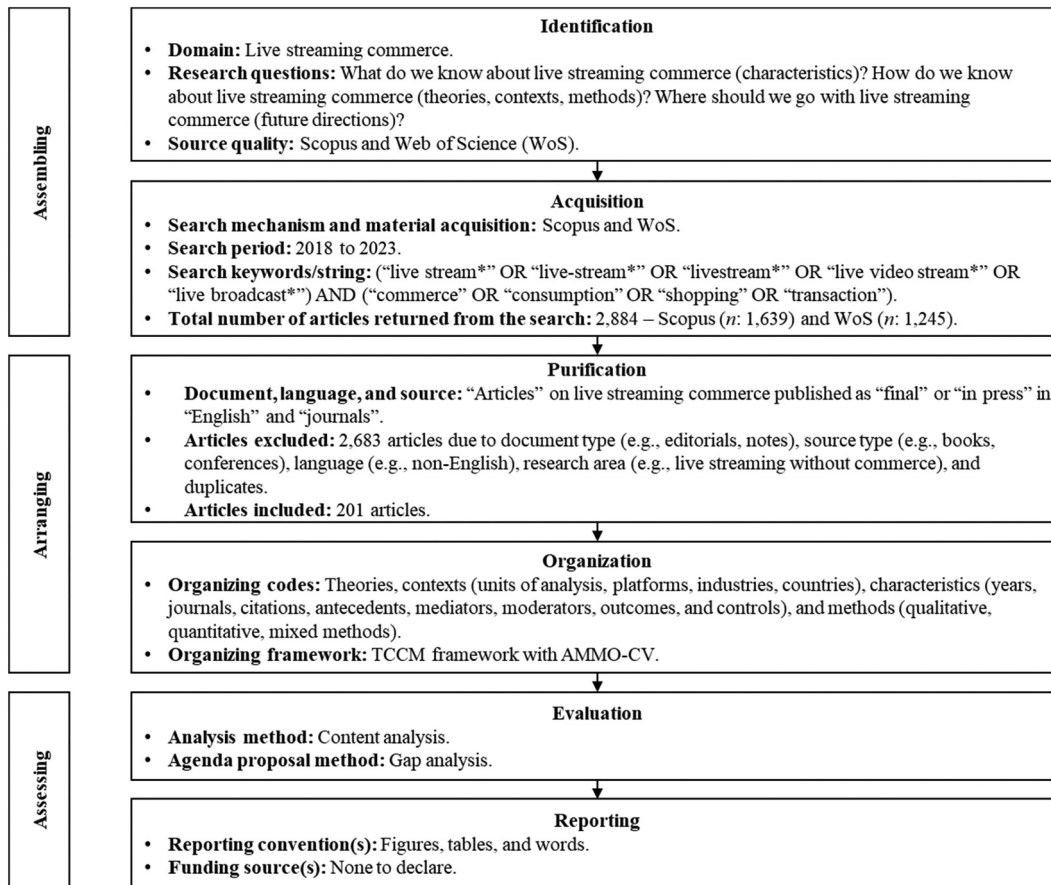
79. Li L, Feng Y, Zhao A. An interaction–immersion model in live streaming commerce: the moderating role of streamer attractiveness. J Mark Anal. 2023:1–16. doi:10.1057/s41270-023-00225-7.

80. Wu D, Guo K, He Q, Zhang J. The impact of live streamers' improvisational responses to unexpected events on their entrepreneurial performance. J Retail Consum Serv. 2023;70:103163. doi:10.1016/j.jretconser.2022.103163.

81. Wu R, Liu J, Chen S, Tong X. The effect of E-commerce virtual live streamer socialness on consumers' experiential value: an empirical study based on Chinese E-commerce live streaming studios. J Res Interact Mark. 2023;17 (5):714–733. doi:10.1108/JRIM-09-2022-0265.

82. Lo PS, Dwivedi YK, Tan GWH, Ooi KB, Aw ECX, Metri B. Why do consumers buy impulsively during live streaming? A deep learning-based dual-stage SEM-ANN analysis. J Bus Res. 2022;147:325–37. doi:10.1016/j.jbusres.2022.04.013.

83. Huang Y, Lee YH, Chang G, Ma J, Wang G. Broadcasters' leadership traits and audiences' loyalty with the moderating role of self-construal: an exploratory study. Front Psychol. 2021;12:605784. doi:10.3389/fpsyg.2021.605784.

84. Dai Q, Cui X. The influence and moderating effect of trust in streamers in a live streaming shopping environment. J Univ Sci Technol. 2022;52(2):1–6. doi:10.52396/JUSTC-2021-0219.

85. Liao J, Chen K, Qi J, Li J, Irina YY. Creating immersive and parasocial live shopping experience for viewers- the role of streamers' interactional communication style. J Res Interact Mark. 2022;17(1):140–155. doi:10.1108/JRIM-04-2021-0114.

86. Liu L, Fang J, Yang L, Han L, Hossin MA, Wen C. The power of talk: exploring the effects of streamers' linguistic styles on sales performance in B2B livestreaming commerce. Inf Process Manag. 2023;60(3):103259. doi:10.1016/j.ipm.2022.103259.

87. Hao S, Huang L. How the time-scarcity feature of live-streaming e-commerce affects impulsive buying. Serv Ind J. 2023;43:875–895.

88. Ji M, Liu Y, Chen X. An eye-tracking study on the role of attractiveness on consumers' purchase intentions in e-commerce live streaming. Electron Commer Res. 2023;ahead of print. doi:10.1007/s10660-023-09738-w.

89. Joo E, Yang J. How perceived interactivity affects consumers' shopping intentions in live stream commerce: roles of immersion, user gratification and product involvement. J Res Interact Mark. 2023;7(5):754–772. doi:10.1108/JRIM-02-2022-0037.

90. Li P, Lee S, Lee KY, Yang SB, Chang Y. What makes viewers engage in live streaming shopping during and after the pandemic: an affordance perspective. Serv Bus. 2023:1–38. doi:10.1007/s11628-023-00542-y.

91. Wang M, Fan X. An empirical study on how livestreaming can contribute to the sustainability of green agri-food entrepreneurial firms. Sustainability. 2021;13 (22):12627. doi:10.3390/su132212627.

92. Hsu LC, Hu SY. Antecedents and consequences of the trust transfer effect on social commerce: the moderating role of customer engagement. Curr Psychol. 2023:1–22. doi:10.1007/s12144-023-04634-w.

93. Clement AP, Fang J, Asare AO, Kulbo NB. Customer engagement and purchase intention in live-streaming digital marketing platforms. Serv Ind J. 2021. ahead of print.

94. Liu F, Wang Y, Dong X, Zhao H. Marketing by live streaming how to interact with consumers to increase their purchase intentions. Front Psych. 2022;13. doi:10.3389/fpsyg.2022.933633.

95. Choi E, Jeon S. How IT affordance influences engagement in live commerce- an empirical analysis focusing on social cues as moderating effect. Asia Pac J Inf Syst. 2022;32(2):327–353. doi:10.14329/apjis.2022.32.2.327.

96. Li Z, Li H, Liu X. Finer-grained understanding of travel livestreaming adoption: a synthetic analysis from uses and gratifications theory perspective. Tour Manag Perspect. 2023;47:101130. doi:10.1016/j.tmp.2023.101130.

97. Geng R, Wang S, Chen X, Song D, Yu J. Content marketing in e-commerce platforms in the internet celebrity economy. Ind Manag Data Syst. 2020;120 (3):464–485. doi:10.1108/IMDS-05-2019-0270.

98. Wang W, Huang M, Zheng S, Lin L, Wang L. The impact of broadcasters on consumer's intention to follow live-stream brand community. Front Psycho. 2021;12:810883–810883. doi:10.3389/fpsyg.2021.810883.

99. Ho SC, Chen JL. Developing the e-commerce competency for entrepreneurship education from a gamified competition. Int J Manag Educ. 2023;21(1):100737. doi:10.1016/j.ijme.2022.100737.

100. Ye Y, Zhou Z, Duan H. Philanthropic sales in live-streaming shopping: the impact of online interaction on consumer impulse buying. Front Psycho. 2022;13. doi:10.3389/fpsyg.2022.1041476.

101. Hollebeek LD, Srivastava RK, Chen T. SD logic–informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM. J Acad Mark Sci. 2019;47:161–185. doi:10.1007/s11747-016-0494-5.

102. Meng LM, Duan S, Zhao Y, Lü K, Chen S. The impact of online celebrity in livestreaming E-commerce on purchase intention from the perspective of emotional contagion. J Retail Consum Serv. 2021;63:102733.

103. Xie C, Yu J, Huang SS, Zhang J. Tourism e-commerce live streaming- identifying and testing a value-based marketing framework from the live streamer perspective. Tour Manag. 2022;91:104513. doi:10.1016/j.tourman.2022.104513.

104. Wang L, Li X, Zhu H, Zhao Y. Influencing factors of livestream selling of fresh food based on a push-pull model: a two-stage approach combining structural equation modeling (SEM) and artificial neural network (ANN). Expert Syst Appl. 2023;212:118799. doi:10.1016/j.eswa.2022.118799.

105. Li G, Tang P, Feng J. How streamer channels influence luxury brand sales in live streaming commerce: an empirical study. Asia Pacific J Mark Logist. 2023;35 (12):3069–3090. doi: 10.1108/APJML-01-2023-0096.

106. Barta S, Gurrea R, Flavián C. Telepresence in live-stream shopping: an experimental study comparing Instagram and the metaverse. Electron Mark. 2023;33(1):29. doi:10.1007/s12525-023-00643-6.

107. Xiao Q, Wan S, Zhang X, Siponen M, Qu L, Li X. How consumers' perceptions differ towards the

design features of mobile live streaming shopping platform: a mixed-method investigation of respondents from taobao live. J Retail Consum Serv. 2022;69:103098. doi:10.1016/j.jretconser.2022.103098.

108. Lin GY, Lee MX, Wang YS. Developing and validating a live streaming social commerce success model. J Comput Inf Syst. 2023;2323:1–19. doi:10.1080/08874417.2023.2251417.

109. Li M, Hua Y. Integrating social presence with social learning to promote purchase intention- based on social cognitive theory. Front Psycho. 2021;12:810181–810181. doi:10.3389/fpsyg.2021.810181.

110. Jiao Y, Sarigöllü E, Lou L, Huang B. How streamers foster consumer stickiness in live streaming sales. J Theor Appl Electron Commer Res. 2023;18(3):1196–1216. doi:10.3390/jtaer18030061.

111. Wang B, Xie F, Kandampully J, Wang J. Increase hedonic products purchase intention through livestreaming: The mediating effects of mental imagery quality and customer trust. J Retail Consum Serv. 2022;69:103109. doi:10.1016/j.jretconser.2022.103109

Appendices

Appendix A. The review procedure for LSC research

Assembling

Identification
- **Domain:** Live streaming commerce.
- **Research questions:** What do we know about live streaming commerce (characteristics)? How do we know about live streaming commerce (theories, contexts, methods)? Where should we go with live streaming commerce (future directions)?
- **Source quality:** Scopus and Web of Science (WoS).

Acquisition
- **Search mechanism and material acquisition:** Scopus and WoS.
- **Search period:** 2018 to 2023.
- **Search keywords/string:** ("live stream*" OR "live-stream*" OR "livestream*" OR "live video stream*" OR "live broadcast*") AND ("commerce" OR "consumption" OR "shopping" OR "transaction").
- **Total number of articles returned from the search:** 2,884 – Scopus (*n*: 1,639) and WoS (*n*: 1,245).

Arranging

Purification
- **Document, language, and source:** "Articles" on live streaming commerce published as "final" or "in press" in "English" and "journals".
- **Articles excluded:** 2,683 articles due to document type (e.g., editorials, notes), source type (e.g., books, conferences), language (e.g., non-English), research area (e.g., live streaming without commerce), and duplicates.
- **Articles included:** 201 articles.

Organization
- **Organizing codes:** Theories, contexts (units of analysis, platforms, industries, countries), characteristics (years, journals, citations, antecedents, mediators, moderators, outcomes, and controls), and methods (qualitative, quantitative, mixed methods).
- **Organizing framework:** TCCM framework with AMMO-CV.

Assessing

Evaluation
- **Analysis method:** Content analysis.
- **Agenda proposal method:** Gap analysis.

Reporting
- **Reporting convention(s):** Figures, tables, and words.
- **Funding source(s):** None to declare.

Appendix B. Overview of review findings on LSC research

What do we know? (*RQ1*)   How do we know? (*RQ2*)   Where should we go? (*RQ3*)
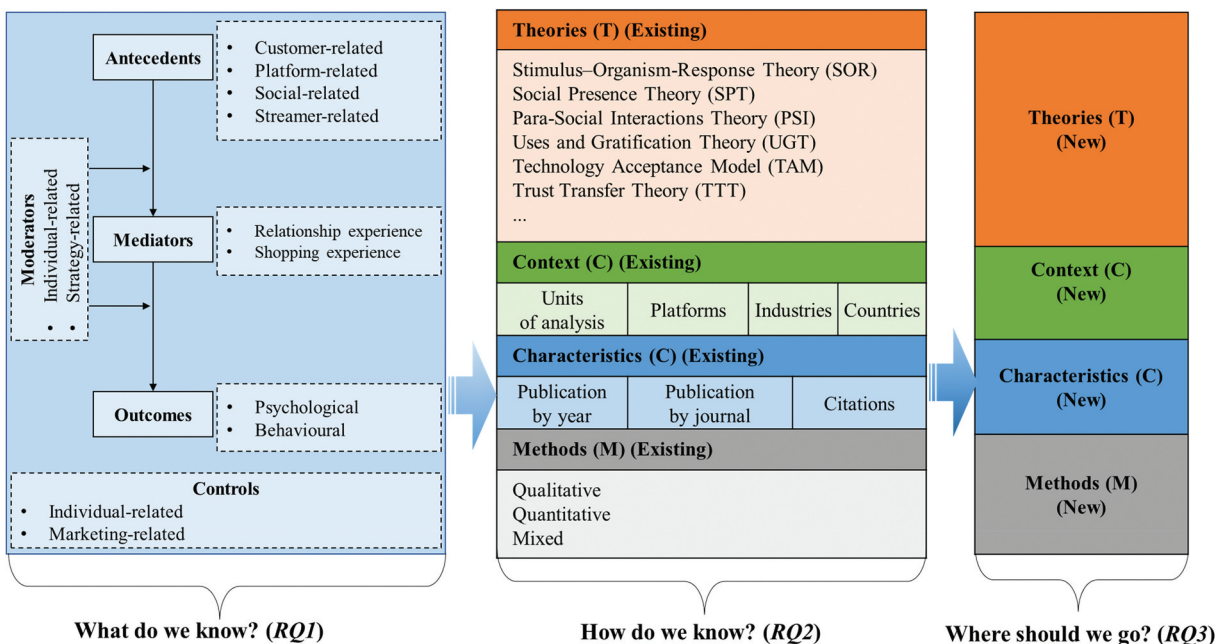
Appendix C. Publication and citation trend of LSC research
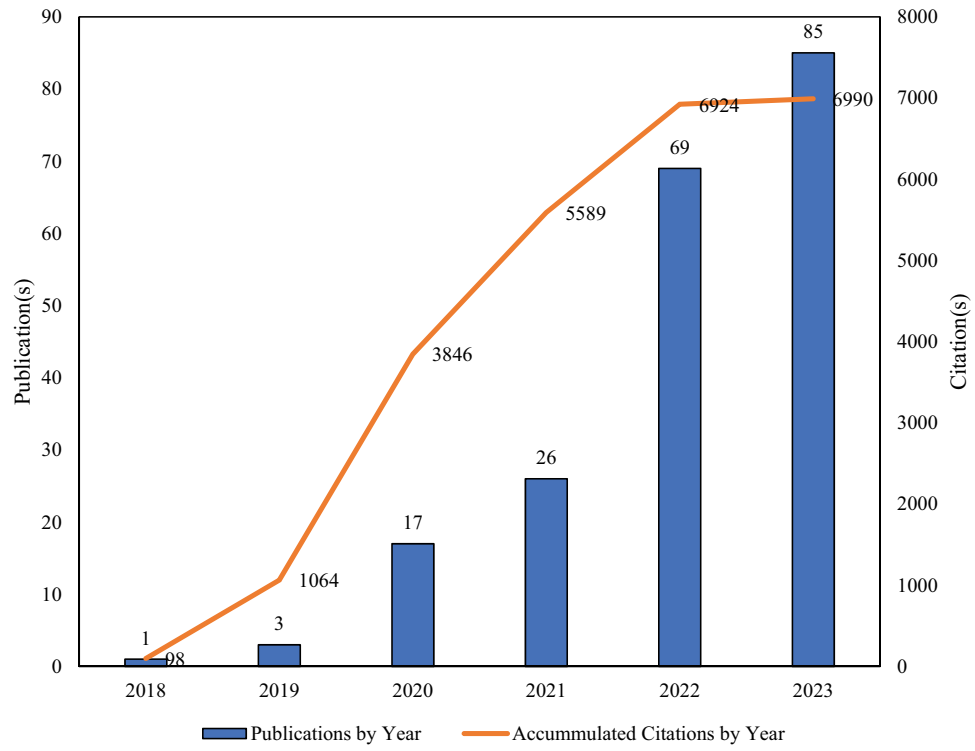
Appendix D. Geographic coverage of LSC research
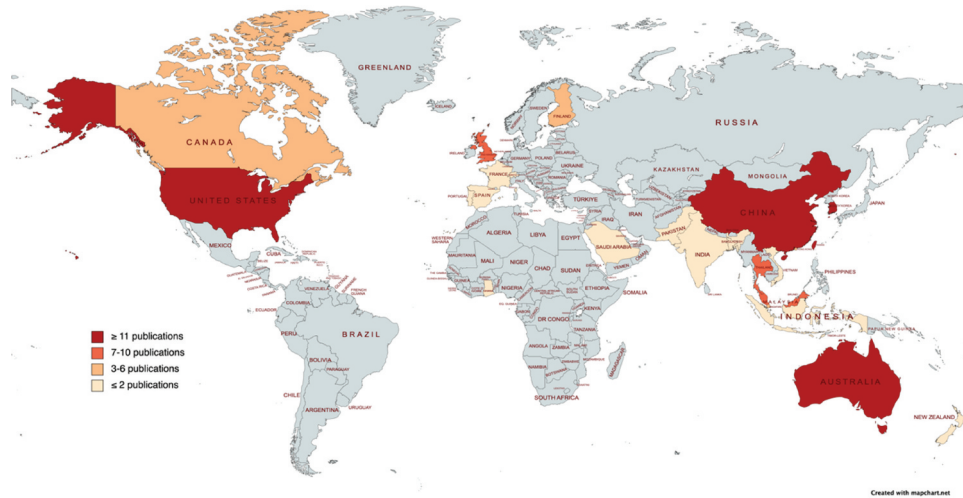
Panel A. Region-wise distribution
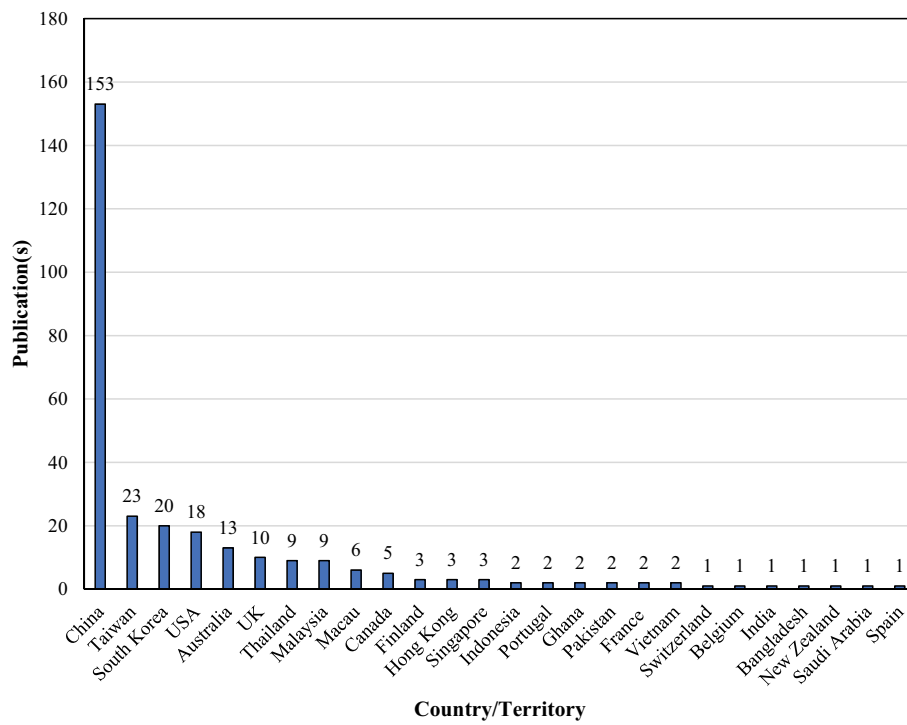
 The number of publications in this figure is more than the total of 201 publications reviewed in this study because a publication may be contributed by authors from more than one country/territory.

Appendix E. Journals publishing LSC research

Journal	Article(s)	Scopus	Web of Science
Frontiers in Psychology	26	Yes	Yes
Sustainability	16	Yes	Yes
Journal of Retailing and Consumer Services	15	Yes	Yes
Electronic Commerce Research and Applications	7	Yes	Yes
Internet Research	7	Yes	Yes
Asia Pacific Journal of Marketing and Logistics	5	Yes	Yes
Behaviour & Information Technology	4	Yes	Yes
Journal of Business Research	4	Yes	Yes
Journal of Marketing Analytics	4	Yes	Yes
Electronic Commerce Research	3	Yes	Yes
Humanities & Social Sciences Communications	3	Yes	Yes
Industrial Management & Data Systems	3	Yes	Yes
Information & Management	3	No	Yes
Journal of Research in Interactive Marketing	3	Yes	Yes
Journal of Theoretical and Applied Electronic Commerce Research	3	Yes	Yes
Service Industries Journal	3	Yes	Yes
Social Behavior and Personality	3	Yes	Yes
Asia Pacific Journal of Information Systems	2	No	Yes
Cogent Business & Management	2	Yes	Yes
Computers in Human Behavior	2	Yes	Yes
Current Psychology	2	Yes	Yes
Decision Support Systems	2	Yes	Yes
Heliyon	2	Yes	Yes
Information	2	Yes	Yes
International Journal of Human—Computer Interaction	2	Yes	Yes
International Journal of Information Management	2	Yes	Yes
Journal of Global Information Management	2	Yes	Yes
Journal of Services Marketing	2	Yes	Yes
Mathematics	2	Yes	Yes
Multimedia Tools and Applications	2	Yes	Yes
Sage Open	2	Yes	Yes
Tourism Management Perspectives	2	Yes	Yes
Journal of Marketing Analytics	2	Yes	Yes
Asian Journal of Business Research	1	No	Yes
Assumption Business Administration College Journal	1	No	Yes
Behavioral Sciences	1	Yes	Yes
Computer Supported Cooperative Work	1	Yes	Yes
Current Issues in Tourism	1	Yes	Yes
Economic Analysis and Policy	1	Yes	Yes
Electronic Markets	1	Yes	Yes
Emerging Science Journal	1	No	Yes
Entertainment Computing	1	Yes	Yes
Environment, Development and Sustainability	1	Yes	Yes
European Journal of Information Systems	1	Yes	Yes
European Journal of Marketing	1	Yes	Yes
Expert Systems with Applications	1	Yes	Yes
IEEE Access	1	Yes	Yes
IEEE Transactions on Engineering Management	1	Yes	Yes
Information Processing & Management	1	Yes	Yes
Information Systems Frontiers	1	Yes	Yes
Information Technology & Tourism	1	Yes	Yes
Information Technology and Management	1	Yes	Yes
International Journal of Advertising	1	Yes	Yes
International Journal of Communication	1	Yes	Yes

(Continued).

Journal	Article(s)	Scopus	Web of Science
International Journal of Contemporary Hospitality Management	1	Yes	Yes
International Journal of Hospitality Management	1	Yes	Yes
International Journal of Information and Management Sciences	1	No	Yes
International Journal of Mobile Human Computer Interaction	1	Yes	Yes
International Journal of Web Information Systems	1	Yes	Yes
Journal of Computer Information Systems	1	Yes	Yes
Journal of Consumer Behaviour	1	Yes	Yes
Journal of Current Issues and Research in Advertising	1	Yes	Yes
Journal of Electronic Commerce Research	1	Yes	Yes
Journal of Hospitality and Tourism Management	1	Yes	Yes
Journal of Interactive Marketing	1	Yes	Yes
Journal of Internet Technology	1	Yes	Yes
Journal of Marketing Management	1	Yes	Yes
Journal of Organizational and End User Computing	1	Yes	Yes
Journal of Pragmatics	1	Yes	Yes
Journal of Product and Brand Management	1	Yes	Yes
Journal of the Korean Society of Clothing and Textiles	1	No	Yes
Journal of Travel & Tourism Marketing	1	Yes	Yes
Journal of University of Science and Technology of China	1	No	Yes
Kybernetes	1	Yes	Yes
Management Decision	1	Yes	Yes
Marketing Intelligence & Planning	1	Yes	Yes
PLOS One	1	Yes	Yes
Psychology Research and Behavior Management	1	Yes	Yes
Revista Argentina De Clínica Psicológica	1	No	Yes
Scientific Reports	1	Yes	Yes
Security and Communication Networks	1	Yes	Yes
Service Business	1	Yes	Yes
Technology in Society	1	Yes	Yes
Telematics and Informatics	1	Yes	Yes
The International Journal of Management Education	1	Yes	Yes
The Journal of Behavioral Science	1	Yes	Yes
The Service Industries Journal	1	Yes	Yes
Tourism Management	1	Yes	Yes
Universal Access in the Information Society	1	Yes	Yes
Young Consumers	1	Yes	Yes

Appendix F. Most cited articles on LSC

Rank	Article	Author(s)	Citations
1	The role of live streaming in building consumer trust and engagement with social commerce sellers	Wongkitrungrueng and Assarut[1]	692
2	How live streaming influences purchase intentions in social commerce: An IT affordance perspective	Sun et al.[12]	542
3	The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement	Park and Lin[23]	365
4	The dynamic effect of interactivity on customer engagement behavior through tie strength: Evidence from live streaming commerce platforms	Kang et al.[24]	294
5	What drives consumer shopping behavior in live streaming commerce?	Xu et al.[25]	281
6	Enhancing consumer engagement in e-commerce live streaming via relational bonds	Hu and Chaudhry[26]	281
7	Live streaming commerce from the sellers' perspective: Implications for online relationship marketing	Wongkitrungrueng et al.[3]	234
8	Live streaming commerce and consumers' purchase intention: An uncertainty reduction perspective	Lu and Chen[27]	217
9	The impact of live video streaming on online purchase intention	Zhang et al.[29]	212
10	Factors influencing people's continuous watching intention and consumption intention in live streaming Evidence from China	Hou et al.[28]	212

Appendix G. Theories guiding LSC research

Theory	Count	Articles
Stimulus-organism-response (SOR) model	48	Kang et al.[24]; Lo et al.[82]
Social presence theory (SPT)	15	Hou et al.[75]: Li et al.[15]
Uses and gratification theory (UGT)	11	Chen et al.[62]; Hou et al.[28]
Parasocial interaction (PSI) theory	9	Choi and Jeon[95]; Liao et al.[85]
Trust transfer theory (TTT)	8	Hsu and Hu [93]; Qiu et al.[56]
Signal theory	7	Lu and Chen [27]; Gong et al. [78]
Affordance theory	6	Sun et al.[12]
Elaboration likelihood model (ELM)	6	Gao et al.[35]
Technology acceptance Model (TAM)	6	Ho et al.[68]
Source credibility theory	4	Wang et al.[57]
Theory of planned behavior (TPB)	4	Barta et al.[106]
Attachment theory	3	Li et al.[7]
Push-pull-mooring (PPM) theory	3	Wang et al.[104]
Social capital theory	3	Heo et al.[45]
Unified theory of acceptance and use of technology 2 (UTAUT2)	3	Sun[32]
Vicarious learning theory	3	Hua et al.[49]
Dual-process theory	3	Chen et al.[62]
COM-B behavior changing theory	2	Guo et al.[76]
Construal level theory (CLT)	2	Zhang et al.[29]
Flow theory	2	Liao et al.[85]
Hovland persuasion theory	2	Luo et al.[39]
Information foraging theory	2	Wu et al.[34]
Media richness theory	2	Chen et al.[62]
Perceived value theory	2	Wongkitrungrueng and Assarut[1]
Regulatory focus theory	2	Shi et al.[63]
Self-congruity theory	2	Park and Lin[23]
Social exchange theory (SET)	2	Quan et al.[59]
Social impact theory	2	Ang et al.[52]
Social learning theory (SLT)	2	Lyu et al.[50]
Socio-technical system theory	2	Li et al.[7]
Theory of reasoned action (TRA)	2	Ho et al.[68]
Uncertainty theory	2	Lu and Chen[27]
Attention-interest-desire-action (AIDA) theory	2	Lv et al.[36]
Value-based adoption model (VAM)	2	Cao et al.[6]
Immersion theory	2	Shi et al.[63]
Axiomatic design theory	1	Xiao et al.[107]
Basic theory of Aristotle's rhetoric skills	1	Luo et al.[39]
Benefit—risk framework	1	Chen and Zhang[58]
Channel complementarity theory	1	Qin et al.[31]
Charm leadership theory	1	Huang et al.[83]
Cognitive dissonance theory	1	Lin et al.[108]
Cognitive evaluation theory	1	Li et al.[66]
Cognitive load theory	1	Hua et al.[49]
Cognitive-affective framework	1	Zhang et al.[46]
Commitment-trust theory	1	Shou et al.[67]
Customer value theory	1	Fu and Hsu[69]
Dynamic capability theory	1	Ho and Chen[99]
E-commerce system success model	1	Bao and Zhu[48]
Emotional contagion theory	1	Meng et al.[102]
Emotional labor theory	1	Shi et al.[63]
Empathy theory	1	Ye et al.[100]
Heuristic-systematic model	1	Zhang et al.[65]
Influencer-brand fit theory	1	Li et al.[105]
Innovation diffusion theory	1	Lyu et al. (2022)[50]
Institutional theory	1	Shou et al.[67]
Interpersonal attraction theory	1	Ji et al.[88]

(Continued).

Theory	Count	Articles
Involvement theory	1	Zhou and Huang[43]
Marketing mix theory	1	Ho et al.[68]
Means-end chain (MEC) model	1	Men et al.[74]
Medium theory	1	Xie et al.[103]
Motive theory	1	Wang et al.[98]
Network externality theory	1	Ma[38]
Organizational control theory	1	Shou et al.[67]
Psychological arousal theory	1	Wang et al.[57]
Psychological contract theory	1	Hsu[54]
Psychological reactance theory	1	Hao and Huang[87]
Selective attention theory	1	Ji et al.[88]
Self-determination theory	1	Gong et al.[78]
Self-efficacy theory	1	Cao et al.[6]
Servicescape theory	1	Chen et al.[62]
Similarity attraction theory	1	Dang-Van et al.[2]
Social cognitive theory (SCT)	1	Li and Hua[109]
Social comparison theory	1	Ren et al.[71]
Social identity theory (SIT)	1	Huang et al.[83]
Social response theory	1	Wu et al.[81]
Social support theory	1	Jiao et al.[110]
Speech act theory	1	Liu et al.[86]
Task—technology fit theory	1	Wang and Fan[91]
The matching theory	1	Dai and Cui[84]
Theory of Ecosystem	1	Xue and Liu[4]
Theory of Emotions	1	Dang-Van et al.[2]
Vividness theory	1	Wang et al.[111]
Yale model	1	Chen and Zhang[58]

Appendix H. Contexts explored in LSC research

Context		Articles	
		n	%
Population			
Customers		173	86.07
Streamers		9	4.48
Customers and streamers		19	9.45
Industry			
Mixed	General	166	82.59
	Mix (e.g., apparel, beauty, food, electronic)	8	3.98
Single	Tourism	8	3.98
	Agriculture (e.g., argi-food, organic product, flower, seedling farms)	8	3.98
	Apparel	5	2.49
	E-commerce	2	1.00
	Food	2	1.00
	Luxury	2	1.00
	Electronic	1	0.50
Platform*			
Not specified		113	56.22

(*Continued*)

(Continued).

E-commerce + Live streaming (Type 1)	Taobao Live	49	24.38
	JD Live	8	3.98
	Ctrip Live	5	2.49
	Mogujie Live	4	1.99
	Fliggy Live	2	1.00
	Amazon Live	2	1.00
	Yizhibo Live	1	0.50
	Pinduoduo Live	1	0.50
	Coupang Live	1	0.50
	Jitterbug Live	1	0.50
Social media + Live streaming + Commercial activities (Type 2)	Facebook Live	14	6.97
	Douyin Live	14	6.97
	Instagram	5	2.49
	YouTube Live	4	1.99
	Twitter	3	1.49
	Sina Weibo Live	3	1.49
	Kuaishou Live	2	1.00
Live streaming + Commercial activities (Type 3)	Douyu Live	2	1.00
Country/Territory*			
China		171	85.07
Taiwan		15	7.46
Thailand		5	2.49
South Korea		3	1.49
USA		2	1.00
UK		1	0.50
France		1	0.50
Malaysia		1	0.50
Spain		1	0.50
Vietnam		1	0.50

For some studies, the data were collected from multiple platforms.

Appendix I. Methods used in LSC research

Panel A. Data collection	Article(s)	Sample article(s)
Mixed (i.e., field, self-reported)	9	Ji et al.[88]; Shi et al.[63]
Field (e.g., crawled, observed)	44	Ang et al.[52]; Ren et al.[71]
Self-reported (e.g., interview, survey)	148	Hou et al.[28]; Park and Lin[23] Hua et al.[49]; Wang et al.[57]
Panel B. Data analysis		
Qualitative (e.g., content analysis—includes thematic analysis)	12	Xue & Liu[4]; Liu et al.[86]
Quantitative*		
Structural equation modeling (e.g., co-variance-based and partial least squares)	161	Sun et al.[12]; Xue et al.[47]
Regression analysis (e.g., hierarchical, logistic, logit, stepwise, ordinary least squares)	30	Clement et al.[70]
Test of difference (e.g., ANOVA, ANCOVA, GLMM, t-test)	14	Guo et al.[76]; Ren et al.[71]
Experiment	15	Ang et al.[52]; Shi et al.[63]
Others (e.g., fsQCA, ANN, PCA, sentiment analysis)	10	Lo et al.[82]; Liu et al.[73]
Mixed		
Content analysis + Regression analysis	5	Kang et al.[24]
Content analysis + Structural equation modeling	4	Hou et al.[28]
Content analysis + Principal component analysis	1	Wongkitrungrueng et al.[3]
Content analysis + Apriori algorithm	1	Liao et al.[85]
Content analysis + fsQCA	1	Wang et al.[57]
Content analysis + Sentiment analysis	1	Luo et al.[39]

Some studies use more than one quantitative technique in their research.