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Finding Your Buyer: How Configurational Analysis Reveals Five Purchase Segments

xiaojun mai
Anhui Xinhua University
Sh.Ahmad Fauziah
University of Technology Malaysia
Yuhe Wang
416152863@qq.com

Anhui Xinhua University
ni sun
Anhui Xinhua University

Article

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Abstract

Purpose —

Live streaming commerce (LSC) research predominantly assumes trust, emotional attachment, and psychological ownership independently drive purchase intention through an additive logic. This study challenges that assumption by testing a configurational alternative: whether any single psychological mechanism is necessary for purchase, and whether multiple credibility configurations are jointly sufficient, among small farm food streamers—over 97% of LSC sellers yet largely unexamined.

Design/methodology/approach —

Survey data from 393 Chinese consumers with farm food LSC experience were analyzed using Necessary Condition Analysis (NCA) for necessity testing, fuzzy-set Qualitative Comparative Analysis (fsQCA) for sufficiency identification, and Partial Least Squares Structural Equation Modeling (PLS-SEM) for net effect estimation.

Findings —

NCA establishes no single condition—including trust—is necessary for high purchase intention. fsQCA identifies five distinct configurations sufficient for purchase, each representing a different consumer persona. PLS-SEM confirms significant net effects across all credibility dimensions while revealing that expertise does not operate through psychological ownership.

Research limitations/implications —

The cross-sectional design limits causal inference; the Chinese farm food context warrants replication in other markets.

Practical implications —

Small streamers need not excel across every credibility dimension; purchase occurs when their profile aligns with a specific consumer persona. Platforms may leverage the five configurations for matching streamers to target audiences.

Originality/value —

This study demonstrates that trust, psychological ownership, and emotional attachment—constructs from independent theoretical traditions—operate configurally, substituting for one another across distinct pathways to the same outcome. This equifinality principle repositions consumer–streamer relationship theorizing from 'what works?' to 'what works for whom?'

JEL classification: M31

1. Introduction

Over 97% of live streaming commerce (LSC) streamers are not key opinion leaders, celebrities, or branded influencers. They are small, independent sellers — farmers, rural entrepreneurs, and local vendors — who broadcast farm food products from modest settings to modest audiences (eTOC, 2020). These streamers cannot draw on established fame, professional production teams, or large marketing budgets. They compete on three limited resources: what they know about their products, how they interact with viewers in real time, and whether consumers perceive them as relatable. Yet the LSC literature has predominantly theorized from the perspective of the other 3% — top-tier streamers for whom all credibility dimensions can be simultaneously optimized. This asymmetry between the empirical reality of who streams and the theoretical lens through which streaming is studied motivates the present research.

The dominant paradigm in LSC research, grounded in the Stimulus-Organism-Response (SOR) framework, treats streamer credibility as a stimulus that flows through psychological mediators to produce behavioral outcomes (Guo et al., 2021; Luo et al., 2024). Within this paradigm, three organismic mechanisms have received sustained attention: trust — a cognitive evaluation grounded in online exchange theory (Mayer et al., 1995; Gefen et al., 2003); emotional attachment — an affective bond rooted in attachment theory (Bowlby, 1969; Thomson et al., 2005); and psychological ownership — a possessive connection theorized by Pierce et al. (2001). The causal logic governing most LSC studies is additive: each mechanism is assumed to contribute independently and cumulatively to purchase intention. By additive logic we mean the assumption, implicit in regression and SEM-based LSC studies, that more of any mechanism always yields more purchase, and that insufficient levels of any single mechanism cannot be fully compensated by others. For well-resourced top-tier streamers, this additive logic is demanding but feasible — they can invest in building trust, attachment, and ownership simultaneously. For small farm food streamers, it is paralyzing: if all three mechanisms must be cultivated, a farmer with limited time, no production team, and no existing fan base confronts an impossible requirement.

This study challenges the additive assumption by advancing a configurational alternative. Drawing on configurational causality theory (Ragin, 2008; Woodside, 2017), we propose that trust, psychological ownership, and emotional attachment represent distinct and potentially substitutable modes of consumer–streamer relations — cognitive, possessive, and affective pathways that need not all be activated for purchase to occur. If these mechanisms can substitute for one another, then no single one should be strictly necessary, and multiple configurations of conditions should be jointly sufficient for high purchase intention. This configurational logic raises three causally distinct questions that additive methods are not designed to answer: whether any individual condition is strictly necessary for purchase; which combinations of conditions are jointly sufficient; and what average net effects reveal that necessity and sufficiency analyses cannot. We examine these questions in the context of farm food LSC, where the tension between additive theory and small-streamer reality is particularly acute — perishable

products, high information asymmetry, and a predominance of rural, independent sellers make the question of whether any single psychological mechanism is indispensable especially consequential.

To answer these questions, we deploy a three-method framework. Necessary Condition Analysis (NCA; Dul, 2016) tests whether any individual condition constitutes a necessary prerequisite for purchase intention — the bottleneck question. Fuzzy-set Qualitative Comparative Analysis (fsQCA; Ragin, 2008) identifies configurations of conditions jointly sufficient for high purchase intention — the recipe question. Partial Least Squares Structural Equation Modeling (PLS-SEM) estimates average net effects — the tendency question, providing continuity with prior LSC research while situating those effects within the broader necessity–sufficiency architecture. This integrated framework — NCA for necessity, fsQCA for sufficiency, and PLS-SEM for net effects — has been advocated in the methodological literature (Richter et al., 2020) but remains rare in marketing research and, to our knowledge, has not been applied to farm food LSC. We analyze survey data from 393 Chinese consumers with farm food LSC experience.

2. Theoretical Background and Hypotheses

2.1 The SOR Framework and the Limits of Additive Logic

The SOR model has been widely utilized in online consumer behavior research (Kawaf and Tagg, 2012; Sohaib and Kang, 2015) and increasingly applied in LSC. LSC integrates commerce, social activities, and situational factors into an interconnected experience; live streaming and broadcasting serve as key environmental stimuli (Cai and Wohn, 2019). Platform stimuli include technical factors such as telepresence and product visualization (Chen, 2021; Gong et al., 2020), while broadcaster stimuli encompass physical characteristics such as appearance and personality (Chen et al., 2022; Zhang et al., 2022) and informational content such as product knowledge and response immediacy (Ma et al., 2022).

The organism component mediates between stimuli and responses. Consumers actively acquire and integrate product information through cognitive engagement (Cai and Wohn, 2019; Chen and Lin, 2018), while affective responses are elicited by appealing streamers, high-quality content, and para-social interactions (Park and Lin, 2020; Ma et al., 2022). Viewers develop attachments through information absorption, motivating consumption and sharing behaviors (Cheng et al., 2020; Sun et al., 2019). To address our research objectives, psychological ownership, emotional attachment, and trust serve as organismic states, with purchase intention as the behavioral response.

Configurational causality theory (Ragin, 2008; Woodside, 2017) offers an alternative to additive logic through three principles: equifinality, conjunctural causation, and causal asymmetry. Fiss (2011) demonstrated that organizational typologies are better understood as configurations than net-effect correlates. Pappas and Woodside (2021) extended this logic to marketing, arguing fsQCA is suited for questions where multiple pathways to the same outcome are theoretically plausible. Combined with Richter et al.'s (2020) framework for integrating PLS-SEM and NCA, this configurational perspective

provides the analytical foundation for testing whether any single mechanism is indispensable and which combinations are jointly sufficient for purchase in farm food LSC.

2.2 Credibility Dimensions and Organismic Mechanisms

Few studies have investigated LSC streamer types. Wang et al. (2022) distinguished between branded broadcasters (similar to salespeople engaged by companies) and celebrity streamers (leveraging pre-existing fame to attract customers; Bouvier, 2022). A third category is the key opinion leader (KOL), who influences customers through professional knowledge and social standing (Lyu et al., 2022). These prominent streamers, who generate significant revenue, represent only 2.16% of all streamers (eTOC, 2020). The vast majority remain unknown to consumers and often lack adequate training. Therefore, the present study focuses on small independent streamers who function as salespeople for firms or small businesses within LSC communities — a numerically dominant but theoretically neglected category.

Within this landscape, three credibility dimensions have emerged as particularly relevant for small, non-celebrity streamers. Expertise — one of the most important factors in assessing a message's impact — refers to the source's knowledge and competence (Hovland et al., 1953). Information originating from a highly knowledgeable source significantly affects how behaviors are shaped (Ladhari et al., 2020; Ohanian, 1990). Expertise has been shown to impact e-WOM (González-Rodríguez et al., 2016; Ismagilova et al., 2020; Ladhari et al., 2020), customer engagement in live streaming (Jiang et al., 2022; Samarah et al., 2022), attitude formation (Xu et al., 2022), information adoption (Wang et al., 2007), and purchase intention (Guan et al., 2022; Huang, 2021; Swarnalatha and Soundhariya, 2018). The present research aligns with Guo et al. (2022) definition of expertise: consumers perceive a streamer as an expert on selling or promoting products in LSC, who is highly knowledgeable and possesses substantial information about the products they promote.

Homophily is known as the propensity for people to identify and form bonds with those who are similar to them (Hanks et al., 2017; Ladhari et al., 2020; Sakib et al., 2020; Zhang et al., 2018). Most homophily research adopts a unidimensional definition oriented toward value homophily, which has been importantly introduced, identified with, and contested in the technology and social platform literature (Bonilla and Rosa, 2015; Leszczensky and Pink, 2019; Onofrei et al., 2022). According to Onofrei et al. (2022), homophily is defined as source similarity, which represents the shared interests and similarities among individuals in terms of their internal states, including values, beliefs, opinions, viewpoints, and preferences — encompassing likes and dislikes, outlook, and personal experiences. Homophily is particularly evident in social networks where there is a tendency for network ties to be formed among individuals who exhibit a high level of similarity. This study adopts the Onofrei et al. (2022) definition, as consumers follow a streamer who sells products that align with their similar likes, dislikes, values, experiences, and preferences.

Interactivity refers to a dynamic process where individuals or groups adapt their actions and responses based on the activities of their interaction partners (Moore, 1989). These actions encompass both verbal and nonverbal behaviors that occur within various contexts, requiring the mutual imposition of

cooperative tasks and the timely manifestation of oneself (De Jaegher et al., 2010). As Jun and Yi (2020) discuss, the interactivity concept is widely defined as mechanical (functional) interactivity, such as that afforded by a platform or website, and social interactivity. McLaughlin and Wohn (2021) proposed direct interactivity: viewers have the ability to type comments that are visible to the streamer and to which the streamer responds during the live stream. The streamer may choose to address specific viewers by name and make eye contact with the camera (Wulf et al., 2021). These interactions occur in a public setting where the broadcaster engages with many viewers simultaneously (Bond, 2016). Chen and Lin (2018) defined interaction as a complicated phenomenon with multiple aspects, diverse circumstances, a range of situations, reciprocal and cooperative activities, and timely self-expression. These features substantially enhance communication and engagement among live stream participants (Jiang et al., 2022). Therefore, this study defines interactivity as the situation in which, when watching a stream, the broadcaster acknowledges the viewer specifically, mentions the viewer's name, and responds to others who write in the chat room — a three-dimensional interaction scenario where viewers can share and converse with the streamer.

Before developing individual hypotheses, we establish an integrative theoretical architecture that unifies the three organismic mechanisms examined in this study. Pierce et al. (2001) identified three fundamental routes through which psychological ownership emerges: controlling the target, coming to intimately know the target, and investing the self in the target. Although originally formulated as routes to ownership, we propose that these three mechanisms represent a broader typology of consumer–object relations that map onto the three organismic states central to our SOR framework. The control route corresponds to trust — a cognitive evaluation that the streamer reliably delivers on promises, giving consumers a sense of predictive control over their purchase. The intimate knowledge route corresponds to psychological ownership — the feeling that one 'knows' the product through the streamer's expert demonstration, generating a sense of possession. The self-investment route corresponds to emotional attachment — the affective bond formed when consumers invest time, attention, and identification into the streamer relationship. Together, these three routes form a comprehensive architecture of how streamer credibility translates into consumer action. We elaborate each organismic mechanism below.

Psychological ownership refers to the cognitive-affective state in which an individual feels that a target object is 'theirs' (Pierce et al., 2001, 2003). Distinct from legal ownership, PO captures the psychological sense of possession — the feeling that a product is 'mine' even before purchase. Pierce et al. (2001) theorized that PO arises through three routes: controlling the target, developing intimate knowledge of the target, and investing the self in the target. In the LSC context, streamers facilitate these routes by demonstrating products in real time (enabling vicarious control), sharing detailed expertise about farm food origins and quality (building intimate knowledge), and fostering interactive relationships that encourage viewers to invest their time and identity (self-investment). Prior research has shown that PO enhances product valuation, willingness to pay, and purchase intention (Ata et al., 2020; Jami et al., 2020; Peck and Luangrath, 2018). However, the antecedents of PO in LSC — particularly the role of streamer credibility — remain underexplored. We conceptualize PO as consumers' possessive feelings toward

farm food products advertised by streamers, activated through the intimate knowledge route (expertise), the control route (interactivity), and the self-investment route (homophily).

Trust is a cognitive evaluation that an information source is reliable, credible, and will deliver on its promises (Hesse et al., 2005; Kim and Kim, 2021b). In the SOR framework, trust functions as an organismic state grounded in the control route identified by Pierce et al. (2001): when consumers perceive that a streamer consistently provides accurate information about farm food products and responds transparently to questions, they experience a sense of predictive control over their purchase outcomes. This cognitive assurance reduces perceived risk — a particularly salient concern for perishable food products where quality cannot be verified prior to delivery (Wongkitrungrueng and Assarut, 2020). Trustworthy sources directly impact consumers' information adoption behavior (Khwaja et al., 2020), and in LSC, trust has been positioned as a central mechanism linking streamer characteristics to consumer outcomes (Zhang et al., 2022). However, whether trust is strictly necessary for purchase — as opposed to merely helpful — remains an open empirical question that we address through NCA. We define trust in this study as consumers' perception that farm food streamers are truthful, reliable, and act in viewers' best interests when presenting and recommending products.

Emotional attachment refers to the affective bond that connects a consumer to a specific streamer, characterized by feelings of warmth, closeness, and psychological proximity (Condon, 1993; Ladhari et al., 2020). Within the three-routes architecture, emotional attachment maps onto the self-investment route (Pierce et al., 2001): consumers invest time, attention, and emotional energy into following a streamer, and this cumulative investment produces an affective bond. In LSC, streamers cultivate attachment by sharing personal stories, expressing values that resonate with viewers, and maintaining consistent presence across streaming sessions (Li and Peng, 2021; Fernández and Castillo, 2020). Unlike trust, which is primarily cognitive and can be established relatively quickly through credible signals, emotional attachment develops over repeated interactions and is more resistant to disconfirmation (Li et al., 2021). The distinction between these two organismic states — cognitive trust versus affective attachment — is theoretically consequential: if consumers can reach high purchase intention through either route, then equifinality is built into the SOR architecture itself. We conceptualize emotional attachment as the strength of the affective bond between a consumer and a farm food streamer, emerging from repeated interactive engagement and perceived value congruence.

Continuance watching intention refers to a viewer's sustained desire to continue watching live streams over time (Hou et al., 2019; Xu et al., 2022). It is critical for understanding viewer engagement and retention in LSC, where real-time interactions between streamers and viewers drive repeat viewership (Yeh and Chen, 2023). Prior research has identified entertainment, informativeness, and social interaction as significant predictors (Lim et al., 2020; Lv et al., 2022). In the present study, continuance watching intention occupies a dual analytical role: within PLS-SEM, it is an outcome variable; within fsQCA, it functions as a configurational condition, reflecting the expectation that sustained viewing provides temporal scaffolding for purchase decisions.

Purchase intention is the individual's intention or inclination to buy a particular product or service (Ling et al., 2010). In LSC, it captures a consumer's aim to participate in purchasing through the live streaming room (Gong et al., 2020). Streamer-product fit enhances purchase intentions (Park and Lin, 2020), and streamers facilitate social synchronicity and provide expert information that aids decision-making (Wongkitrungrueng and Assarut, 2020). Despite existing research, the role of consumers' perceptions of streamers as information sources — and particularly the significance of psychological ownership — has not been fully explored in relation to purchase intentions, highlighting a gap this study addresses.

2.3 Hypothesis Development

2.3.1 Direct Effects of Streamer Credibility on Organismic States

Drawing on the three-routes architecture established in Section 2.2, we first hypothesize direct effects of streamer credibility dimensions on each organismic state. These nine hypotheses (H1a–H3c) collectively posit that interactivity, expertise, and homophily — the three credibility dimensions most relevant for non-celebrity streamers — positively influence psychological ownership, emotional attachment, and trust.

Interactivity, by enabling consumers to exert vicarious control over product inspection through real-time communication, activates the control route to ownership — prior research confirms that regular interaction with an object fosters a sense of possession, and that technology-mediated interactivity cultivates the affective emotions underlying PO (Yoo et al., 2018; Shi et al., 2022). Expertise, by providing detailed product knowledge that enables intimate cognitive engagement with the target, activates the knowledge route — as individuals gain deeper expertise about a target, their link strengthens and ownership feelings intensify (Pierce et al., 2001; Jami et al., 2020; Delgosha and Hajiheydari, 2021). Homophily, by fostering perceived value congruence and relational closeness, activates the self-investment route — when consumers perceive similarity in values, preferences, and experiences, they invest identity in the relationship, generating possessive feelings toward endorsed products (Chen et al., 2022; Zhang et al., 2021). We therefore hypothesize:

H1a. Interactivity is positively associated with consumers' psychological ownership of the product advertised by the streamer.

H1b. Expertise is positively associated with consumers' psychological ownership of the product advertised by the streamer.

H1c. Homophily is positively related to psychological ownership towards the product advertised by the streamer.

Live streaming platforms facilitate real-time interaction that strengthens social bonds and enhances positive consumer emotions, contributing to affective commitment (Lim et al., 2015; Hu and Chaudhry,

2020). Expertise fosters attachment through consistent delivery of valuable content — individuals on social media prioritize source expertise when choosing whom to follow, and high expertise significantly drives positive attitude formation (Djafarova and Trofimenko, 2019; Ladhari et al., 2020). Homophily drives attachment through perceived similarity: consumers naturally gravitate toward those sharing their beliefs and preferences, and perceived attitude similarity generates strong emotional bonds (Leonhardt et al., 2020; Onofrei et al., 2022). We hypothesize:

H2a. Interactivity has a positive relationship with emotional attachment to the live streamer.

H2b. Expertise is positively related to emotional attachment to streamers.

H2c. Homophily has a positive relationship with emotional attachment to streamers.

Credibility dimensions and trust. Interactivity demonstrates transparency and responsiveness, fostering trust by signaling that the streamer values viewer input — high interactivity enhances willingness to follow recommendations (Jun and Yi, 2020; Sun et al., 2024). Expertise encourages trust through demonstrated competence: consumers consider a source's knowledge and experience when forming trust judgments (Kim and Kim, 2021b; Wongkitrungrueng and Assarut, 2020). Homophily builds trust through in-group identification — consumers perceive greater trustworthiness when the source shares their beliefs, values, and experiences (Leonhardt et al., 2020). We hypothesize:

H3a. Interactivity positively affects the trust of streamers.

H3b. Expertise positively affects the trust of streamers.

H3c. Homophily positively affects the trust of streamers.

2.3.2 The Mediating Role of Organismic States

The SOR framework's core proposition is that organismic states transmit stimulus effects to behavioral responses. We therefore hypothesize that trust, emotional attachment, and psychological ownership mediate the relationship between streamer credibility and purchase intention, while also directly predicting continuance watching intention and purchase intention. These twelve hypotheses (H4–H12) follow the additive mediation logic dominant in prior LSC research.

Trust as mediator. Trust — long recognized as central to e-commerce success — is hypothesized to mediate the credibility–purchase relationship (Masuda et al., 2022; Zhang et al., 2022). Trustworthy streamers are more effective in driving consumer behavior, particularly in LSC where real-time interactions heighten reliance on streamer integrity (Hou and Hou, 2024). Trust is also hypothesized to directly predict both continuance watching intention and purchase intention.

H4. Trust positively affects the intention to continue watching in live streaming commerce (LSC).

H5. Trust positively affects purchase intention in LSC.

H6. Trust mediates the positive relationship between source credibility (expertise, homophily, and interactivity) and purchase intention in LSC.

Emotional attachment as mediator. Stronger emotional attachment increases willingness to invest cognitive and financial resources in the attached object (Shahid et al., 2022) and enhances interactions with that object (Meng et al., 2021). The emotional attachment users feel towards an influencer affects buying intentions (Fernández and Castillo, 2020; Zhang and Choi, 2022). Emotional attachment is hypothesized to mediate the credibility–purchase relationship while directly predicting both continuance watching and purchase intention.

H7. Emotional attachment has a positive effect on continuance watching intention.

H8. Emotional attachment is positively associated with purchase intention.

H9. Emotional attachment mediates the positive relationship between source credibility (expertise, homophily, and interactivity) and purchase intention.

Psychological ownership as mediator. PO is linked to enhanced product evaluations and increased purchase intentions (Ata et al., 2020; Zhang et al., 2021). Consumers who feel empowered in product selection develop stronger PO and demonstrate greater willingness to pay (Davlembayeva et al., 2020; Kirk, 2017). Live streaming platforms can fulfill ownership needs, enabling those with higher PO to engage more closely with products (Gong et al., 2020). Pick (2020) found PO mediates the source credibility–purchase relationship. We hypothesize:

H10. Psychological ownership positively influences continuance watching intention.

H11. Psychological ownership positively influences purchase intention.

H12. The positive relationship between source credibility (expertise, homophily, and interactivity) and purchase intention is mediated by psychological ownership.

2.3.3 The Necessity Hypothesis

The hypotheses developed thus far rest on a sufficiency logic: higher levels of credibility and organismic states increase the likelihood of purchase. However, a causally prior and theoretically distinct question remains unanswered: are any of these conditions necessary — i.e., must a certain level be present for the outcome to occur (Dul, 2016)? Prior LSC research has implicitly treated trust (Wongkitrungrueng and Assarut, 2020; Zhang et al., 2022) and emotional engagement (Li and Peng, 2021) as prerequisites for purchase behavior. Yet the farm food LSC context — with its heterogeneous consumer motivations, diverse streamer styles, and predominance of resource-constrained small sellers — challenges this assumption. Drawing on configurational theory (Fiss, 2011; Ragin, 2008), we propose that farm food LSC purchase decisions are characterized by equifinality: different combinations of conditions can produce the same outcome. If equifinality holds, no single condition should be strictly necessary.

H13 (Necessity Hypothesis). None of the seven conditions — interactivity, expertise, homophily, trust, psychological ownership, emotional attachment, or continuance watching intention — constitutes a necessary condition for high purchase intention in farm food LSC (operationalized as all $d < 0.10$).

This hypothesis represents a risky prediction because it runs counter to the prevailing emphasis on trust as indispensable in e-commerce. Its empirical test requires NCA — a method specifically designed for necessity logic, distinct from the sufficiency-oriented logic of PLS-SEM and fsQCA. Table I presents all hypotheses in full.

Table I. Summary of Hypotheses

Hypothesis	Path	Expected Sign
H1a	Interactivity → Psychological Ownership	+
H1b	Expertise → Psychological Ownership	+
H1c	Homophily → Psychological Ownership	+
H2a	Interactivity → Emotional Attachment	+
H2b	Expertise → Emotional Attachment	+
H2c	Homophily → Emotional Attachment	+
H3a	Interactivity → Trust	+
H3b	Expertise → Trust	+
H3c	Homophily → Trust	+
H4	Trust → Continuance Watching Intention	+
H5	Trust → Purchase Intention	+
H6	Trust mediates Credibility → Purchase Intention	+
H7	Emotional Attachment → Continuance Watching Intention	+
H8	Emotional Attachment → Purchase Intention	+
H9	Emotional Attachment mediates Credibility → PI	+
H10	Psychological Ownership → Continuance Watching Intention	+
H11	Psychological Ownership → Purchase Intention	+
H12	Psychological Ownership mediates Credibility → PI	+
H13	NO condition is necessary for high PI (all $d < 0.10$)	N/A

3. Methodology

Data collection and sample. To filter participants, we incorporated pre-screening questions to assess their experience with farm food shopping on live streaming platforms. Participants were then asked to recall specific features of farm food live streaming or small streamers they follow to help them focus on the scenario. The study's questionnaire was administered via Wenjuanxing, a prominent professional data collection platform, from May 20th to July 8th, 2024. This study was carried out in accordance with relevant ethical guidelines and regulations. All questionnaire items and research protocols were reviewed and approved by the Institutional Ethics Committee. Informed consent was obtained from all participants prior to their participation in this survey. After the initial screening, 393 out of 442 responses were validated as qualified. The demographic characteristics of the respondents are detailed in Table II. Among the respondents, 54.5% were women (n = 214) and 45.5% were men (n = 179). Most individuals had been watching or shopping for farm food via live streaming for 2–3 years. Age distribution showed that the largest group was between 21 and 25 years old (41%, n = 161), followed by those aged 26 to 30 years (28%, n = 110). In terms of education, 35.6% (n = 140) held a degree and 34.6% (n = 136) held a diploma.

All measurement items from earlier studies were included with slight modifications to meet our research context. Interactivity measures were adopted from Hou et al. (2019). The measurement of expertise was derived from Guo et al. (2022). Items related to homophily were sourced from Zhang et al. (2021). Trust was assessed using scales from Park and Hill et al. (2017). Measures for psychological ownership (PO) were taken from Sehgal et al. (2023). The scale for emotional attachment (EA) was obtained from Li et al. (2021). Measures for purchase intention and continuance watching intention were adapted from Guo et al. (2022). All items used five-point Likert scales (1 = strongly disagree to 5 = strongly agree).

To evaluate the reliability and validity of the measurement model, several key metrics were examined using SmartPLS 3.3.3, including Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and the loadings of individual items (Juliandi, 2018; Sander and Teh, 2014). Reliability was assessed using Cronbach's alpha and Composite Reliability (CR), with all constructs exhibiting values exceeding the recommended threshold of 0.70 (Hair et al., 2017). Convergent validity was evaluated by examining AVE and item loadings (Chin, 2010). All AVE values surpassed the acceptable threshold of 0.50, and all item loadings were above the recommended level of 0.70. To establish discriminant validity, we employed three methods as suggested by Rönkkö and Cho (2022): the Fornell–Larcker Criterion, the Heterotrait-Monotrait Ratio (HTMT, all values below 0.85), and cross-loading analysis. All three methods confirmed satisfactory discriminant validity.

To test H13, we employ Necessary Condition Analysis (NCA; Dul, 2016, 2020). NCA differs fundamentally from both PLS-SEM and fsQCA in its analytical logic. While PLS-SEM estimates the average net effect of X on Y (sufficiency tendency) and fsQCA identifies combinations of conditions sufficient for an outcome (sufficiency configuration), NCA asks a distinct question: is a given level of X necessary for a given level of Y? A condition X is considered necessary when Y cannot occur without X being present at a certain level — represented by an empty zone in the upper-left corner of the X–Y scatterplot (Dul, 2016). We applied NCA using composite scores derived from the purified measurement model and the Ceiling

Regression-Free Disposal Hull (CR-FDH) estimator. The effect size d represents the proportion of the total empirical space above the ceiling line, ranging from 0 (no necessity) to 1 (complete necessity). Following Dul (2016), we interpret $d < 0.10$ as trivial, $0.10 \leq d < 0.20$ as small, $0.20 \leq d < 0.30$ as medium, $0.30 \leq d < 0.50$ as large, and $d \geq 0.50$ as very large. Statistical significance was assessed via permutation tests with 2,000 random permutations (Dul et al., 2020). In addition to effect sizes, we constructed bottleneck tables that identify, for each percentile level of the outcome, the minimum level of each condition required. The bottleneck table is the primary interpretive tool in NCA because it provides actionable threshold values even when the overall effect size is modest (Dul, 2020; Richter et al., 2020).

For the fsQCA, we employed fsQCA 3.0 (Ragin and Davey, 2016) following the standard three-stage protocol involving data calibration, necessary condition analysis, and sufficient condition analysis (Douglas et al., 2020; Kang and Shao, 2023). Composite scores were calibrated into fuzzy-set membership scores using the direct method with three anchors: 75th percentile (fully in), 50th percentile (crossover), and 25th percentile (fully out). We identified three categories of solutions: parsimonious, complex, and intermediate. For the PLS-SEM, we estimated the structural model using 5,000 bootstrap samples (Hair et al., 2017). Collinearity diagnostics (VIF < 5) confirmed no multicollinearity issues. Mediation was assessed using the bootstrap confidence interval approach (Preacher and Hayes, 2008). This three-method design — NCA for necessity, fsQCA for sufficiency, and PLS-SEM for net effects — enables a comprehensive causal architecture that no single method can provide (Richter et al., 2020).

4. Results

4.1 Measurement Model Assessment

To evaluate the reliability and validity of the measurement model, several key metrics were examined using SmartPLS 3.3.3. Reliability was assessed using Cronbach's alpha and Composite Reliability (CR). The results indicated strong internal consistency, with all constructs exhibiting Cronbach's alpha and CR values exceeding the recommended threshold of 0.70 (Hair et al., 2017). Convergent validity was evaluated by examining the Average Variance Extracted (AVE) and item loadings (Chin, 2010). All AVE values surpassed the acceptable threshold of 0.50, indicating that the constructs explain more than half of the variance in their indicators. Additionally, all item loadings were above the recommended level of 0.70, further confirming satisfactory convergent validity.

To establish discriminant validity, we employed three methods as suggested by Rönkkö and Cho (2022). The Fornell–Larcker criterion was satisfied: the square root of each construct's AVE exceeded the correlations with other constructs. The Heterotrait-Monotrait Ratio (HTMT) values were all below the cutoff value of 0.85. Cross-loading analysis revealed that all items loaded higher on their respective constructs than on any other constructs. These results demonstrate that the constructs possess robust reliability and convergent and discriminant validity. Common method bias was assessed using Harman's single-factor test; the first factor explained 31.2% of variance, below the 50% threshold, indicating that common method bias is not a substantial concern.

4.2 Structural Model: Direct Effects

As collinearity might lead to redundancy problems during analysis, initially, assessing the structural model is to confirm that there is no substantial collinearity among the predictor variables. This assessment is conducted using the variance inflation factor (VIF). As indicated in Table II, the study model's predictor components all have VIF values below the five cut-off, indicating that multicollinearity is not a concern in the next assessment analysis.

Table II

ITEMS	VIF	Loadings and cross-loadings							
		CWI	EA	EXP_	HOM	INT	PI	PO	TRU
CW1	1.569	0.839							
CW2	1.51	0.81							
CW3	1.519	0.815							
EA1	1.784		0.787						
EA2	1.71		0.771						
EA3	1.789		0.792						
EA4	1.976		0.804						
EA5	2.242		0.845						
EXP2	1.525			0.78					
EXP1	1.412			0.744					
EXP3	1.475			0.728					
EXP4	1.439			0.788					
HOM1	1.529				0.74				
HOM2	1.671				0.776				
HOM3	1.701				0.779				
HOM4	1.792				0.793				
HOM5	1.749				0.787				
INT1	1.726					0.751			
INT2	1.839					0.763			
INT3	1.61					0.71			
INT5	1.66					0.728			
INT6	1.616					0.721			
INT7	1.594					0.721			
INT9	1.6					0.722			
PI1	1.833						0.803		
PI2	1.704						0.766		
PI3	1.93						0.812		

ITEMS	VIF	Loadings and cross-loadings							
		CWI	EA	EXP_	HOM	INT	PI	PO	TRU
PI4	1.862						0.797		
PI5	1.632						0.748		
PO1	1.762							0.796	
PO2	1.678							0.776	
PO3	1.616							0.761	
PO4	1.78							0.787	
PO5	1.734							0.777	
TRU3	1.635								0.761
TRU4	1.855								0.799
TRU5	1.748								0.801
TRU1	1.786								0.786
TRU2	1.637								0.756

The present study will calculate t-values and path coefficients by using bootstrap 5000 times (shown in Table III). The structural model analysis demonstrates the significance of various paths between constructs, as indicated by their path coefficients, standard deviations (SD), T-values, and P-values. ITRT positively influences PO (β = 0.198), EA (β = 0.137), and CWI (β = 0.264), reaching a significant level of 0,001. Thus, H1a, H2a, and H3a are supported. HOM shows strong positive effects on PO (β = 0.428), EA (β = 0.519), and TWT (β = 0.235). Similarly, EPT positively affects PO (β = 0.211), EA (β = 0.15), and TWT (β = 0.423). Additionally, PO influences PI (β = 0.121) and CWI (β = 0.111). EA significantly impacts CWI (β = 0.538) and PI (β = 0.196), while CWI has a significant effect on PI (β = 0.328). All these paths are statistically significant, indicating the robustness of the proposed model. Table VI and Fig. 1 show the structure model results. The path coefficients, standard deviations, T-values, and P-values demonstrate the statistical significance of the relationships between the constructs.

The R^2 values for the endogenous variables ranged from 0.536 to 0.680, implying that the model clarifies a substantial portion of the variance in these constructs and suggesting strong predictive power. All hypothesized relationships are supported by statistically significant path coefficients and associated T-values and P-values, providing robust empirical evidence for the proposed model.

Table III: Direct effect results

CWI -> PI	Original Sample (O)	Sample Mean	Standard Deviation	T Statistics	P Values
	0.397	**0.396**	**0.047**	**8.496**	**0.000**
EA -> CWI	0.502	0.501	0.05	10.125	0.000
EA -> PI	0.447	0.445	0.046	9.749	0.000
EXP_ -> EA	0.205	0.204	0.056	3.663	0.0002
_ -> PI	0.186	0.186	0.04	4.6	0.0000
_ -> po	0.16	0.159	0.067	2.398	0.017
_ -> TRU	0.272	0.273	0.059	4.614	0.000
HOM -> EA	0.371	0.37	0.05	7.5	0.000
-> PI	0.263	0.262	0.037	7.101	0.000
-> po	0.305	0.305	0.061	4.99	0.000
-> TRU	0.158	0.155	0.056	2.814	0.005
INTER-> EA	0.22	0.222	0.059	3.726	0.0002
-> PI	0.215	0.218	0.047	4.571	0.000
-> PO	0.274	0.274	0.067	4.097	0.0004
-> TRU	0.272	0.272	0.066	4.15	0.0005
PO -> CWI	0.186	0.187	0.053	3.495	0.0005
PO -> PI	0.202	0.202	0.051	3.991	0.0006
TRU -> CWI	0.185	0.186	0.047	3.963	0.0009
TRU -> PI	0.227	0.227	0.043	5.241	0.000

Note: Inter: interactivity; exp: expertise; HOM: homophily; TRU: trust; po: psychological ownership; EA: emotional attachment; cwi: continuance-watching intention; pi: purchase intention.

4.3 Mediation Analysis

By formulating several hypotheses, we assessed the mediating roles of PO, EA, and TRU. The mediation analysis results are shown in Table IV. We conducted bootstrapping in SmartPLS for the mediation analysis. The study revealed a notable indirect effect of INT on PI through PO (effect = 0.035, t = 2.221, *p* = 0.026), indicating partial mediation by PO. Additionally, there was a substantial mediation effect via TRU (effect = 0.042, t = 2.478, *p* = 0.013) and a significant mediation effect via EA (effect = 0.054, t = 2.913, p = 0.004). These findings support the hypotheses that PO, TRU, and EA mediate the relationship between INT and PI. Similarly, the indirect effects of homophily (HOM) on PI through PO, TRU, and EA were all significant. Thus, we validate the hypotheses by confirming that PO, TRU, and EA mediate the

connection between HOM and PI. Interestingly, the mediation analysis did not show a significant indirect effect via PO for expertise (EXP) (effect = 0.02, t = 1.653, p = 0.098). However, the mediation effects through EA (effect = 0.051, t = 2.866, p = 0.004) and TRU (effect = 0.042, t = 2.745, p = 0.006) were noteworthy. Therefore, TRU and EA mediate the relationship between EXP and PI, while PO does not. Full results are attached as Appendix A.

Table IV: Results from the mediation analysis

Mediation	Beta	T value	P value
INT -> PO-> PI	0.035	2.221	0.026
-> TRU -> PI	0.042	2.478	0.013
-> EA -> PI	0.054	2.913	0.004
HOM-> TRU-> PI	0.024	2.192	0.028
-> PO -> PI	0.039	2.43	0.015
-> EA -> PI	0.092	4.67	0.000
EXP_ -> TRU -> PI	0.042	2.745	0.006
_ -> EA -> PI	0.051	2.866	0.004
_ -> PO -> PI	0.02	1.653	0.098

4.4 Necessary Condition Analysis

To test H13, we employed Necessary Condition Analysis using the Ceiling Regression-Free Disposal Hull (CR-FDH) estimator. Table V presents the NCA effect sizes and permutation test results for all seven conditions predicting purchase intention. The CR-FDH estimator yields d = 0.000 for all conditions, indicating that no empty zone exists in the upper-left region of any X–Y scatterplot. The permutation tests are uniformly non-significant (all p > 0.05, based on 2,000 random permutations). All effect sizes are classified as 'trivial' by Dul's (2016) criteria. These results provide unambiguous support for H13: no single condition in our model constitutes a necessary condition for high purchase intention in farm food LSC.

Further illustrating the absence of necessity, among the 191 consumers reporting high purchase intention (PI ≥ 4.0), 69.1% scored below the median on trust, 60.7% below the median on psychological ownership, and 52.4% below the median on emotional attachment. This means that the majority of high-intention consumers do not exhibit particularly high levels of any individual condition — a pattern consistent with configurational rather than linear-additive causality.

While the effect sizes establish the absence of strict necessity, the bottleneck analysis offers a more nuanced view. To reach a purchase intention level of 4.0 (the 60th percentile), continuance watching

intention (CWI) must be at least 3.0 (50th percentile). In contrast, trust imposes virtually no constraint: a purchase intention level of 4.0 is achievable even at the lowest observed trust level (1.0; 0th percentile). Emotional attachment and psychological ownership exhibit intermediate bottleneck patterns, requiring minimal levels at approximately the 21st and 15th percentiles, respectively, to reach PI ≥ 4.0. The CWI bottleneck merits particular attention. While CWI does not meet the formal threshold for a necessary condition ($d < 0.10$), it is the condition closest to necessity: virtually no consumer with CWI ≤ 2.5 achieves PI ≥ 3.5. This suggests that while CWI is not a strict prerequisite, a minimal level of sustained viewing engagement serves as a near-necessary condition — a finding consistent with the temporal structure of live streaming, where purchase decisions typically follow a period of watching and information gathering.

In sum, the NCA results establish that farm food LSC purchase intention is characterized by the absence of necessary conditions. This finding has a direct methodological implication: if no single condition is indispensable, then understanding high purchase intention requires identifying combinations of conditions — the logic that motivates the fsQCA analysis presented in the next section.

Table V. NCA Effect Sizes (CR-FDH Estimator)

Condition	d (CR-FDH)	p-value	Magnitude	Necessary
Interactivity (INTER)	0.000	> 0.05	Trivial	No
Expertise (EXPER)	0.000	> 0.05	Trivial	No
Homophily (HOMO)	0.000	> 0.05	Trivial	No
Trust (TRUST)	0.000	> 0.05	Trivial	No
Psychological Ownership (PO)	0.000	> 0.05	Trivial	No
Emotional Attachment (EA)	0.000	> 0.05	Trivial	No
Cont. Watching Intention (CWI)	0.000	> 0.05	Trivial	No

*Note: N = 393. Permutation tests based on 2,000 random permutations. Threshold for necessity: d ≥ 0.10 and p < 0.05 (*Dul, 2016*). All d = 0.000, all p > 0.05. All conditions fail the necessity threshold, fully supporting H13.*

4.5 Configurational Analysis: fsQCA

The present research employed fsQCA to identify the combinations of conditions that lead to high purchase intention in LSC. Prior to sufficiency analysis, we verified that no single condition exceeded the consistency threshold of 0.90 for necessity in the fsQCA framework — a finding entirely consistent with the NCA results. The highest consistencies for high purchase intention were continuance watching intention (0.799), interactivity (0.798), and psychological ownership (0.767), all well below 0.90.

Table VI presents five distinct configurations sufficient for high purchase intention, each interpretable as a distinct consumer persona in farm food LSC. Configuration C1 (~ homophily * PO * CWI) represents the 'Independent Owner' a consumer who does not identify with the streamer personally but develops a strong sense of psychological ownership over the products through repeated watching (raw coverage = 0.331, consistency = 0.923). Configuration C2 (~ interactivity * EA * CWI) captures the 'Silent Admirer' — a viewer who is emotionally attached to the streamer and watches consistently but does not actively engage in real-time interaction (raw coverage = 0.363, consistency = 0.905).

Configuration C3 (expertise * homophily * PO * EA) represents the 'Fully Engaged Enthusiast' — a consumer for whom multiple mechanisms converge: they appreciate the streamer's expertise, feel similar to them, experience ownership, and are emotionally bonded (raw coverage = 0.550, consistency = 0.885). This configuration has the highest raw coverage, indicating it is the most empirically prevalent pathway to purchase. Configuration C4 (~ expertise * homophily * trust * CWI) describes the 'Trust-Reliant Traditionalist' — a consumer who does not require expertise or similarity; trust and sustained watching commitment alone suffice (raw coverage = 0.308, consistency = 0.904). Configuration C5 (interactivity * ~expertise * homophily * PO * EA * CWI) represents the 'Social Connection Seeker' — driven by interactivity and homophily, developing both ownership and attachment without requiring expertise (raw coverage = 0.362, consistency = 0.902).

Across these five configurations, emotional attachment and continuance watching intention appear most consistently, suggesting they are the most frequent ingredients of high purchase intention — though the NCA results confirm they are not strictly necessary. The overall solution coverage was 0.703 and solution consistency was 0.858, indicating that the five configurations collectively explain a substantial portion of high purchase intention cases. The diversity of pathways underscores the equifinal nature of purchase decisions in farm food LSC and validates the configurational approach.

Configurations for low purchase intention. Two configurations sufficient for low purchase intention were identified, confirming causal asymmetry. Configuration L1 (~ expertise * ~EA) covers 50.1% of low-PI cases (unique coverage = 0.121, consistency = 0.813), suggesting that the joint absence of both expertise and emotional attachment is particularly detrimental. Configuration L2 (~ interactivity * ~trust * ~PO) covers 44.4% of low-PI cases (unique coverage = 0.064, consistency = 0.872). The overall solution coverage for low PI was 0.565 with consistency of 0.812. Notably, these low-PI configurations are not simply the mirror opposites of the high-PI configurations, empirically confirming the principle of causal asymmetry central to configurational theory. To assess the robustness of the fsQCA results, we conducted three sensitivity analyses. First, we varied the calibration anchors by ± 10% around the selected percentiles (25th, 50th, 75th); the number and composition of sufficient configurations remained unchanged. Second, we raised the raw consistency threshold to 0.85; all five configurations remained above the threshold. Third, we varied the frequency threshold; results were stable across thresholds of 2, 3, and 4. These checks confirm that the configurational findings are robust to reasonable analytical choices.

Table VI. Configurations Sufficient for High and Low Purchase Intention (fsQCA)

Panel A: Configurations for High Purchase Intention

#	Configuration	Persona	Raw Coverage	Unique Coverage	Consistency
C1	~homophily * PO * CWI	Independent Owner	0.331	0.012	0.923
C2	~interactivity * EA * CWI	Silent Admirer	0.363	0.022	0.905
C3	expertise * homophily * PO * EA	Fully Engaged Enthusiast	0.550	0.116	0.885
C4	~expertise * homophily * trust * CWI	Trust-Reliant Traditionalist	0.308	0.023	0.904
C5	interactivity * ~expertise * homophily * PO * EA * CWI	Social Connection Seeker	0.362	0.036	0.902

Solution coverage: 0.703; Solution consistency: 0.858. Frequency threshold = 3; raw consistency threshold = 0.80.

Panel B: Configurations for Low Purchase Intention

#	Configuration	Persona	Raw Coverage	Unique Coverage	Consistency
L1	~expertise * ~EA	Disengaged novice	0.501	0.121	0.813
L2	~interactivity * ~trust * ~PO	Alienated non-participant	0.444	0.064	0.872

Solution coverage: 0.565; Solution consistency: 0.812. ~ indicates absence of a condition. PO = psychological ownership; EA = emotional attachment; CWI = continuance watching intention.

5. Discussion and Conclusions

This study set out to answer three causally distinct questions about farm food LSC purchase decisions: (1) Are any conditions strictly necessary? (NCA); (2) What combinations of conditions are sufficient? (fsQCA); and (3) What are the average net effects? (PLS-SEM). The answers, taken together, paint a picture of purchase decisions that is more configurational than additive, more equifinal than linear, and more consumer-heterogeneous than prior LSC research has acknowledged. Below, we interpret each layer of findings and articulate their theoretical and practical significance.

5.1 The Non-Necessity of Any Single Mechanism

NCA establishes that no single condition — including trust, long considered the cornerstone of e-commerce — is strictly necessary for high purchase intention (all d = 0.000, p > 0.05). This finding must be appropriately bounded: it indicates non-necessity within the observed Likert-scale range, not a universal claim. Nevertheless, the practical implication is important — consumers can and do reach high purchase intention while scoring below the median on trust (69.1%), psychological ownership (60.7%), or emotional attachment (52.4%). The bottleneck analysis reveals CWI as the condition closest to necessity, requiring 50th-percentile levels for PI ≥ 4.0 — consistent with the temporal structure of live streaming, where purchase follows sustained viewing. This necessity-freedom provides the logical foundation for the configurational interpretation: equifinality is possible precisely because no individual condition is a bottleneck.

5.2 Five Configurational Pathways as Consumer Personas

fsQCA identifies five distinct configurations sufficient for purchase, each representing a different consumer persona — from the 'Independent Owner' (~ homophily * PO * CWI) to the 'Social Connection Seeker' (interactivity * ~expertise * homophily * PO * EA * CWI). Across configurations, emotional attachment and CWI appear most consistently, though NCA confirms neither is necessary. These multiple equifinal pathways challenge the implicit assumption that a single optimal combination of antecedents exists — instead, heterogeneous consumer segments arrive at purchase through psychologically distinct routes. The low-PI configurations confirm causal asymmetry: the path to purchase failure is not the mirror image of the path to success. The joint absence of expertise and emotional attachment (~ expertise * ~EA, covering 50.1% of low-PI cases) represents a distinct pathway to non-purchase not captured by any net-effect coefficient.

5.3 Net Effects Through a Configurational Lens

PLS-SEM confirms significant average effects of all three credibility dimensions (H1a–H3c supported). Critically, the dimensions do not operate with equal strength: interactivity and homophily exert more consistent effects across mediators than expertise. This asymmetry suggests that in socially rich LSC environments, relational dimensions dominate over informational dimensions — aligning with Pierce et al.'s (2001) prediction that the control and self-investment routes are more potent activators than the knowledge route.

The non-significant expertise→PO→purchase mediation (β = 0.020, p = 0.098) reveals a boundary condition of psychological ownership theory. Pierce et al.'s (2001) knowledge route proposes that intimate knowledge generates ownership feelings. Our finding suggests that in low-touch digital environments, expertise alone — without tactile and interactive elements — is insufficient to activate the sense of 'mine.' This is consistent with research showing PO in digital contexts requires richer experiences than passive information reception (Gong et al., 2020; Shi et al., 2022). The knowledge route to PO may be contingent on sensory richness attenuated in live-streaming. Together, the three methods form an integrated causal architecture: NCA establishes that nothing is indispensable, fsQCA identifies what combinations suffice, and PLS-SEM quantifies average contributions within those combinations.

5.4 Theoretical Implications

First, this study advances the SOR framework from an additive to a configurational causal architecture. By integrating NCA and fsQCA, we demonstrate that the organismic 'black box' contains multiple substitutable mechanisms, not a single cumulative pathway. This three-layer architecture — necessity, sufficiency, net effects — offers a template for marketing research seeking to move beyond average effects.

Second, the study differentiates three organismic mechanisms within a unified architecture grounded in Pierce et al.'s (2001) routes framework. The control route (interactivity→trust) operates through cognitive assurance, the self-investment route (homophily→attachment) through affective identification, and the knowledge route (expertise→ownership) through informational possession — but the latter is contingent on sensory richness attenuated in LSC. This integrated architecture resolves the fragmented presentation of mediators in prior research.

Third, the non-significant expertise→PO mediation identifies a boundary condition of psychological ownership theory: the knowledge route does not automatically translate into purchase behavior in low-touch environments, refining PO theory's scope conditions for digital contexts (Peck and Luangrath, 2018).

Fourth, the five fsQCA configurations demonstrate equifinality as a substantive feature of farm food LSC markets. The existence of psychologically distinct pathways to purchase challenges one-size-fits-all recommendations and calls for persona-based segmentation strategies. The low-PI configurations further confirm causal asymmetry, representing distinct routes to non-purchase not captured by net-effect coefficients.

Fifth, the NCA finding that no condition is necessary carries a provocative implication: LSC research may be over-invested in identifying single 'key' factors. Configurational logic suggests progress lies in understanding which combinations work for which segments under which conditions — a shift from variable-centered to pattern-centered theorizing that the NCA–fsQCA–PLS-SEM framework is uniquely equipped to support.

5.5 Practical Implications

For streamers, the non-necessity of any single mechanism means multiple strategies can succeed. Those targeting the 'Trust-Reliant Traditionalist' should prioritize transparency and reliability signals; those targeting the 'Fully Engaged Enthusiast' should build both expertise and emotional connection; those targeting the 'Independent Owner' should focus on product demonstration and immersive viewing. The key insight: streamers need not excel at everything — they should identify their primary persona and optimize accordingly.

For platform designers and marketers, the fsQCA configurations offer a segmentation framework. Recommendation algorithms can match consumers to streamers based on psychological profiles —

directing 'Silent Admirers' toward affectively appealing streamers, 'Independent Owners' toward product-focused broadcasters. Campaigns can be organized around three value propositions: trust-based (traceability, certification), ownership-based (immersive product storytelling), and attachment-based (streamer narratives, community events). Critically, campaigns should not activate all three routes simultaneously — NCA confirms this is unnecessary and may dilute the primary route.

For policymakers, the finding that purchase can flow through multiple pathways has implications for rural development. Governments can support farm food LSC by: (1) providing digital literacy and streaming training for small-scale farmers; (2) developing regional streaming hubs with shared facilities; (3) establishing voluntary certification programs that signal trustworthiness; and (4) investing in rural broadband. These investments leverage LSC's configurational nature — enabling diverse streaming models rather than a winner-take-all market.

In sum, the configurational perspective shifts the conversation from 'what works?' to 'what works for whom?' — aligning marketing practice with the heterogeneous reality of consumer decision-making. Future work should develop diagnostic tools enabling real-time classification of consumers into persona segments for dynamic strategy matching.

5.6 Limitations and Future Research

Several limitations warrant attention. First, the cross-sectional design precludes causal inference about temporal dynamics. Trust may form rapidly while emotional attachment likely requires repeated exposure — a distinction our data cannot capture. Longitudinal designs could track how consumers transition between personas. Second, the Chinese farm food context limits generalizability; cross-national comparative fsQCA would strengthen external validity. Third, NCA results are bounded by the Likert-scale measurement range — the non-necessity conclusion should be interpreted as 'within the observed range' rather than universal. Fourth, the consumer personas derived from fsQCA are interpretive labels requiring validation through cluster analysis, qualitative interviews, or experimental manipulation. Fifth, the CR-FDH estimator is sensitive to empirical range; future research could employ continuous measures or experimental designs extending the range of independent variables to provide stronger necessity tests.

Declarations

Author Contribution

xiaojun mai contributed to the conceptualization, methodology, validation, data curation, and original draft preparation; Sh. Ahmad Fauziah contributed to methodology, manuscript reviewing, and editing; Yuhe Wang was responsible for data collection. ni sun contributed to software development.

Data Availability

Data available from authors upon request.

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Figures

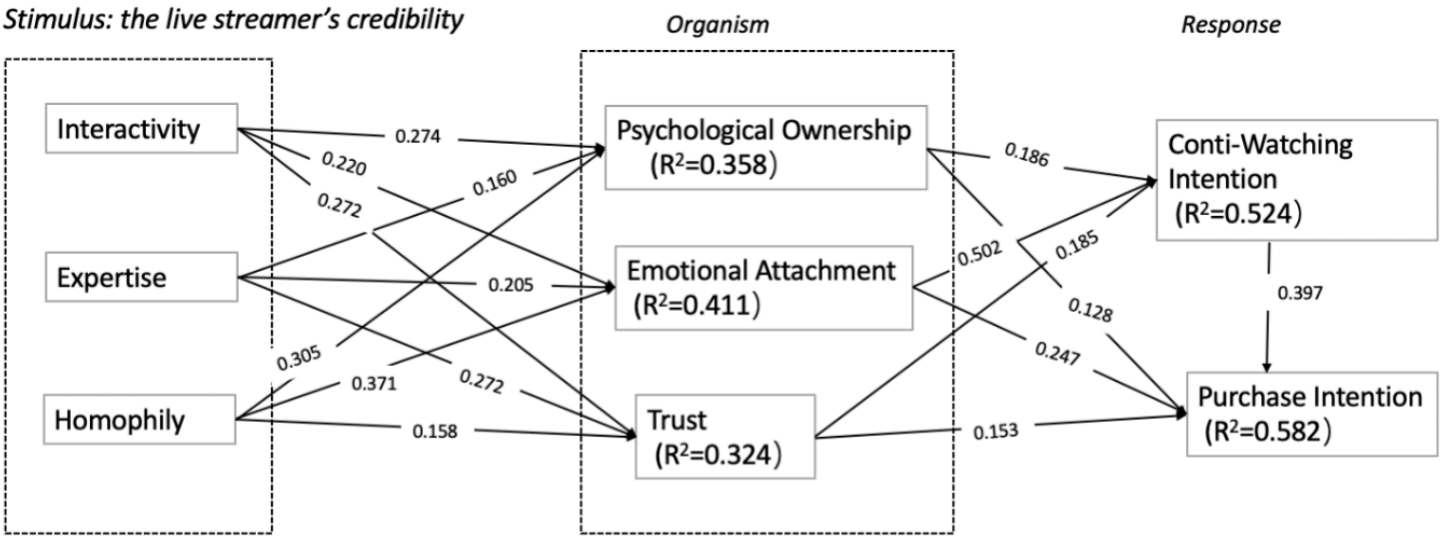


Figure 1

The results of pls-sem

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