

**Enhancing Consumer Trust in Secondhand Luxury Fashion
Live-Streaming: A Comparative Study of AI and
Third-Party Authentication**

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Summary:

The rise of live-streaming commerce has opened new opportunities for secondhand luxury retailers in China. However, a persistent lack of consumer trust in secondhand luxury retailers—driven by concerns over product authenticity and the absence of standardised authentication—remains a major barrier to purchase intention and consumer retention in live-streaming context. This research addresses this issue by examining how different authentication services adoption—AI-based, third-party, and none—affect consumer trust in retailers and, in turn, influence both purchase intention and consumer retention in secondhand luxury live-streaming commerce.

This research extends Social Exchange Theory (SET) by integrating authentication services as benefits that initiate trust-based reciprocal relationships between retailers and consumers. A mixed-methods design is employed: the first phase uses a quantitative survey experiment with simulated live-streaming videos to test the mediating role of consumer trust in retailer in the relationship between authentication services and purchase intention and consumer retention. The second phase involves qualitative semi-structured interviews to explore how consumers perceive the benefits and costs of AI and third-party authentication, and how these evaluations shape consumer trust in retailers. By integrating cost–benefit analysis into the SET framework, the study offers a novel theoretical lens to understand how trust is constructed through different authentication methods.

Track: Innovation**Word count:** 1980

1.0 Introduction

China's secondhand luxury market is projected to expand to 34.8 billion yuan by 2025, representing over 40% of total worldwide secondhand luxury sales (Statista, 2023), which highlights the Chinese market in the global industry. In China, live-streaming has become a leading digital sales channel for secondhand luxury retailers, offering real-time interaction and product demonstrations (Nan, 2024). However, despite its popularity, customers show significant distrust towards retailers and the authenticity of products offered on these platforms (Ju, 2021; Baijiahao, 2025), which deters both consumer purchase intention and retention (Pandey, Mittal and Chawla, 2024). The lack of consumer trust in retailers is also caused by the absence of standardised, real-time authentication methods during live-streaming sessions (Qian, 2018; Ju, 2021). Negash and Akhbar (2024) called for research to investigate how different authentication methods, such as third-party authentication, can help to build consumer trust.

Previous secondhand luxury fashion studies focus on testing the factors that impact purchase intention on traditional e-commerce platforms (Aycok, Cho and Kim, 2023; Tangri and Yu, 2023; Ki et al., 2024; Pandey, Mittal and Chawla, 2024). This leaves a crucial void in investigating how authentication services, like AI-based and third-party authentication services, impact consumer trust in secondhand luxury retailers during live-streaming transactions. This research addresses these gaps by examining how different authentication services (AI vs. third-party vs. none) influence consumer trust in retailers, which in turn impacts purchase intention and consumer retention.

Furthermore, the current research expands Social Exchange Theory (SET) by integrating authentication as a trust-building benefit and consumer retention as a reciprocal behaviour through a survey experiment. The second phase of the current research explores how consumers evaluate authentication services and how they affect their trust toward secondhand luxury retailers based on their perceived benefits and costs. By integrating cost-benefit analysis into the SET framework, the study offers a novel theoretical lens to understand how trust is constructed through different authentication methods. In doing so, the study contributes to both academic theory and practical strategies for improving consumer trust in retailers in live-streamed secondhand luxury commerce.

1.1 Secondhand Luxury Live-streaming Trade

Live-streaming commerce has transformed online shopping by engaging customers in real time (Wongkitrungrueng and Assarut, 2020). The secondhand luxury market, characterised by high-value and non-standardised products (Liu, Lang and Liu, 2023), is particularly well-suited for live-streaming commerce (Ju, 2021). Because each secondhand luxury product is unique and acquires various conditions, the customer

can ask live-streamers to show the details of each item, which help them to check the real condition and quality of the item virtually in real-time. Therefore, secondhand luxury consumers seek a more detailed presentation of products, along with professional explanations, which can enhance consumer trust in products and seller, making live-streaming a more effective medium than static images and text show on the e-commerce website (Zhang, Chen and Zamil, 2023).

1.1.1 Authentication Limitations Lead to Consumer Trust Issues

For tackling lack of consumer trust toward secondhand luxury products' authenticity and retailers through live-streaming commerce, live-streaming platforms such as Douyin and Xiaohongshu have implemented updated regulations in 2025, mandating that all secondhand luxury products must be dispatched only after being approved by third-party authentication centres designated by the platforms (Oingma Ngguo, 2025). However, authentication still occurs post-purchase, leaving a critical trust gap at the moment of making purchase decisions during live-streaming commerce. In addition, it is unavoidable that certain secondhand luxury retailers selling on live-streaming platforms exploit loopholes, counterfeit verification certificates and customs declarations, and engage in full-chain fraud to deceive consumers (Baijiahao, 2025). As a result, it remains highly challenging for consumers to build trust in the retailers during the live-streaming session. This uncertainty significantly reduces consumers trust in retailers, and ultimately deters them from making purchase decisions and revisiting the unreliable retailers during live-streaming session (Lu and Chen, 2021; Luo and Park, 2024; Gegen tana, Chai and Li, 2024). Therefore, government calls for scientific, data-driven standards, and high efficiency in secondhand luxury authentication (UIBE, 2024). This research will respond to called for research on testing digital innovations to enhance authentication methods and enhance consumer trust toward secondhand luxury retailers (Bae et al., 2022l; Luo and Park, 2024), which subsequently impact purchase intention and consumer retention.

1.2 AI authentication in secondhand luxury live-streaming

The artificial intelligence (AI) definitions emphasise the growing ability of machines to perform functions and responsibilities that were traditionally carried out by humans in professional and societal settings (Nabili et al., 2025). These functions include learning from historical data (machine learning), understanding natural language, recognising patterns, addressing complicated problems, and making independent decisions (Kaplan and Haenlein, 2019).

AI authentication technology has been adopted by secondhand luxury retailers, which utilises machine learning to verify product authenticity through microscopic material analysis and real-time image recognition (Entrupy, 2024). AI authentication technology acquires a 99.1% accuracy in verifying secondhand luxury bags within 60 seconds, which plays a pivotal role in enhancing product authenticity with higher

efficiency and accuracy (Mallon, 2023). Therefore, AI authentication can be integrated into secondhand luxury live-streaming commerce to enhance consumer trust in products' authenticity with standardised verification process (Paydey, Mittal and Chawla, 2024). Furthermore, the adoption of AI authentication in live-streaming help retailers reduce cost on providing third-party authentication service while enhancing consumer trust on retailers that provide real-time AI authentication process during live-streaming session. Table 1.1 shows the step-by-step process of how AI authentication works. Table 1.2 shows how AI authentication can be used in live-streaming commerce.

AI authentication process	How AI authentication works
1. High-resolution microscopic image	• Attach authentication device on mobile phone camera to capture microscopic images of the item's details.
2. AI & Machine learning analysis	• The captured images are uploaded to cloud-based AI system. • The system compares the images against a vast database of authentic and counterfeit product images, analysing: • Fabric texture and patterns • Stitching irregularities • Printing inconsistencies • Hardware engravings and material composition • Leather grain and finishing
3. Instant authentication result	• With seconds to minutes, the AI generates a authentication result: • Authentic • Unverified (requires further review by expertise) • Counterfeit

Table1.1 Step-by-step process of AI authentication
Sourcing: (Author's own)

AI authentication in live-streaming	How AI authentication works
1. Real-time authentication during live-streaming	• The live-streamer uses an AI authentication device to scan the secondhand luxury product. • The AI processes the image and instantly verifies authenticity during live-streaming. • The live-streamer displays the authentication certificate on screen.
2. Interactive AI authentication service	• Viewers can request authentication of specific items or details in the live-streaming session.

Table 1.2 Application of AI authentication in live-streaming commerce
Sourcing: (Author's own)

Despite the high efficiency and accuracy of AI authentication technology, it has not been applied during live-streaming for verifying secondhand luxury products in real-time. There is a noticeable scarcity of AI authentication research in the secondhand luxury sector, and even fewer that specifically applying during live-streaming commerce (Nabli et al., 2025; Quispe et al., 2024; Weiss, 2024).

This study aims to investigate how different authentication services—specifically AI-based and third-party authentication—enhance consumer trust in secondhand luxury retailers during live-streaming commerce in China, and how such trust subsequently influences consumer purchase intention and retention. Additionally, the study seeks to explore the perceived benefits and costs of these authentication services that contribute to trust formation.

2.0 Theoretical Framework and Hypothesis

The first phase of this research builds on the empirical model of Social Exchange Theory (SET) developed by Organ (1988), who extended Blau's (1964) work by conceptualising justice as a benefit that fosters social exchange relationships, which in turn elicit reciprocal behaviours. Organ's model—benefit → social exchange

relationship → reciprocative behaviour—has since been widely applied, with trust

consistently identified as a key mediator, particularly in organisational contexts (Konovsky and Pugh, 1994; Aryee et al., 2002; Ye and Kankanhalli, 2017). However, limited research has examined how offering authentication services as a trust-building benefit influences consumer retention and purchase intention in live-streaming commerce. This study addresses that gap through a survey experiment. Figure 2.1 presents the conceptual model of Phase 1.

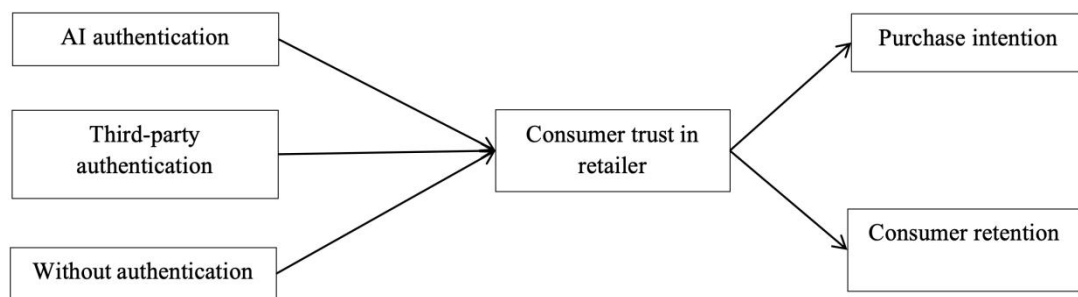


Figure 2.1 Phase 1 Conceptual Model

Source: Author's own

2.1 Relationship between Authentication Services, Consumer Trust in Retailers, and Purchase intention

Consumers shopping online—particularly for secondhand luxury goods via live-streaming—often question product authenticity and retailer trustworthiness (Negash and Akhbar, 2024; Pandey, Mittal and Chawla, 2024). Authenticity, defined as the product being real and original (Fine, 2003), is critical to building trust. Research shows that consumers are more likely to trust retailers who offer authentication services, which positively influences purchase behavior (Ki et al., 2024). Trust in retailers refers to the belief that sellers are reliable, ethical, and committed to fair transactions (Gefen et al., 2003). In live-streaming commerce, authentic content and real-time interaction enhance trust, which in turn drives purchase intention (Wongkitrungrueng and Assarut, 2018; Liu and Zhang, 2023).

Live streaming inherently assists consumers in mitigating the risks associated with product purchases by enabling them to view authentic products, receive

recommendations from retailers, and engage in the exchange of product (Wongkitrungrueng and Assarut, 2018). Consequently, when buyers view their product in real-time, it enhances their trust in the sellers, which eventually decide to purchase the products (Zhang, Chen and Zamil, 2023). Therefore, consumer trust in retailers could mediate the relationship between secondhand luxury live-streaming sessions even without any authentication services and purchase intention.

Hypothesis 1. Authentication services (AI Vs. Third-party Vs. None) offered by retailers positively impact consumer trust in retailers.

Hypothesis 2. Consumer trust in retailers positively impact purchase intention.

Hypothesis 3. Consumer trust in retailers mediate the relationship between different authentication services (AI Vs. Third-party Vs. None) offered by retailers and purchase intention in secondhand luxury live-streaming commerce.

2.2 Relationship between Authentication Services, Consumer Trust in Retailer and Consumer Retention

Consumer retention involves more than repeated purchases or viewing—it reflects a desire for an ongoing relationship with trusted retailers (Preikschas et al., 2017). Retailers often use authentication services to build consumer trust, which can enhance both purchase intention and repeated viewing (Ki et al., 2024; Swazan and Youn, 2024; Liu, Wang and Zhao, 2021). Despite the importance of consumer retention in live-streaming for keeping a sustained relationship between secondhand luxury retailers and consumers, limited research has tested this within the secondhand luxury sector. This study extends SET by incorporating consumer retention as a continuous outcome, examining how consumer trust in retailer mediates the effect of authentication services on retention in secondhand luxury live-streaming commerce.

Hypothesis 4. Consumer trust in retailers positively impact consumer retention.

Hypothesis 5. Consumer trust in retailers mediate the relationship between different authentication services (AI Vs. Third-party Vs. None) offered by retailers and consumer retention in secondhand luxury live-streaming commerce.

2.3 Understanding Consumer Trust Through Cost–Benefit Analysis

Cost–benefit evaluation has been widely used to explain trust-building processes in various contexts. For instance, Ye and Kankanhalli (2017) demonstrated that the benefits and costs of participation significantly influence solvers' trust in crowdsourcing platforms. Despite this growing body of literature, little attention has been given to how consumers assess the costs and benefits of authentication services—specifically AI-based and third-party authentication—offered by secondhand luxury retailers during live-streaming commerce. The second phase seeks

to address this gap by exploring how the cost–benefit evaluation of different authentication methods influences consumer trust in retailers, through qualitative semi-structured interview, within the context of secondhand luxury live-streaming. Figure 2.2 presents the conceptual model of Phase 2.

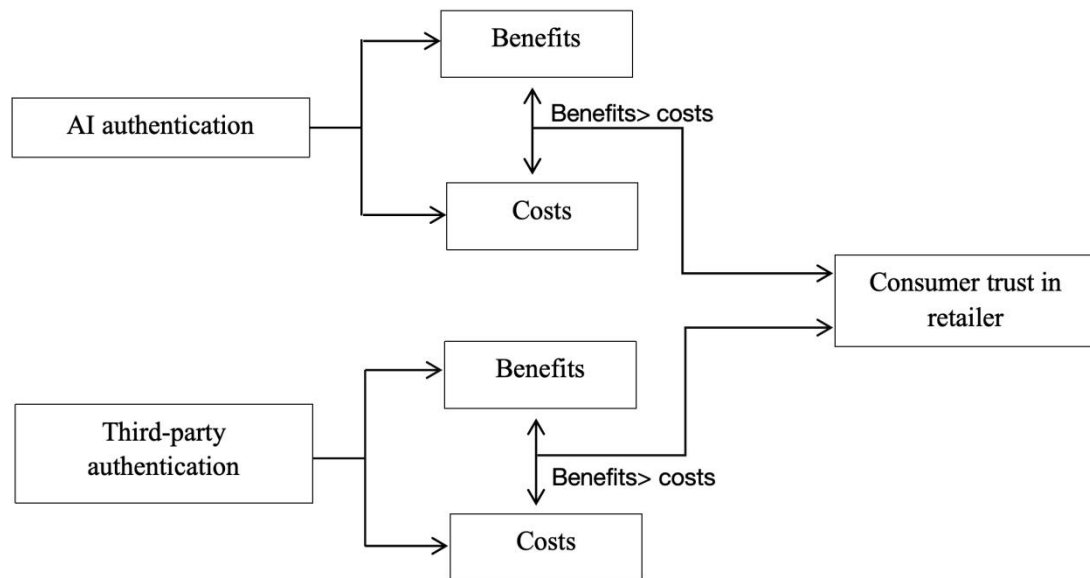


Figure 2.2 Phase 2 Conceptual Framework
Source: Author's own

3.0 Methodology

This research adopts a sequential explanatory research design, which involves collecting and analysing data in two stages-- quantitative experiment and survey followed by quantitative semi-structured interview (Saunders, Lewis and Thornhill, 2023). Table 3.1 shows research methods adopted in each stage for achieving research objectives.

Phase 1	Phase 2
Survey Experiment	Qualitative semi-structured interview
1. To examine the impact of different authentication services (AI, third-party, and no authentication) on consumer trust in secondhand luxury retailers during live-streaming commerce. 2. To investigate the mediating role of consumer trust in the relationship between authentication service type and purchase intention. 3. To test the mediating role of consumer trust in the relationship between authentication service type and consumer retention and purchase intention.	4. To explore consumer perceptions of the benefits and costs associated with AI and third-party authentication, which influence consumer trust in retailers in secondhand luxury live-streaming commerce.

Table 3.1 Summary of Research Design

Source: Author's own

1.1 Quantitative Research Design and Procedure

The current experiment includes two experimental groups with two interventions (i.e., AI and third-party authentication service are provided by live-streamer), and a control group does not have any intervention (i.e., no authentication services are provided by live-streamer). For ensuring the internal validity of experimental design, this research will create secondhand luxury live-streaming video that except the difference in the authentication services used by live-streamer, all the recording elements (e.g., secondhand luxury handbag, interface design, live-streaming background, demonstration of the products, and live-streamer) are identical within all three experimental conditions. In addition, the majority of secondhand luxury live-streaming consumers in China are millennials and Gen Z consumers (Nan, 2024). This research aims to recruit at minimum 110 consumers aged 18-40 who have watched secondhand luxury live-streaming commerce.

Participants will randomly allocated to one of three conditions. Then, they are asked to read and imagine the following scenarios: “Imagine you are watching a secondhand luxury live-streaming.” Next the participants are guided to play the pre-recorded live-streaming video. Lastly, participants are invited to complete a

survey that are designed to measure the consumer trust in retailer, purchase intention, and consumer retention. In addition, to ensure the validity of experiment's manipulations, manipulation tests is provided for identifying different authentication services.

3.2 Semi-structured Interview Procedure

Prior to the interview, participants were shown the same pre-recorded live-streaming video used in the earlier survey experiment. This video served as a stimulus to help participants understand how different authentication services—AI-based and third-party—are implemented by secondhand luxury retailers during live-streaming commerce. After viewing the video, the interview commenced following a semi-structured guide developed in alignment with the research objectives. Table 3.2 shows the semi-structured interview questions used to explore consumers' perceived benefits and costs of authentication services adopted and how it impact consumer trust in retailers.

1. Warm-up questions	- Can you describe your experience with watching or purchasing from secondhand luxury live-streaming sessions?
2. Perceptions of authentication	- What do you think about the use of AI technology (e.g., Entrupy) to authenticate luxury products during live-streaming? - How do you feel about third-party human experts being used for authentication?
3. Impact of consumer perceived benefits and costs on consumer trust	- What are the positive or negative features of AI authentication used during live-streaming that may influence your trust toward retailers. - What are the positive or negative features of third-party authentication used during live-streaming that may influence your trust toward retailers.
4. Comparative Evaluation	- In your view, which authentication method—AI or third-party—do you trust more, and why? - What factors make one method more credible than the other in your opinion?
5. Closing	- Is there anything else you would like to share about your experience with authentication in secondhand luxury live-streaming?

Table 3.2 Semi-structured Interview Questions

Source: Author's own

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