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The Impact of Live Streamer Type and Live Streaming Scene Type on Agricultural Product Purchase Intention: A Psychological Distance Perspective

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ABSTRACT

With the development of live streaming, it is becoming widely adopted by farmers to broadcast their agricultural products. Despite its practical prevalence, the theoretical understanding of the purchase of agricultural products in the live-streaming context is still lacking. To fill this gap, based on the theory of psychological distance, this study focuses on the roles of two context-specific factors namely the live streaming scene of production place and the live streamer type of famers, and investigates their impact on agricultural product purchase intention together with brand awareness. A 2 (streamer type) ×2 (scene type) ×2 (brand awareness) factorial experiment is designed to validate the proposed research model. Expected theoretical and practical contributions are discussed.

Keywords: Live streaming, agricultural products, live streamer type, live streaming scene type, psychological distance, trust, purchase intention.

INTRODUCTION

Live streaming has become one of the important sales methods for online sellers, through which online store sellers can display more information about their products, such as dynamic details, user experience, and production processes. According to the 51st Statistical Report on the Development of China's Internet released by the China Internet Network Information Center (CNNIC), the number of e-commerce live-streaming users exceeded 515 million in December 2022, a year-on-year increase of 51.05 million. Meanwhile, the popularization of live-streaming e-commerce in rural areas are accelerating. More and more farmers are promoting agricultural products through live streaming. Many agricultural products that are unsold or unable to open up the market due to insufficient popularity have been improved and increased in sales by using live streaming. According to the Power of Douyin E-commerce in Rural Development during the 2022 Harvest Festival, the number of merchants increases by 152% and 2.83 billion agricultural products are sold on Douyin platform from September 2021 to September 2022.

Although it is popular in practice to use live streaming for selling agricultural product, research on the influence of live streaming on agricultural product purchase are very few. First, only limited studies paid attention to the characteristics of agricultural product (Dong et al., 2022; Guo et al., 2022; Song et al., 2022; Zheng et al., 2023) and most previous studies did not distinguish product categories which triggered several issues. For example, compared to other types of products, agricultural products have significant uncertainty in transportation and taste, making it difficult for consumers to evaluate the quality. Thus, the results of these findings may not work for agricultural products. Second, previous studies discussed factors affecting purchase intention which includes IT affordance, product-related factors, and consumer-related factors. (Sun et al., 2019; Men et al., 2023; Lu & Chen, 2021; Park & Lin, 2020; Chen et al., 2022). Less attention has been paid to the impact of live streaming scene on product purchase intention. However, for agricultural product broadcasting, there is a unique scene such as the production place scene which involves the place where the product is produced in the countryside which could provide rich information about the agricultural products to reduce product uncertainty. Third, farmers can broadcast the product themselves aside from using professional streamer. Although previous study has discussed the streamer type on product purchase intention (Liu & Yu, 2022; Guo & Sun, 2022), the impact of using famer as the live streamer on product purchase intention is unclear. Thus, to summarize, our study aims to find out impact of these two context-based designs compared with traditional designs such as indoor studio scenes and professional streamers on agricultural product purchase intention is unclear. Two main research questions are proposed as follows:

RQ1: Which type of live streaming scene has a higher impact on agricultural products purchase intentions, indoor studio or production place, and when?

RQ2: Which type of live streamer has a higher impact on agricultural product purchase intentions, farmer or professional steamer, and when?

As psychological distance theory is used to explain product purchase behavior, we would like to adopt this theory to explain these two research questions. We contend that both live streaming scenes and live streamers will impact psychological distance, and different types of live streaming scenes and live streamers could trigger different degrees of psychological distance. Psychological distance could then impact trust which promotes agriculture product purchase.

LITERATURE REVIEW

Live Streaming and Agriculture Product Purchase

Previous studies on purchase behavior in the live streaming context has investigated factors affecting purchase intention which includes IT function, such as visibility, meta voicing, guidance shopping, immersion, presence (Sun et al., 2019), interactivity (Men et al., 2023), product-related factors such as product quality uncertainty or fit uncertainty (Lu & Chen, 2021), influencer-product fit, live content-product fit (Park & Lin, 2020), consumer-related factor including utilitarian and hedonic motivations, and broadcaster-related factors, such as perceived expertise, similarity, familiarity, and likeability (Chen et al., 2022).

Table 1: Literature Review of Related Studies on Live Streaming

Reference	Live-streaming Design	Dependent Variables	Streamer type	Scene Type	Agricultural Product
(Sun et al., 2019)	Visibility; Meta voicing; Guidance shopping; Immersion; Presence	Purchase intention	No	No	No
(Park & Lin, 2020)	Wanghong-product fit; Live content-product fit; Wanghong trustworthiness; Wanghong attractiveness	Purchase intention	No	No	No
(Lu & Chen, 2021)	Physical characteristic similarity; Value similarity; Product fit uncertainty; Trust; Product quality uncertainty	Purchase intention	No	No	No
(Chen et al., 2022)	Perceived expertise; Perceived similarity; Perceived familiarity; Perceived likeability	Purchase intention	No	No	No
(Zheng, Lyu, Wang, & Wachenheim, 2023)	Influence; Sales promotion; Interactive entertainment; Environmental problem perception; Green consumption awareness; Green consumption cognition	Consumers' purchasing behavior	No	No	yes
(Yu & Zhang, 2022)	Perceived interactivity; Perceived effectiveness of e-commerce institutional mechanism; Perceived endorsement; Shipping; Product familiarity; Subjective norms; Altruistic value; Live shopping experience	Purchase intention	No	No	yes
(Dong, Zhao, & Li, 2022)	Information Quality; System Quality; Service Quality; Telepresence; Social Presence	Green purchase Intention	No	No	Yes
(Liu & Yu, 2022)	Streamer type; Product type; Brand awareness	Purchase intention	Yes	No	No
(Guo & Sun, 2022)	Streamer trustworthiness; Streamer expertise; Streamer responsiveness; Information quality; Bullet screen mutuality	Purchase intention	Yes	No	Yes
This Study	Live streamer type; Live streaming scene; Brand awareness	Purchase intention	Yes	Yes	Yes

As shown in Table 1, there are some literature gaps of related studies. First, most previous studies did not distinguish product categories, with a few studies focusing on agricultural products (Dong et al., 2022; Guo et al., 2022; Song et al., 2022; Zheng et al., 2023). While the quality of agricultural products is more difficult to evaluate than most other products, the factors impacting agricultural product purchase intention would be different. Second, previous studies explore factors that affect consumer purchasing intention including information, system, service quality, effectiveness of e-commerce institutional mechanism (Dong et al., 2022), trustworthiness, expertise, responsiveness (Guo et al., 2022; Song et al., 2022; Wang & Fan, 2021; Zheng et al., 2023), Locality, seasonality, eco-friendliness of green agri-food (Wang & Fan, 2021), the impact of streamer type and scene type is less studies.

Construal Level Theory and Psychological Distance Theory
In social psychology, the relationship between an individual's construal level and psychological distance is usually elucidated based on the construal level theory (Liberman & Trope, 1998; Nira Liberman et al., 2007). "Psychological distance is defined as the degree to which an object is perceived to be tangible or immediately present in terms of the here-and-now" (Trope et al., 2007). According to CLT (Construal level theory), the way people subjectively represent and explain events will be influenced by psychological distance (Tugrul & Lee, 2018). The antecedents and outcomes of psychological distance have been addressed in previous studies. For example, the psychological distance between users can be reduced through inhabited space and the isomorph effect (Lim et al., 2012). Previous research indicated that live interactions positively affect psychological distance (Xue et al., 2020). Vicarious learning strategies can promote consumers' psychological proximity which further positively impacts consumers' personal value (Men et al., 2023). Previous studies have shown that using simple website strategies can reduce psychological distance, thereby enhancing trust and purchasing behavior (Darke et al., 2016). There has been research that applied the theory and proved that live streaming strategy could shorten psychological distance which then negatively affects online purchase intention (Zhang et al., 2020). However, in the field of live streaming research especially for agricultural product purchase behavior, the theory of psychological distance is less adopted.

As psychological distance can be used to explain online purchase behavior, we adopt it to explain agricultural product purchase intention. Live streaming can present the original information of products, enabling consumers to have a more comprehensive understanding of the products. While psychological distance can be towards objects, people, or events, we are also interested in both product and social psychological distance as product and streamer perception would impact purchase intention. Further, as live interactions or design could impact psychological distance, such as the presence and interactivity of live streaming (Xue et al., 2020), our study will also discuss the live streaming design which includes the streamer design and scene design on psychological distance on the purchase intention.

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Our study is devoted to explaining the impact of both streamer type and scene type on purchase intention. We divided the psychological distance into product psychological distance and social psychological distance and classified the trust into trust in the product and trust in the streamer. We contend that streamer and scene could impact psychological distance, and brand awareness could moderate this impact. Psychological distance can impact trust which then promotes purchase intention. The research model is shown in Figure 1.
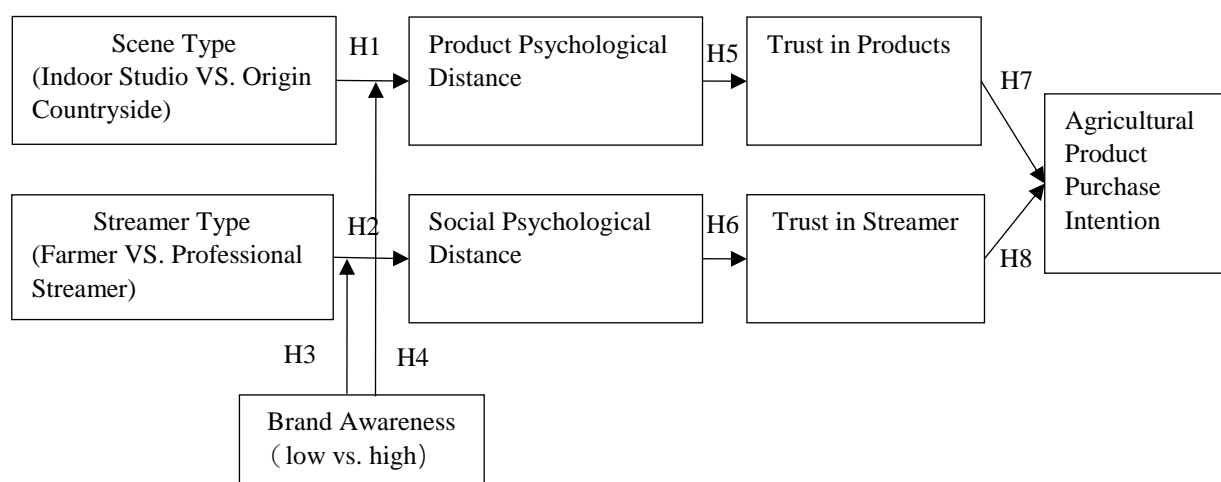

Figure 1. Research Model

Scene Type, Streamer Type and Psychological Distance

According to psychological distance theory, the abstracted level of information will influence the psychological distance level (Nira Liberman et al., 2007). Compared with a scene of an indoor studio, the scene of the production place provides more detailed information about the product such as the environment where the products are growing. Live streaming presents the details of the origin environment and the process of product generation to consumers in real-time video format. Previous research mentioned that the correlation of spatial context has a great impact on psychological distance perception (Fujita et al., 2006). By presenting the origin, consumers receive more detailed information about agricultural product production, as if they are in rural farmland or planting sheds, in order to bring closer geographical proximity. Thus, we proposed that the scene of production place could induce lower psychological distance than the scene of an indoor studio. The streamer type of farmer is perceived as simpler, with a high level of authenticity and empathy, creating a sense of familiarity among consumers (Rodin, 2023). Based on CLT, familiarity can reduce the psychological distance (Lii et al., 2012). Further, empathy is closely related to psychological distance (Lee et al., 2018). Thus, we contend:

H1: Compared with a scene of an indoor studio, a scene of a production place can cause shorter customers' product psychological distance.

H2: Compared with the professional streamers, the farmers can cause shorter customers' psychological distance towards the products.

The Moderating Effect of Brand Awareness

Brand awareness means the strength of the brand node in memory (Yoo et al., 2000). With a high brand awareness, consumer could easily recognize the brand among other brands. Brand awareness is widely accepted as an additional value for a brand which means even without enough information brand itself could provide a quality signal to consumers to induce their purchase behavior. In live streaming, with a higher brand awareness, the positive impact of concrete information might be decreased. Thus, we contend that the positive impact of the scene of production place will be decreased. Similarly, with a higher brand awareness, the positive impact of the streamer of farmer will also be decreased. Thus, we proposed:

H3: Brand awareness moderates the impact of scene type on product psychological distance.
H4: Brand awareness moderates the impact of streamer type on social psychological distance.

Psychological Distance and Trust

According to psychological distance, the psychological distance could influence the perception of the abstract level of the object or people (Nira Liberman et al., 2007). Thus, with a lower psychological distance, the concrete level of the object or people will be higher. In our study, we distinguish psychological distance into product psychological distance and social psychological distance. Lower product psychological distance means consumers have a more concrete perception of the product, which could help consumers reduce their product uncertainty and promote trust in the product. Second, psychological proximity could boost trust as higher social psychology distance induces distrust (Harwood & Lin, 2000). Thus, we contend:

H5: Product psychological distance negatively affect trust in the products.
H6: Social psychological distance negatively affect trust in the streamer.

Trust and Agricultural Product Purchase Intention

Trust is defined as the consumer's belief that a certain online store or people can be relied upon even if there exists the possibility of loss (Komiak & Benbasat, 2004; Sia et al., 2009). In previous literature, trust is proved to be a major antecedent of product purchase intention in e-commerce platforms(Venkatesh et al., 2012). In the context of live streaming, previous research demonstrated a positive impact on product purchase intention (Lu & Chen, 2021). This study distinguishes trust into trust in product and trust in streamers. Trust in the product means that the product will ensure the expected quality (Wongkitrungrueng & Assarut, 2020), and trust in the steamers indicates that the streamer is honest, and expert and does not exaggerate and falsify product information (Lu et al., 2010). Wongkitrungrueng and Assarut (2020) divided trust into trust in agriculture products and trust in sellers and proved that both trust in agriculture products and trust in sellers could promote engagement in the agriculture products live streaming. As engagement could further promote product purchase intention (Shi et al., 2022). Thus, we contend that trust in agriculture products and trust in streamers will positively impact purchase intention.
Thus, we proposed:

H7: Trust in the product positively affect consumers' purchase intention towards agricultural product.
H8: Trust in the streamer positively affect consumers' purchase intention towards agricultural product.

RESEARCH METHODOLOGY

Experimental Design

A 2-scene Type (Indoor studio VS. Production place) × 2 Streamer Type (Farmer VS. Professional Streamer) × 2 Brand awareness (Low VS. High) factorial experiment is designed and 8 corresponding live streaming screening pictures will be designed. The scene Type is manipulated as the place of live streaming either in the indoor studio or in the production place of

the agricultural product in the countryside and the streamer type is designed as either a farmer or a professional streamer. For brand awareness, we will conduct a pretest to select the same type of agricultural product but with either high brand awareness or low awareness. Among 8 scenarios, product price, number of audiences, number of followers, number of comments, and content of the comments are controlled as the same.

Participants were randomly assigned to eight experimental groups. After they browse the live-streaming screening pictures, they will fill in the questionnaire. The questionnaire includes three parts. The first part includes questions about manipulation checks of streamer type, scene type, and brand awareness level. After that, we measure product psychological distance, social product distance participants' trust and purchase intention. Finally, demographic information such as age, gender, and education level will be measured. Constructs and measurements are listed in Table 2.

Table 2: Constructs and Measurement

Constructs	Measurement	Source
Manipulation Check of Streamer Type	Which one is the streamer in the live streaming? 0 = a famer, 1= a professional streamer.	(Liu & Yu, 2022)
Manipulation Checks of Scene Type	What is the scene in the live streaming? 0 = production place, 1= indoor studio.	(Liu & Yu, 2022)
Product Psychology Distance	1. While watching the live streaming, how physically close are you to the product? [Very Close. . .Very Distant] 2. While watching the live streaming, how abstract are the product in your mind Abstract = Difficult to Imagine | Concrete = Easy to Imagine [Very Concrete. . .Very Abstract]. 3. While watching the live-streaming, how tangible are the attributes of the product in your mind? Tangibility is the extent to which you can sense (e.g., see, touch, hear, taste, or smell) the object of interest. [Very Tangible. . .Very Intangible]. 4. While watching live-streaming, how real do they seem in your mind? [Very Real. . .Very Hypothetical].	(Darke et al., 2016)
Social Psychology Distance	1. While watching the live streaming, how physically close are you to the streamer? [Very Close. . .Very Distant] 2. While watching the live streaming, how abstract are the streamer in your mind? Abstract = Difficult to Imagine | Concrete = Easy to Imagine [Very Concrete. . .Very Abstract]. 3. While watching the live streaming, how tangible are the attributes of the streamer in your mind? Tangibility is the extent to which you can sense (e.g., see hear) the people. [Very Tangible. . .Very Intangible]. 4. While watching live-streaming, how real do they seem in your mind? [Very Real. . .Very Hypothetical].	(Darke et al., 2016)
Trust in Product	1. I think the products I order from the live streaming will be as I imagined. 2. I believe that I will be able to use products like those demonstrated in the live streaming. 3. I trust that the products I receive will be the same as those shown in the live streaming.	(Wongkitrungrueng & Assarut, 2020)
Trust in Streamer	1. The streamer is like a real expert in assessing the products. 2. The streamer keeps my interests in mind. 3. I consider this streamer to possess integrity.	(Lu & Chen, 2021)
Brand Awareness	1. I know how the brand featured in the live streaming looks like. 2. I can recognize the brand among other competing brands. 3. I am aware of the brand in live streaming.	(Yoo et al., 2000)
Agricultural Product Purchase Intention	1. I am very likely to buy the agricultural product from the streamer. 2. I would consider buying the agricultural product from the streamer in the future. 3. I intend to buy the agricultural product from the streamer.	(Lu & Chen, 2021)

Data collection will be conducted on an online questionnaire platform. This study will further validate the validity of the hypothesis through questionnaire data. It is expected to collect three hundred valid data samples and provide certain material

rewards to the participants in the experiment. Data processing will be conducted using SPSS, and multiple methods will be used to analyze the data.

EXPECTED CONTRIBUTION

This study contributes both theoretically and practically. From a theoretical perspective, this study first contributes to the literature on the live streaming by investigating the special product type of agricultural products purchase intention in live streaming context. Second, this study extends previous research by focusing on the impact of the live streaming design of the scene of production place and streamer type of the farmer on agricultural product purchasing intention. Furthermore, by applying psychological distance theory to the context of live streaming, this study extends the applied scope of the theory. From a practical perspective, the results could provide guidelines for agricultural products selling strategies through live-streaming.

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