

Unveiling green perception effect: How live streaming scenes and green information influence purchase intention of prepared dishes

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Abstract: To promote the sustainable consumption of prepared dishes, this study examines how green attribute information (GAI) and live streaming scenes experience (LSSE) influence consumers' green perceptions (GP) – including perceived green value (PGV) and perceived green trust (PGT) – and subsequently affect their purchase intention (PI). A green perception model was developed and tested using a mixed-method approach. Word cloud analysis was conducted on consumer comments collected from e-commerce platforms to extract key descriptors and concerns, which informed the design of a structured questionnaire. A total of 291 valid responses were analysed using partial least squares structural equation modelling (PLS-SEM). Results show that: (i) GAI does not directly impact PI, indicating that GP is a necessary mediator; (ii) GAI significantly influences PGV, but not PGT; (iii) GP fully mediates the GAI–PI relationship, although PGV has a negligible direct effect on PGT; (iv) LSSE significantly enhances both GP and PI; (v) GP partially mediates the LSSE–PI relationship. These findings highlight the dual role of LSSE in facilitating information adoption and emotional engagement, and suggest that enhancing LSSE design and enriching GAI are effective strategies to increase consumers' green perception and purchase intention towards prepared dishes.

Keywords: live streaming scenes experience; green attribute information; perceived green value; perceived green trust; purchase intention

The prepared dishes industry, serving as a crucial carrier of innovation in the agricultural and food industrial systems, is witnessing an unprecedented developmental opportunity against the backdrop of the global shift towards green consumption patterns and

the advancement of sustainable development goals. In the aftermath of the pandemic, this industry has emerged as a key driver for consumption recovery and market expansion but also as a strategic role in facilitating reforms to agricultural supply chains and

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driving the transition to a low-carbon economy (Jia et al. 2024). The green innovation in prepared dishes encompasses various aspects including production, consumption, and logistics, all contributing to the reduction of carbon emissions. During the production phase, centralised procurement ensures standardised management of agricultural inputs. Moreover, the adoption of clean energy technologies in central kitchen systems is shown to significantly reduce carbon emissions per unit of product (Jia et al. 2024). At the consumption end, portion-controlled packaging is considered an effective measure for reducing household and kitchen food waste (Bumbudsanpharoke and Ko 2022). In the domain of logistics, enhanced energy efficiency in cold chain operations coupled with the scaled utilisation of green packaging fosters a low-carbon supply chain network (Hu et al. 2021). The three-dimensional collaborative model for green innovation in prepared dishes not only aligns with the 'lifecycle emissions reduction' and 'sustainable consumption' principles emphasised at COP25, but also echoes the carbon-neutral 'farm-to-table' pathway advocated in global climate agendas.

The growth of the 'stay-at-home economy' and the rising popularity of live streaming shopping have contributed to the expansion of e-commerce consumption (Kawasaki et al. 2022). Against the backdrop of an accelerating pace of life, the emergence of prepared dishes has effectively addressed issues such as time constraints and limited cooking skills, fostering a growing global preference for such products (Jia et al. 2024). Nevertheless, some consumers remain hesitant, primarily due to concerns regarding food safety risks (Shu et al. 2024; Zhang et al. 2024). Existing research in this field has predominantly focused on the industry or enterprise level. The present study empirically investigates the key factors influencing consumers' purchase decisions regarding prepared dishes.

Research on prepared dishes encompasses studies on healthy eating habits among specific demographic groups (Fu et al. 2024). Surveys were conducted to examine consumer attitudes towards prepared dishes, and various factors influencing green perception were systematically analysed (Zheng et al. 2024). Furthermore, effective strategies for cultivating consumers' environmental awareness towards prepared dishes were explored (Roh et al. 2022). In recent years, live streaming has been employed as a means of enhancing the customer's online shopping experience (Asante et al. 2023). According to the Stimulus-Or-

ganism-Response (SOR) theory, the multimodal sensory stimulation in livestream e-commerce can influence consumers' cognitive processes through an 'immersive green experience' (Huang et al. 2023). Specifically, the use of real-time visualisation technology has been demonstrated to increase the perceived credibility of green attribute information (GAI) (Dou and Li 2024), thereby enhancing green perception and encouraging purchase intention. Although existing research has made some progress in the consumer behaviour and green perception of prepared dishes, studies combining the live streaming scene experience with the green perception remain in their infancy. Specifically, the existing literature has shortcomings in the following aspects: firstly, there is a lack of in-depth exploration of the specific mechanism of how the live streaming scene affects consumers' green perception; secondly, there are relatively few studies on how the information of green attributes is received and processed by consumers in the live streaming environment; lastly, prepared dishes as an emerging field, its green marketing strategies and consumer psychology research in live streaming sales are insufficient.

This study constructs a green perception model integrating GAI and live streaming scenes experience (LSSE), in order to investigate the mediating role of green perception in shaping consumers' purchase intention, thus expanding the application of green perception under live streaming scenes. By combining SOR theory, this study explores how multimodal sensory stimulation in live streaming scenes affects consumers' cognitive processes through 'immersive green experience'. It further verifies the role of real-time visualisation technology in improving the perceived trust of GAI, as well as its promotion mechanism on green perceptions (GP) and purchase intention (PI). This model provides a new perspective and theoretical support for understanding consumers' green consumption behaviour under live streaming scenes.

Literature review and hypotheses. Green perceptions refer to the pivotal process by which consumers interpret green information, formulate perceptions, and make purchasing decisions (Roh et al. 2022). It encompasses the evaluation of a product's green attributes (Khan et al. 2022) as well as the environmental protection practices of enterprises (Bang and Cong 2024). As environmental awareness increases, green perceptions have evolved into a multidimensional concept that includes green perceived value (PGV), green

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perceived trust (PGT), green perceived risk, green perceived quality, and green perceived knowledge (Riva et al. 2022; Roh et al. 2022; Zhang et al. 2024). Among these elements, PGV and PGT are frequently cited as standard metrics.

Perceived green value (PGV). PGV is a multidimensional concept encompassing environmental value, functional value, emotional value, time value and economic value (Tharrey et al. 2020; Roh et al. 2022; Tawde and Rv 2024). Building on the unique characteristics of prepared dishes (Jia et al. 2024; Zheng et al. 2024) this study focuses on four primary dimensions: environmental value, nutritional value, time value, and economic value. Products high in PGV tend to attract consumers who prioritise eco-friendly attributes, even if these come at a higher price point (Tawde and Rv 2024). Such a shift offers manufacturers new market avenues, allowing them to bolster consumer purchasing intentions by amplifying the PGV of their offerings, thereby securing a competitive edge. In the context of e-commerce, leveraging online marketing strategies to highlight the PGV of prepared dishes can foster consumer purchase intention (PI), enabling businesses to navigate intense market competition (Wu et al. 2024). Thus, it is hypothesised that: H_1 : PGV of prepared dishes positively influences PI.

Perceived green trust (PGT). PGT refers to the consumer's subjective confidence in a particular entity's ability, integrity, and goodwill to implement green practices effectively (Chauhan and Goyal 2024). In the context of e-commerce, information asymmetry has been shown to increase transaction risks for consumers, thereby underscoring the pivotal role of the trust mechanism in facilitating consumer decision-making (Chen et al. 2022b). Prior studies have predominantly centred on two forms of trust: dispositional trust, defined as an individual's stable trust tendency, and institutional trust, encompassing suppliers, brands, retailers, and certification bodies (Ricci et al. 2018). It is noteworthy that in circumstances where cognitive resources are limited, consumers often rely on institutional trust as a cognitive shortcut to reduce the risk of adopting new products (Bang and Cong 2024), a mechanism that is particularly evident in the consumption of prepared dishes with high experiential attributes. This study innovatively deconstructs the four-dimensional framework of PGT (e.g. green supply trust, green brand trust, green marketing trust, and green certification trust) by transcending the single-dimensional constraints of traditional trust models. Furthermore, existing research often considers green perceived value

as a precursor variable to green trust (Roh et al. 2022); this study aims to further elucidate the impact of PGV on PGT. Thus, hypotheses are proposed:

H_2 : PGT in prepared dishes positively influences PI.

H_3 : PGV has a positive influence on PGT.

Green attribute information (GAI). Product attribute information generally includes the search attributes (e.g. price, dimensions, size, colour) and experience attributes (e.g. taste, convenience, durability), as well as certificate attributes (Marcon et al. 2022). The centrality of green attributes, the transparency of green information, and the manner of its presentation can also influence or constrain consumer perception (Fu et al. 2023). The green attributes of prepared dishes integrate the health and environmental characteristics of the food itself with the eco-friendly practices employed in its production process, which impacts consumers' GP and PI. This reflects the combined effects of intrinsic and extrinsic attributes (Cardona et al. 2023). Thus, the following hypotheses are proposed:

H_4 : GAI has a positive impact on PGV of prepared dishes.

H_5 : GAI has a positive impact on PGT of prepared dishes.

H_6 : GAI has a positive impact on PI of prepared dishes.

Live streaming scenes experience (LSSE). LSSE refers to the structured design of live streaming environments that immerse consumers in product-related scenes, enhancing their perceptual and interactive engagement. In live streaming e-commerce, companies can leverage LSSE to interact with consumers and visually present the production process, quality control measures of their products (Peng et al. 2023). While the effectiveness of live streaming is influenced by multiple factors, prior research has predominantly focused on the performance of hosts or streamers (Wu et al. 2024). With the increasing standardisation of the streaming model and the rise of virtual anchors and AI technology, the importance of LSSE is gradually emerging (Yu et al. 2024). LSSE emphasises the construction of immersive and interactive streaming scenes, wherein multisensory engagement enhances consumer awareness, comprehension, and trust in products. Information Adoption Model (IAM) plays a key role in this process, explaining how audiences evaluate and adopt information in live streaming scenes by emphasising factors such as information quality, credibility of sources, and perceived usefulness (Chen et al. 2022a). Through multisensory stimulation, LSSE not only amplifies user experience but

also optimises information processing and dissemination, making audiences more receptive, more capable of comprehension, and more inclined to share live streaming content (Xu et al. 2024). By employing diverse LSSE strategies, businesses can transparently show key stages of production (e.g. planting, processing and cooking), thereby increasing consumer awareness of green attributes and reinforcing their confidence in sustainable product claims. Consequently, LSSE is expected to positively impact PGV and PGT, ultimately influencing purchase intentions. Thus, the following hypotheses are proposed:

H_7 : LSSE has a positive impact on PGV of prepared dishes.

H_8 : LSSE has a positive impact on PGT of prepared dishes.

H_9 : LSSE has a positive impact on the PI of prepared dishes.

The study adopts the theory of green perception to construct a 'scenes-perception-behaviour' theoretical model, with the objective of examining the impact pathway of consumers' GP (PGV and PGT) on PI towards prepared dishes. The premise of the model is that both GAI and LSSE of prepared dishes displayed on e-commerce platforms can affect consumers' GP of prepared dishes, subsequently affecting the PI (Figure 1).

MATERIAL AND METHODS

The research was designed using a mixed-methods approach, incorporating both qualitative and quanti-

tative approaches, with an emphasis on quantitative analysis. Initially, a model was developed via literature review, and the dimensions of the model's indicators were tentatively established. Subsequently, consumer comments for prepared dishes were gathered from e-commerce platforms and underwent textual analysis. Utilising the results of this analysis, keywords pertinent to GAI and LSSE were discerned, facilitating the description of questionnaire items. Data collection was achieved through the adeptly designed questionnaire. The data was then subjected to rigorous statistical testing using the partial least squares structural equation modelling (PLS-SEM).

In this study, text analysis is the key link between literature review and questionnaire design, which aims to identify keywords related to GAI and LSSE by analysing consumer comments on e-commerce platforms, thereby providing empirical support for the construction of questionnaire items.

Comments data collection and analysis. This study collected cross-platform data ($n = 10\,521$) in March 2024, by crawling prepared dishes consumer reviews from JD.com (traditional e-commerce) and Douyin (live-streaming e-commerce). Initially, industry reports were analysed to ascertain the best-selling brands and products. Then, comments from the standard pages of products with sales volume $> 50\,000$ on JD.com ($n = 5\,775$) and comments associated with live-streaming short videos with likes $> 10\,000$ on Douyin ($n = 4\,749$) were extracted respectively. In the text analysis phase, the consumer comment data was initially cleaned. Subsequent-

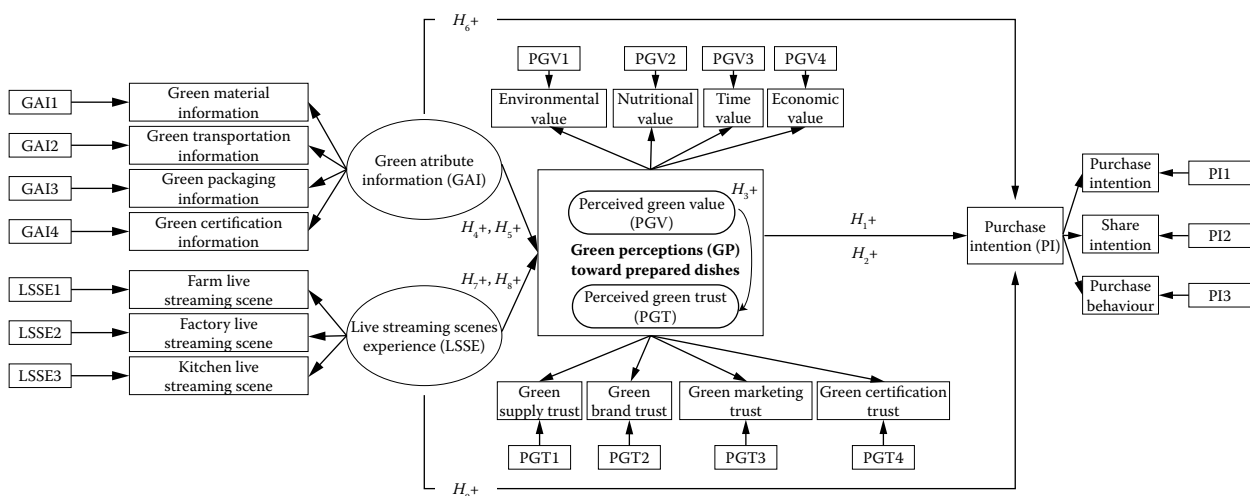


Figure 1. Path diagram of the theoretical research model

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ly, the jieba segmentation tool was employed with a custom dictionary to perform word segmentation. The construction of the custom word dictionary was based on the extraction of core terminology and representative brands from the industry reports, as well as product attributes and review tags from e-commerce platforms. It was further supplemented by high-frequency word identification, incorporating aliases, abbreviations, regional flavours, and special expressions related to prepared dishes (e.g. 'semi-finished products', 'ready-to-eat dishes' and 'clean vegetables'). After segmentation, term normalisation was performed in combination with a synonym dictionary. The synonym dictionary was constructed with reference to 'HIT IR-Lab Tongyici Cilin (Extended)', combined with the custom word library, and refined through multiple rounds of revision involving contextual manual judgment and high-frequency word verification, in order to systematically group synonym sets. Ultimately, through word frequency statistics, high-frequency words related to green attributes were selected, followed by manual annotation and verification. The top 100 high-frequency words were extracted to generate a bimodal word cloud (Figure 2). The left figure illustrates the feedback post-experience of traditional e-commerce consumers, while the right figure depicts live video interactive comments, offering an intuitive presenta-

tion of consumers' perceptions and evaluations of the green attributes of prepared dishes.

The word cloud analysis results indicate: traditional e-commerce consumers focus on post-consumption evaluation dimensions, emphasising taste (e.g. 'flavour', 'delicious'), convenience (e.g. 'convenient', 'quick'), logistics (e.g. 'packaging', 'timely', 'delivery'), price (e.g. 'cost-effectiveness', 'affordable'), quality perception (e.g. 'fresh', 'quality', 'nutrition'), and repurchase intention (e.g. 'like', 'well', 'repurchase'). On the other hand, comments in live streaming scenes highlight pre-consumption cognition reconstruction, focusing on visual perception (e.g. 'looks like', 'feel', 'appetising'), green attributes (e.g. 'healthy', 'organic', 'technology'), and addressing information asymmetry anxiety through trust anchors ('good', 'really'), triggering initial purchase intentions (e.g. 'need', 'try', 'buy back', 'place order'). This finding confirms that live streaming technology effectively transforms *GP* to *PI* through embodied sensory experiences and trust acceleration mechanisms, providing empirical support for the construction of the theoretical model of 'scenes-perception-behaviour'.

Meanwhile, the qualitative analysis informed both the definition of variables and the design of questionnaire in the quantitative analysis. For instance, the dimensions of *GAI* were identified based on existing literature, including green materials, transportation, packaging, and certification. Subsequent text analysis



Figure 2. Word cloud diagram of consumer comments

Source: Authors' own processing

of the review data revealed that consumers frequently mentioned the elements of 'selection', 'nutrition content' and 'portion' when describing the green attributes of prepared dishes. Consequently, the item GAI1, 'The nutrition of prepared dishes is balanced and quantitative', was developed to quantify consumers' perception of green attributes. The descriptions of other questionnaire items were designed using the same methodology. This research design is beneficial in quantifying perception and comprehending the underlying factors in depth, thereby providing a targeted basis and suggestions for the sustainable development of the prepared dishes market.

Data collection, process and sample. Data was collected via an online questionnaire platform in which participants were invited to fill in the questionnaire. To elucidate the objective of this study, participants were requested to recall their experience of online shopping and to read a brief description of the prepared dishes prior to responding to the questionnaire. The survey was conducted among Chinese users who had used JD.com and Douyin, spanning a three-month period from March to May 2024. A total of 350 questionnaires were distributed, 328 were returned, and 291 were collected after the removal of invalid questionnaires, resulting in an effective recovery rate of 83.1%. The demographic characteristics are presented in Table 1.

Measures. In accordance with the findings of the text analysis and the existing literature, four items pertaining

to GAI were derived from the works of Testa et al. (2015), Marcon et al. (2022) and Cardona et al. (2023). Three items pertaining to LSSE were adapted from the work of Tsimidou et al. (2022) and Jia et al. (2024). Four items pertaining to PGV were derived from the work of Tharrey et al. (2020) and Zheng et al. (2024). Four items on PGT were revised based on the findings of Ricci et al. (2018) and Jia et al. (2024). Three items pertaining to PI were revised based on the findings of Onofrei et al. (2022). The items are shown in Table 2.

Data analysis. In order to verify this hypothesis, the valid data was subjected to analysis using the SPSS 26.0 software and PLS-SEM. First, the reliability of the data was assessed using Cronbach's alpha and factor loadings. The threshold of Cronbach's alpha exceeding 0.70 is considered an acceptable reliability indicator. Composite reliability (*CR*) and average variance extracted (*AVE*) were calculated. The thresholds of *CR* and *AVE* were greater than 0.70 and 0.50 (Bagozzi 1981), respectively. Second, a multiple regression analysis was conducted to evaluate the correlation between the variables. The variance inflation factor (*VIF*) was found to be less than 5, indicating the absence of multicollinearity in the regression model. Third, a process mediation test was performed. A bootstrap analysis was performed on the bias-corrected confidence interval with a sample size of 5 000.

Reliability and validity. All values of Cronbach's alpha (Nunnally and Bernstein 1994) and factor loadings (Fornell and Larcker 1981) are above 0.7, indi-

Table 1. Demographic characteristics of participants

Variable	Characteristics	Frequency	Percentage (%)
Sex	female	162	55.67
	male	129	44.33
Age (years)	under 30	83	28.52
	31–45	182	62.54
	above 45	26	8.93
Education	high school and below	20	6.87
	associate degree	63	21.65
	bachelor's degree	178	61.17
	master's/PhD degree	30	10.31
Monthly disposable income	EUR ≤ 260	20	6.87
	EUR 260–510	65	22.34
	EUR 510–770	105	36.08
	EUR 770–1 030	62	21.31
	EUR ≥ 1 030	39	13.40

Source: Authors' own processing

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Table 2. Measurements and reliability & validity

Variable	Measurement item	Loadings (> 0.7)	Cronbach's alpha (> 0.7)
Green attribute information (<i>GAI</i>)	GAI1: Green material of prepared dishes ensures nutritional balance and portion control.	0.785	0.757
	GAI2: Green transportation of prepared dishes ensures freshness and taste.	0.776	
	GAI3: Green packaging of prepared dishes is convenient.	0.700	
	GAI4: Green certification label of prepared dishes.	0.780	
Live streaming scenes experience (<i>LSSE</i>)	LSSE1: Farm live scene: showing the growing environment of prepared dishes.	0.854	0.756
	LSSE2: Factory live scene: showing the production process of prepared dishes.	0.793	
	LSSE3: Kitchen live scene: showing the process of cooking prepared dishes.	0.811	
Perceived green value (<i>PGV</i>)	PGV1: Environmental value: portion control of prepared dishes can reduce waste.	0.753	0.750
	PGV2: Nutritional value: the nutritional value of prepared dishes.	0.760	
	PGV3: Time value: the convenience of prepared dishes saves time and efficiency.	0.706	
	PGV4: Economic value: cost-effectiveness of prepared dishes.	0.794	
Perceived green trust (<i>PGT</i>)	PGT1: Green supply trust: I trust that the healthy ingredients of prepared dishes supplied from origin.	0.819	0.818
	PGT2: Green brand trust: I trust that the quality of prepared dishes processed by the brand.	0.793	
	PGT3: Green marketing trust: I trust prepared dishes with transparent marketing information.	0.790	
	PGT4: Green certification trust: I trust prepared dishes with green certification labels.	0.813	
Purchase intention (<i>PI</i>)	PI1: Purchase intention: I would like to buy prepared dishes.	0.878	0.854
	PI2: Share intention: I would like to recommend prepared dishes to others.	0.869	
	PI3: Purchase behaviour: I would take action to buy prepared dishes.	0.892	

Source: Authors' own processing

cating that the convergent validity of the variables exceed the threshold and has convergent validity (Table 2). The model's R^2 values (0.431, 0.520 and 0.631) for *PGV*, *PGT* and *PI* are above the threshold value of 0.25. The average variance extracted (*AVE*) for each variable exceeds the 0.5 threshold (Table 3).

RESULTS

The outcome of *GAI*, *LSSE*, *PGV* and *PGT*. Multiple regression analysis was used to test the effect

of *PGV* on *PI*. The results indicate a significant relationship between *PGV* and *PI* ($\beta = 0.132$, $P < 0.05$), thus supporting H_1 . Second, the results revealed a positive correlation between *PGT* and *PI* ($\beta = 0.557$, $P < 0.001$), thereby supporting H_2 . Third, the relationship between *PGV* and *PGT* is positive ($\beta = 0.091$) yet not significant ($P > 0.05$), thus not supporting H_3 . Fourth, *GAI* was found to exert a positive influence on *PGV* ($\beta = 0.446$, $P < 0.001$), thus supporting H_4 . Fifth, the relationship between *GAI* and *PGT* is positive ($\beta = 0.109$) yet not significant ($P > 0.05$), thus

Table 3. Correlation matrix

Variable	<i>AVE</i> (>0.5)	<i>CR</i> (>0.7)	<i>GAI</i>	<i>LSSE</i>	<i>PGV</i>	<i>PGT</i>	<i>PI</i>
<i>GAI</i>	0.579	0.846	0.761 ^a	–	–	–	–
<i>LSSE</i>	0.672	0.860	0.502 ^b	0.820	–	–	–
<i>PGV</i>	0.569	0.841	0.601	0.531	0.754	–	–
<i>PGT</i>	0.646	0.880	0.468	0.709	0.476	0.804	–
<i>PI</i>	0.774	0.991	0.460	0.666	0.512	0.766	0.880

GAI – green attribute information; *LSSE* – live streaming scenes experience; *PVG* – perceived green value; *PGT* – perceived green trust; *PI* – purchase intention

Source: Authors' own processing

not supporting H_5 . Sixth, the relationship between *GAI* and *PI* is positive ($\beta = 0.026$) yet not significant ($P > 0.05$), thus not supporting H_6 . The results demonstrated that *LSSE* exerts a significant influence on *PGV* ($\beta = 0.607$, $P < 0.001$), *PGT* ($\beta = 0.308$, $P < 0.001$), and *PI* ($\beta = 0.187$, $P < 0.01$), thereby supporting H_7 , H_8 , and H_9 , respectively (Table 4).

The mediating effect of *PGV* and *PGT*. A non-parametric bootstrapping approach was employed to test the mediating effect. To test specific indirect effects, percentile-based and bias-corrected confidence intervals were calculated using 5 000 resamples. The results indicated that all mediation effects were statistically significant (Table 5).

Table 4. The results of multiple regression

Hypothesis	Relationships	Coefficient	<i>T</i>	F^2	<i>VIF</i>	<i>P</i> -value	Decision
H_5	$GAI \rightarrow PGT$	0.109	1.826	0.015	1.687	0.068	unsupported
H_4	$GAI \rightarrow PGV$	0.446	8.822	0.262	1.337	0.000***	supported
H_6	$GAI \rightarrow PI$	0.026	0.558	0.001	1.711	0.577	unsupported
H_2	$PGT \rightarrow PI$	0.557	8.318	0.400	2.104	0.000***	supported
H_3	$PGV \rightarrow PGT$	0.091	1.366	0.010	1.759	0.172	unsupported
H_1	$PGV \rightarrow PI$	0.132	2.532	0.026	1.777	0.011*	supported
H_7	$LSSE \rightarrow PGV$	0.607	10.598	0.515	1.504	0.000***	supported
H_8	$LSSE \rightarrow PGT$	0.308	4.619	0.125	1.337	0.000***	supported
H_9	$LSSE \rightarrow PI$	0.187	2.815	0.042	2.278	0.005**	supported

***, ** and *significance levels at 0.001, 0.01 and 0.05, respectively; F^2 – effect size if ≥ 0.15 (moderate); if ≥ 0.02 (small); if < 0.02 (negligible); *GAI* – green attribute information; *LSSE* – live streaming scenes experience; *PI* – purchase intention; *PGT* – perceived green trust; *PGV* – perceived green value; *T* – *t* statistics; *VIF* – variance inflation factor

Source: Authors' own processing

Table 5. The results of the mediating effect

Hypothesis	Relationships	Original sample	SD	<i>T</i>	<i>P</i> -value	Decision
H_9	$GAI \rightarrow PGV \rightarrow PI$	0.058	0.024	2.396	0.017*	full mediation
H_{10}	$GAI \rightarrow PGT \rightarrow PI$	0.083	0.029	2.831	0.005**	full mediation
H_{11}	$LSSE \rightarrow PGV \rightarrow PI$	0.040	0.020	1.989	0.047*	partial mediation
H_{12}	$LSSE \rightarrow PGT \rightarrow PI$	0.354	0.053	6.683	0.000***	partial mediation

***, ** and *significance levels at 0.001, 0.01 and 0.05, respectively; *GAI* – green attribute information; *LSSE* – live streaming scenes experience; *PI* – purchase intention; *PGT* – perceived green trust; *PGV* – perceived green value

Source: Authors' own processing

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DISCUSSION

With the rise of green agricultural production and a healthy food culture, consumers are increasingly interested in understanding green perceptions (Ricci et al. 2018; Roh et al. 2022; Zhang et al. 2024). This study proposes a conceptual model for investigating customers' green perceptions of LSSE and GAI regarding the purchase of prepared dishes. The findings indicate that *LSSE* and *GAI* have the potential to enhance consumers' GP and improve their online purchasing experience of prepared dishes.

First, the results demonstrate that both *PGV* and *PGT* have a positive impact on *PI*, corroborating previous research findings (Riva et al. 2022). The multidimensionality of *PGV* and *PGT* reflects consumers' comprehensive evaluation of green products, and the results verify the central role of *PGV* (Tawde and Rv 2024) and *PGT* (Zhang et al. 2024) in shaping consumers' green consumption behaviour. By refining the dimensional structure of *PGV* and introducing the construction mechanism of *PGT*, this study provides a scientific basis for strategy formulation in the prepared dishes market and even the broader green product market, assisting enterprises in accurately meeting consumers' green demands and promoting the formation of green consumption behaviour and market expansion. Particularly, this study reveals the asymmetrical effects of *PGV* and *PGT* on *PI*, highlighting the joint mechanism of rational value assessment and emotional trust dependence in green purchase decisions. Unlike traditional static models, this study finds that within live-streaming scenes, the effect strength of *PGT* is 4.2 times that of *PGV*, a finding that diverges from the 'value-dominated' paradigm of past studies and supports the 'trust-first' model. In high information density live-streaming scenes, consumers are more inclined to rely on real-time verified green certification during live streams, rather than solely relying on independent value assessments to make decisions. These conclusions not only enrich the theory of green consumption but also provide a new perspective for enterprises to optimise green marketing strategies in the era of live-streaming e-commerce.

Second, the results indicate that the direct impact of *PGV* on *PGT* is not significant, which differs from the results of some previous studies (Roh et al. 2022). Such discrepancy may originate from the unique characteristics of the samples in this study, where participants mainly obtained information through LSSE,

and their trust mechanisms differ significantly from that of traditional consumers. Additionally, the measurement method of this study emphasises capturing consumers' instant responses, while previous studies have mostly focused on the establishment process of long-term trust. Thus, the inconsistency in results may also be attributed to the different measurement methods employed. Moreover, the establishment of *PGT* is not solely reliant on *GAI* but also involves the recognition of all supply chain members (Ariyawardana et al. 2017). The supply chain of prepared dishes comprises multiple stages, and its complexity may lead to information asymmetry and reduced transparency, thereby intensifying consumers' concerns about food safety and sustainability (Ariyawardana et al. 2017). Trust levels vary across different supply chain segments, making it challenging for consumers to fully assess the green attributes and credibility of a product. As a result, even if consumers perceive green value (*PGV*), such perception does not necessarily translate into perceived green trust (*PGT*) in suppliers. In addition, as a new type of green food, the market norms and regulatory system for prepared dishes are still imperfect (Jia et al. 2024), which further complicates trust formation. Conversely, perceived value can even be influenced by perceived trust in some cases (Ponte et al. 2015). Future research should further explore the dynamic mechanism of GP in different consumption scenes and how to enhance consumers' *PGT* through scenes interaction.

Third, the results indicate that the direct effect of *GAI* on *PI* is not significant, nor does it significantly influence *PGT*, while its effect on *PGV* is significant. This indicates that *GAI* does not function through a direct pathway, but instead exerts an indirect influence on *PI* by enhancing *PGV*. This phenomenon may be related to cultural and industry factors. Traditional dietary culture (Enriquez and Archila-Godinez 2022), eating habits and emotional factors (Mills et al. 2020) exert a profound influence on consumer decision-making, indicating that purchasing choices are not solely determined by green attributes. Consumers' preference for natural ingredients and bias against industrially prepared dishes also may weaken the effect of *GAI*. Furthermore, individual differences in environmental awareness and disconnection in consumption habits further limit the impact of *GAI* on *PI*. At the industry level, consumer trust in *GAI* depends not only on the accuracy of information (Fu et al. 2023) but also on corporate brand recognition and authoritative certification

(Tran 2023; Bang and Cong 2024). However, the lack of standardisation within the prepared dishes industry has led to vague definitions of GAI, while limited credibility of certification institutions further undermines consumer trust. Fierce market competition and the proliferation of marketing information interfere with consumers' attention to and trust in GAI, while consumers' limited information processing ability further restricts the role of GAI in PI. This study provides theoretical support for understanding the differences in the effects of GAI under different communication channels by constructing four dimensions of GAI and refining unique attribute words of prepared dishes based on text analysis. The findings suggest that GAI has the potential to promote green consumption, but its effectiveness depends on presentation strategies that meaningfully engage consumer interest. By displaying GAI in multiple dimensions, suppliers of prepared dishes can more effectively attract consumer attention, form a positive GP (Khan et al. 2022), and indirectly promote PI. The findings not only provide a scientific basis for market promotion of prepared dishes, but also offer practical insights for suppliers.

Fourth, *LSSE* significantly enhances consumers' GP (*PGV* and *PGT*) and exerts a direct impact on *PI*. This finding underscores the dual critical role of live streaming technology in green information dissemination and consumer decision-making (Dou and Li 2024). Specifically, *LSSE* enables consumers to engage with green information through an immersive platform, thereby substantially strengthening *PGV*. Simultaneously, *LSSE* improves the transparency and authenticity of information in supply chain management, allowing consumers to directly verify companies' green commitments, which in turn significantly enhances *PGT* (Bang and Cong 2024; Shi et al. 2024). Moreover, *LSSE* fosters consumer perception and trust in green products through multisensory stimulation and real-time interaction (Wu and Huang 2023), effectively mitigating information asymmetry prevalent in traditional marketing. By leveraging visual continuity and cognitive relevance, live streaming evokes emotional resonance and impulsive decision-making among consumers (Xiao et al. 2023). Furthermore, its interactive nature facilitates immediate feedback and social proof, further reinforcing *PI*. Additionally, an optimised sensory experience design, based on multisensory immersion and instant stimulation, has been demonstrated to heighten consumer interest and purchase intentions (Huang et al. 2023).

These findings not only validate the significance of immersive experiences and multisensory interactions in shaping green perceptions but also provide empirical support for the market promotion of prepared dishes.

Fifth, the results indicate that *GP* significantly bridges *GAI* and *PI* as a mediating variable, highlighting its central role in green consumption decisions. Specifically, *GP* can transform consumers' perceptions of *GAI* into *PGV* and *PGT*, thereby stimulating *PI*. This mechanism indicates that consumer behaviour does not simply follow the traditional 'stimulus-response' model, but is based on a complex decision-making path with cognitive and emotional factors: after receiving external information, consumers form perceptions of product value and trust through deep processing, which in turn affects purchase decisions. This finding extends the applicability of traditional marketing theory to the field of green consumption, emphasising the importance of cognitive and emotional factors (Chauhan and Goyal 2024). When consumers perceive higher *PGV* and *PGT*, their purchase intention significantly increases. Therefore, effective transmission of *GAI* and construction of *GP* are key to improving market acceptance in the prepared dishes market. Suppliers should focus on the display of *GAI* in product design and marketing to enhance consumers' *PGV* and *PGT*. Moreover, cultural differences and consumer individuality may affect the green perception of *GAI* and *PI*. Future research should further explore the interaction mechanism of these factors to optimise green marketing strategies.

Finally, the study finds that *GP* partially mediates the impact of *LSSE* on *PI*. That is, in addition to directly influencing consumers through its authentic and comprehensive content, *LSSE* can also indirectly promote *PI* by increasing consumers' *PGV* and *PGT* for prepared dishes. The direct effect of *LSSE* on *PI* remains significant even after controlling for the effect of *GP*, which indicates the diversity of *LSSE* (Lv et al. 2022). By elucidating the partial mediating effect of *LSSE*, this study proposes a 'scenes-perception-behaviour' dynamic interaction framework for green consumption, thereby enriching the theoretical foundation of live-stream e-commerce and delineating a strategic path for the digital transformation of the prepared dishes industry. In light of these findings, managers in the prepared dishes industry should consider integrating *GAI* and live-streaming technology to produce appealing and informative *LSSE*, thereby enhancing consumers' trust and engagement

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and promoting green consumption behaviour. Concurrently, enterprises are advised to leverage the interactivity of live-streaming to address consumers' feedback in real time, thereby enhancing consumers' perception of green products and attaining mutually beneficial outcomes for market promotion and sustainable development objectives.

CONCLUSION

This study focused on prepared dishes, introducing LSSE as a new perspective for research on green consumption, and constructing a green perception model. Initially, by analysing comments, the focus and high-frequency words of consumer concerns were identified, recognising the unique dimensions of prepared dishes, and developing an industry-specific green perception scale. Subsequently, data was collected through a questionnaire survey and analysed using PLS-SEM to verify hypotheses. The results show that *GP* plays a complete intermediary role between *GAI* and *PI*, and a partial intermediary role between *LSSE* and *PI*. Although the direct impact of *GAI* on *PI* is not significant, strengthening *GP* can effectively enhance *PI*. This reveals that *LSSE* can significantly enhance consumers' green perception and trust in prepared dishes, effectively promoting *PI*. This study suggests that suppliers should enhance their green productivity, explore and create more attractive LSSE and rich *GAI*, in order to improve consumers' awareness and trust in the green characteristics of prepared dishes, encourage consumers to consume in a more environmentally friendly way, and thus promote the development of the prepared dish industry towards a more sustainable direction.

The following limitations are inherent to this research: First, it should be noted that the study was conducted in China, where prepared dishes have significant development potential. As a result, the findings may not be applicable to other regions. It should be noted that cultural norms and consumer preferences, as well as the characteristics of the food industry, may vary significantly between different geographical regions. It would be beneficial for future research to consider exploring the conditions in other countries and conducting relevant cross-regional comparisons. Second, this study examined the perception of the term 'green' in relation to the information provided about the environmental impact of prepared dishes in live streaming contexts. Nevertheless, it is possible that other green information stimuli may exert an in-

fluence on the purchase of prepared dishes. The use of virtual reality technology allows consumers to 'experience' the aroma and taste of food online, thereby stimulating purchase desire. It would be beneficial for future research to consider adjusting the variables in the live streaming scenes in order to encourage green consumption of prepared dishes.

REFERENCES

- Ariyawardana A., Ganegodage K., Mortlock M.Y. (2017): Consumers' trust in vegetable supply chain members and their behavioural responses: A study based in Queensland, Australia. *Food Control*, 73: 193–201.
- Asante I.O., Jiang Y., Luo X. (2023): Does it matter how I stream? Comparative analysis of livestreaming marketing formats on Amazon Live. *Humanities and Social Sciences Communications*, 10: 403.
- Bagozzi R.P. (1981): Evaluating structural equation models with unobservable variables and measurement error: A comment. *Journal of Marketing Research*, 18: 375–381.
- Bang N.-V., Cong T.T. (2024): Sustaining organizational customers' consumption through corporate social responsibility and green advertising receptivity: The mediating role of green trust. *Cogent Business & Management*, 11: 2287775.
- Bumbudsanpharoke N., Ko S. (2022): Packaging technology for home meal replacement: Innovations and future perspective. *Food Control*, 132: 108470.
- Cardona M., Izquierdo D., Barat J.M., Fernández-Segovia I. (2023): Intrinsic and extrinsic attributes that influence choice of meat and meat products: Techniques used in their identification. *European Food Research and Technology*, 249: 2485–2514.
- Chauhan S., Goyal S. (2024): A meta-analysis of antecedents and consequences of green trust. *Journal of Consumer Marketing*, 41: 459–473.
- Chen H., Chen H., Tian X. (2022a): The dual-process model of product information and habit in influencing consumers purchase intention: The role of live streaming features. *Electronic Commerce Research and Applications*, 53: 101150.
- Chen Y., Liu D., Liu Y., Zheng Y., Wang B., Zhou Y. (2022b): Research on user generated content in Q&A system and online comments based on text mining. *Alexandria Engineering Journal*, 61: 7659–7668.
- Dou L., Li X. (2024): Examining the influence of technology-enhanced information on purchase of green food in the context of live streaming commerce. *NJAS: Impact in Agricultural and Life Sciences*, 96: 2350583.

<https://doi.org/10.17221/247/2024-AGRICECON>

- Enriquez J.P., Archila-Godinez J.C. (2022): Social and cultural influences on food choices: A review. *Critical Reviews in Food Science and Nutrition*, 62: 3698–3704.
- Fornell C., Larcker D.F. (1981): Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18: 39–50.
- Fu S., Ma R., He G., Chen Z., Liu H. (2023): A study on the influence of product environmental information transparency on online consumers' purchasing behavior of green agricultural products. *Frontiers in Psychology*, 14: 1168214.
- Fu Y., Zhang W., Wang R., Zheng J. (2024): How cognition influences Chinese residents' continuous purchasing intention of prepared dishes under the distributed cognitive perspective. *Foods*, 13: 2598.
- Hu B., Huang B., Liu Z., Guo H., Chen Z., Shi L. (2021): Optimization model of carbon footprint of fresh products in cold chain from the energy conservation and emission reduction perspective. *Mathematical Problems in Engineering*, 2021: 5559021.
- Huang Z., Zhu Y., Hao A., Deng J. (2023): How social presence influences consumer purchase intention in live video commerce: The mediating role of immersive experience and the moderating role of positive emotions. *Journal of Research in Interactive Marketing*, 17: 493–509.
- Jia Y., Hu L., Liu R., Yang W., Khalifa I., Bi J., Li Y., Zhen J., Wang B., Zhang Z., Zhang E., Li B. (2024): Innovations and challenges in the production of prepared dishes based on central kitchen engineering: A review and future perspectives. *Innovative Food Science & Emerging Technologies*, 91: 103521.
- Kawasaki T., Wakashima H., Shibasaki R. (2022): The use of e-commerce and the COVID-19 outbreak: A panel data analysis in Japan. *Transport Policy*, 115: 88–100.
- Khan K.U., Atlas F., Arshad M.Z., Akhtar S., Khan F. (2022): Signaling green: Impact of green product attributes on consumers trust and the mediating role of green marketing. *Frontiers in Psychology*, 13: 790272.
- Lv X., Zhang R., Su Y., Yang Y. (2022): Exploring how live streaming affects immediate buying behavior and continuous watching intention: a multigroup analysis. *Journal of Travel & Tourism Marketing*, 39: 109–135.
- Marcon A., Ribeiro J.L.D., Dangelico R.M., De Medeiros J.F., Marcon É. (2022): Exploring green product attributes and their effect on consumer behaviour: A systematic review. *Sustainable Production and Consumption*, 32: 76–91.
- Mills S.D.H., Wolfson J.A., Wrieden W.L., Brown H., White M., Adams J. (2020): Perceptions of 'home cooking': A qualitative analysis from the United Kingdom and United States. *Nutrients*, 12: 198.
- Nunnally J.C., Bernstein I.H. (1994): *Psychometric theory*. 3rd Ed. New York, McGraw-Hill: 212.
- Onofrei G., Filieri R., Kennedy L. (2022): Social media interactions, purchase intention, and behavioural engagement: the mediating role of source and content factors. *Journal of Business Research*, 142: 100–112.
- Peng X., Ren J., Guo Y. (2023): Enhance consumer experience and product attitude in E-commerce live streaming: Based on the environmental perspective. *Industrial Management & Data Systems*, 124: 319–343.
- Ponte E.B., Carvajal-Trujillo E., Escobar-Rodríguez T. (2015): Influence of trust and perceived value on the intention to purchase travel online: Integrating the effects of assurance on trust antecedents. *Tourism Management*, 47: 286–302.
- Ricci E.C., Banterle A., Stranieri S. (2018): Trust to go green: An Exploration of consumer intentions for eco-friendly convenience food. *Ecological Economics*, 148: 54–65.
- Riva F., Magrizos S., Rubel M.R.B., Rizomyliotis I. (2022): Green consumerism, green perceived value, and restaurant revisit intention: Millennials' sustainable consumption with moderating effect of green perceived quality. *Business Strategy and the Environment*, 31: 2807–2819.
- Roh T., Seok J., Yaeri K. (2022): Unveiling ways to reach organic purchase: Green perceived value, perceived knowledge, attitude, subjective norm, and trust. *Journal of Retailing and Consumer Services*, 67: 102988.
- Shi M., Wu J., Li Y., Yang Y., Liao X., Qi L. (2024): Rural e-commerce and agricultural supply chain integration: A panel data analysis of China's rural development. *Journal of Digital Intelligence and Economic Growth*, 1: 1–21.
- Shu T., Yang H., Lin L., Chen J., Zhou J., Wang J. (2024): Exploring public opinion on health effects of prepared dishes in China through social media comments. *Frontiers in Public Health*, 12: 1424690.
- Tawde S.G., Rv S. (2024): How does green consumers' self-concept promote willingness to pay more? A sequential mediation effect of green product virtue and green perceived value. *Journal of Consumer Behaviour*, 23: 2110–2129.
- Testa F., Iraldo F., Vaccari A., Ferrari E. (2015): Why eco labels can be effective marketing tools: Evidence from a study on Italian consumers. *Business Strategy and the Environment*, 24: 252–265.
- Tharrey M., Drogu S., Privet L., Perignon M., Dubois C., Darmon N. (2020): Industrially processed v. home-prepared dishes: What economic benefit for the consumer? *Public Health Nutrition*, 23: 1982–1990.
- Tran N.K.H. (2023): Enhancing green brand equity through environmental reputation: The important of green brand image, green brand trust, and green brand loyalty. *Business Strategy & Development*, 6: 1006–1017.

<https://doi.org/10.17221/247/2024-AGRICECON>

- Tsimidou M.Z., Ordoudi S.A., Mantzouridou F.Th., Nenadis N., Stelzl T., Rychlik M., Belc N., Zoani C. (2022): Strategic priorities of the scientific plan of the European research infrastructure METROFOOD-RI for promoting metrology in food and nutrition. *Foods*, 11: 599.
- Wu Y., Huang H. (2023): Influence of perceived value on consumers' continuous purchase intention in live-streaming e-commerce – Mediated by consumer trust. *Sustainability*, 15: 4432.
- Wu S., Hu Z., Li Y., Yuan Y. (2024): How brand familiarity affects green product purchase intention: The moderating role of streamers' environmental knowledge. *Technology in Society*, 77: 102572.
- Xiao L., Lin X., Mi C., Akter S. (2023): The effect of dynamic information cues on sales performance in live streaming e-commerce: An IFT and ELM perspective. *Electronic Commerce Research*, 25: 2699–2728.
- Xu G., Ren M., Wang Z., Li G. (2024): MEMF: multi-entity multimodal fusion framework for sales prediction in live streaming commerce. *Decision Support Systems*, 184: 114277.
- Yu J., Xie C., Huang S. (2024): Value co-creation in live streaming through tourism scenes: A contextual marketing perspective. *Internet Research*.
- Zhang W., Zheng J., Li Y. (2024): Explaining Chinese consumers' continuous consumption intention toward prepared dishes: The role of perceived risk and trust. *Foods*, 13: 88.
- Zheng S., Wang L., Yu Z. (2024): The impact of multidimensional perceived value on purchase intentions for prepared dishes in China: The mediating role of behavioral attitudes and the moderating effect of time pressure. *Foods*, 13: 3778.

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