

E-commerce Live Streaming: Evaluation of Elderly Consumer Behavior and Willingness



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E-commerce live streaming has become an important way for the elderly to shop. Studying the relationship between e-commerce live streaming and the elderly can help us better understand their consumption behaviour and willingness to consume, providing a basis for optimizing e-commerce live streaming and expanding the elderly consumption market. We found that e-commerce live streaming has a positive impact on the consumption willingness of the elderly. Live streaming sales allow the elderly to experience the fun of shopping and meet their shopping needs, thereby increasing their consumption willingness. In addition, e-commerce live streaming also stimulates the consumption desire of the elderly through various promotional activities and sales tactics, further increasing their consumption willingness. This study aims to observe the relationship between e-commerce live streaming and the elderly from the perspective of consumer behaviorology, further understanding how e-commerce live streaming affects the consumption behaviour and willingness of the elderly. Foreign research in this area started earlier and has more abundant theoretical research. However, research in our country is relatively late and focuses more on practical research. By collecting data on the consumption capacity of the elderly, analysing the impact of e-commerce live streaming on their consumption behaviour and willingness, evaluating their online shopping consumption willingness and ability, and how it changes the lives of middle-aged and elderly people, it provides reference value for expanding the purchasing power of the silver market and boosting domestic demand.

Keywords: Consumer Behaviour, Consumption Intention, Social Media

Brief Introduction

Background

From the perspective of the consumer willingness, the consumption desire of the elderly is growing rapidly. Their consumption direction has gradually changed from traditional direction to more modern direction. They are gradually moving closer to young people in

the concept of consumption and purchase and the use of financial instruments (Alipay, WeChat, TikTok) so, the huge business opportunities are emerging in the elderly market. In view of the panic buying during COVID-19, the elderly also showed an amazing ability to store goods (Cham et al., 2023). Marketing to older consumers clearly presents a promising demographic. Therefore, it is necessary to assess the potential of this upcoming and growing business source among elderly consumers, and to understand their specific needs, their self-image or self-positioning, and their new media habits (Kaye et al., 2020). Integrating new products, technologies, and media into their daily lives is essential. Marketing professionals will balance professional marketing discourse with rare supply chain commitments dedicated to the elderly and their lifestyle, using social media as a medium to gradually open up the consumption market for the elderly (Cham et al., 2022). Through the analysis of professional big data websites, the display of social media brand pages, or the involvement of social media influencers, driven by Atmospheric cues and the desire to conform, it is sufficient to rapidly increase the online consumption willingness of elderly consumers (Hew et al., 2015). In China, there are two or three generations of the same family, including younger elderly individuals in their 50s, parents in their 70s or older, and older grandparents in their 80s to 90s or older. There is also an intermediate stage (70 years or older) where most of the time, these elderly individuals are caregivers for their parents or older relatives. Marketers are aware of the importance of this segment of the population and are just beginning to view individuals aged 50 and older as a distinct consumer group, especially when it comes to new media habits (Luo et al., 2021).

Research Objectives

Firstly, through the study, to understand the current status of the e-commerce live streaming function on social media, the consumption behaviour, and the willingness to consume among the elderly, in order to provide a basis for optimizing the live streaming shopping function and formulating policies to promote the consumption behaviour of the elderly. Secondly, to analyse the impact of e-commerce live streaming on the consumption behaviour and willingness to consume of the elderly, to assess their willingness to consume and purchasing power in online shopping, and to provide reference value for expanding the purchasing power of the silver market and boosting domestic demand for the economy. Thirdly, in the study, descriptive analysis, analysis of variance, cluster analysis, correspondence analysis, factor analysis, and structural equation modelling analysis were carried out to explore the mechanisms and channels of the impact of social media on the consumption behaviour and willingness of the elderly. The results and conclusions were drawn as the basis for formulating social media construction plans based on a promotional perspective.

Literature Review and Research Hypotheses

Literature Review

In today's rapidly evolving internet and networking technology, traditional social activities of the elderly may experience a certain degree of reduction. The use of the internet and smartphone applications is poised for new developments, and along with

these, social software, social behaviours, and activity forms related to them will also evolve. These changes will have a profound impact on the health, consumption behaviour, and life satisfaction of the elderly.

(1) Atmospheric cues of E-commerce Live Streaming

Research on shopping atmosphere includes studies of the environment in both physical stores and online shopping settings. In physical stores, the atmosphere is defined by the deliberate design of the physical surroundings to affect shoppers' responses, including their perception of the store's sensory qualities, emotional states, and the likelihood of making purchases (Barros et al., 2019; Kasmad, 2022; Kotler, 1973; Kovalenko, 2020). Researchers define the concept of "Atmospheric cues" as the design characteristics or features of a social commerce website that stimulate consumers' senses, emotions, or perceptions (Dewobroto & Wijaya, 2022; Sarah et al., 2020). E-commerce shopping technology facilitates a high level of interaction between buyers and sellers, enabling real-time information sharing and simplifying the generation of purchasing conversations (Akdevelioglu & Kara, 2020; Flacandji & Krey, 2020).

(2) The Credibility of E-commerce Live Streaming

In online consumption, young people have a better understanding and acceptance of online shopping, internet finance, and other aspects, and they are more active. However, elderly netizens tend to show more concern about property security. They not only prefer to choose their children as "agents" in online consumption but also hold a cautious attitude towards internet finance due to the fear of encountering online scams (Guo et al., 2021).

(3) Accessibility of E-commerce Live Streaming

Accessibility fills the need for offline face-to-face interaction that cannot take place, such as during the COVID-19 pandemic when physical contact and communication are not possible. Social media can provide additional social contact and even enrich the quality of social communication in the elderly's social circles, improving or expanding their existing social relationships and social status circles (Berg-Weger & Morley, 2020). Further research has shown that frequent online and offline interactions are beneficial for promoting the elderly's intention to participate in social media, enhancing their expected benefits, and thus strengthening their loyalty to virtual interactions (Chhatwani et al., 2022).

(4) Transaction convenience in E-commerce Live Streaming

"Transaction Convenience" refers to the speed and ease with which consumers can affect or amend transactions (Cho et al., 2024; Indiani & Fahik, 2020). Attributes of transaction convenience are enhanced by features such as quick checkouts (e.g., one-click ordering) and easy or straightforward return policies (Rasidi & Monika, 2021). E-commerce platforms have facilitated and influenced the decision-making environment of older consumers, who are often considered the most vulnerable group in society (Duarte et al., 2018; Khan et al., 2020). The convenience of online products and services has increased their willingness to spend additional time purchasing goods online (Loos & Ivan, 2022; Sun et al., 2022). However, research has shown that the

goal is not to advocate for a large-scale transition of elderly people to online shopping, but rather to facilitate this shift, particularly for those with limited physical mobility (He et al., 2022). Consequently, this makes online shopping an attractive and convenient alternative to traditional shopping, especially for those living alone who may find it challenging to handle the physical demands of traditional shopping (Auxier & Anderson, 2021; He et al., 2022).

(5) Herd Effect in Elderly Consumption

The essence of consumer herding behaviour is imitation. People often like to imitate others and do what others do (Komalasari et al., 2021). Field theory mainly comes from Koffka's idea that every action of humans is influenced by the field in which the action occurs, including the behaviour of others and many related factors. Therefore, the consumption behaviour of the elderly is influenced by the field they are in, ranging from the social environment they are in to the community groups, all of which have a subtle influence.

(6) Consumption Willingness and Behaviour of the Elderly

The likelihood of an elderly consumer purchasing a particular product or service is higher if they have a strong willingness to consume. The stronger the consumption intention, the greater the likelihood of purchasing the product or service, which helps to drive the occurrence of consumption behaviour. E-commerce live streaming can provide certain information and guidance to consumers, influencing their consumption intentions to some extent. Therefore, e-commerce live streaming may affect the consumption intentions of elderly consumers and indirectly influence their consumption behaviour, with consumption intention serving as an intermediary role in this process (Lacap et al., 2021).

Research Hypotheses

(1) Theoretical Basis

This study is based on the SIPS model proposed by Dentsu Japan in 2011 (Sympathize-Identify- Participate- Share & Spread), which is a consumer behaviour analysis tool suitable for the era of social media. The SIPS model deeply analyses the psychological process of users in social media after obtaining information and resonating, that is, in the "resonance" and "confirmation" scenarios created by short video platforms, users will have a stronger desire to "participate," helping businesses to meet users' personalized needs. On the other hand, the word-of-mouth spread constructed by the model is no longer limited to real-life transaction conveniences, but is more based on virtual online transaction conveniences aggregated by "information share ability". Users' experiences and sharing become new sources of consumption, thereby helping to enhance users' perception of book brands.

(2) Research Hypotheses

Based on the theoretical foundation of this study, the following hypotheses are proposed:

H1a: *The atmospheric cues of e-commerce live streaming has a significant impact on the consumption willingness of the elderly.*

H1b: *The credibility of e-commerce live streaming has a significant impact on the consumption willingness of the elderly.*

H1c: *The accessibility of e-commerce live streaming has a significant impact on the consumption willingness of the elderly.*

H1d: *The herd effect behaviour of e-commerce live streaming has a significant impact on the consumption willingness of the elderly.*

H1e: *The transaction convenience of e-commerce live streaming positively affects the consumption behaviour of the elderly.*

H2: *The consumption willingness of the elderly has a significant impact on their consumption behaviour.*

H3: *The consumption willingness of the elderly acts as an intermediary role between e-commerce live streaming and consumption behaviour.*

Research Samples

In terms of sample selection, this study mainly selects appropriate samples based on the principles of pertinence, representativeness and feasibility (Cham & Easvaralingam, 2012). At the same time, taking into account that the social media currently widely used are Zhihu, blog, microblog, WeChat, podcast, forum, etc., and based on the China Internet Center, the information of corresponding elderly customers is obtained. A total of 2496 people, who are in the top position in terms of social platforms, have a high utilization rate. Therefore, they are representative. See Table 2.1 for details. During specific research, online survey mode is adopted, and electronic versions of survey questionnaires are sent. In addition, in order to enhance the support of the surveyed subjects for this survey and complete the survey work with high quality and efficiency, certain rewards will be given to the participants, which will be reflected through platform points, coins, and other modes. The research period is relatively long, specifically from February 2023 to March 2023, lasting for two months. A total of 2221 questionnaires were collected, with 2001 valid questionnaires and an effective rate of 93.2%.

Table 1.1: *Research Samples*

Dimension	Category	Number (People)	Percentage (%)
Age	55-60	1061	53.0
	61-65	740	37.0
	66-70	160	8.0
	71及以上	40	2.0
Gender	Male	960	48.0
	Female	1041	52.0
Region	Urban	1761	88.0
	Rural	240	12.0
Education	Below high school	281	14.0
	Junior college	720	36.0
	Bachelor's degree	800	40.0
	Master's degree	160	8.0
	Doctorate	40	2.0

Table 1.1: Research Samples (cont...)

Dimension	Category	Number (People)	Percentage (%)
Income	Below 3000	60	3.0
	3000-5000	530	26.5
	5000-7000	891	43.5
	Above 7000	520	26.0
Daily Social Media Usage Rate	Less than 1 hour	200	10.0
	1-2 hours	300	15.0
	2-3 hours	400	20.0
	3-4 hours	400	20.0
	4 hours and above	701	35.0
Online Consumption Situation Proportion	Below 20%	160	8.0
	20%-40%	841	42.0
	40%-60%	660	33.0
	60% and above	340	17.0
Family Situation	Living independently	1100	55.0
	Living with children	901	45.0
Social Media	Zhihu	800	20.0
	Blog	220	11.0
	Weibo	380	19.0
	WeChat	260	13.0
	Podcast	441	22.0
	Forum	300	15.0
Total	/	2001	100.0

In the survey, the sample details are as follows: In terms of age, there are 1061 people aged 55-60, accounting for 53.0%; 740 people aged 61-65, accounting for 37.0%; 160 people aged 66-70, accounting for 8.0%; and 40 people aged 71 and above, accounting for 2.0%. In terms of gender, there are 960 men, accounting for 48.0%, and 1041 women, accounting for 52.0%. In terms of region, there are 1761 people in urban areas, accounting for 88%, and 240 people in rural areas, accounting for 12%. In terms of education, there are 281 people with a high school education or below, accounting for 14.0%; 720 people with a junior college education, accounting for 36.0%; 800 people with a bachelor's degree, accounting for 40%; 160 people with a master's degree, accounting for 8.0%; and 40 people with a doctoral degree, accounting for 2.0%. In terms of income, there are 60 people with an income of 3000 yuan or less per month, accounting for 3.0%; 530 people with an income of 3000-5000 yuan per month, accounting for 26.5%; 891 people with an income of 5000-7000 yuan per month, accounting for 43.5%; and 520 people with an income of 7000 yuan or more per month, accounting for 26.0%.

In terms of daily social media usage rate, 200 people use social media for less than 1 hour per day, accounting for 10.0%; 300 people use social media for 1-2 hours per day, accounting for 15.0%; 400 people use social media for 2-3 hours per day, accounting for 20.0%; 400 people use social media for 3-4 hours per day, accounting for 20.0%; and 701 people use social media for more than 4 hours per day, accounting

for 17.0%. In terms of online consumption, 160 people account for less than 20% of their consumption through online shopping, accounting for 8.0%; 841 people account for 20%-40% of their consumption through online shopping, accounting for 42.0%; 660 people account for 40%-60% of their consumption through online shopping, accounting for 33.0%; and 340 people account for more than 60% of their consumption through online shopping, accounting for 17.0%. In terms of family situation, 1100 people live independently, accounting for 55.0%, and 901 people live with their children, accounting for 45%. In terms of social media use, 800 people use Zhihu, accounting for 20.0%; 220 people use blogs, accounting for 11.0%; 380 people use Weibo, accounting for 19.0%; 260 people use WeChat, accounting for 13.0%; 441 people use podcasts, accounting for 22.0%; and 300 people use forums, accounting for 15.0%.

Research Design

The data collection for this study employs a questionnaire survey method, distributed through Questionnaire Star and online WeChat surveys. The target population for this study is elderly individuals aged 55 and above in a certain urban area of China. The research duration is relatively long, lasting two months, with a total of 2221 questionnaires collected, of which 2001 are valid, yielding a valid rate of 93.2%.

The design of related variables mainly refers to the relevant information such as [Liu et al. \(2022\)](#) “Disentangling utilitarian and hedonic consumption behavior in online shopping: An expectation disconfirmation perspective”. [Ye et al. \(2022\)](#) “Philanthropic sales in live-streaming shopping: The impact of online interaction on consumer impulse buying”, and [Duarte et al. \(2018\)](#) “How convenient is it? Delivering online shopping convenience to enhance customer satisfaction and encourage e-WOM”, and so on. The sample size is calculated using Gpower. The collected data will be categorized and statistically analyzed using SPSS27 software, determining and setting various parameters. Therefore, we plan to use a logistic regression model for analysis. This includes reliability testing, validity testing, descriptive analysis, cluster analysis, factor analysis, and structural equation modelling analysis, etc.

Results

Reliability Testing

(1) Reliability Test Results of the Functional role of Social Media

Table 2-1: Reliability Test Results of the Functional Role of Social Media

Project	Index Number	α
Atmospheric cues	5	0.802
Credibility	5	0.808
Accessibility	5	0.810
Herd Effect	5	0.816
Transaction convenience	5	0.813
Overall	25	0.822

According to the above test results, the atmospheric cues dimension is 0.802, the credibility dimension is 0.808, the accessibility dimension is 0.810, the herd effect dimension is 0.816, and the overall score is 0.822, all above 0.8, indicating good reliability.

(2) Consumer willingness reliability test results

Table 2-2: Results of Consumer Intention Reliability Check

Project	Index Number	a
Consumption Willingness	5	0.814
Overall	5	0.814

According to the above test results, the willingness to consume is 0.814, all above 0.8, with good reliability.

(3) Consumer behaviour reliability test results

Table 2-3: Results of Consumer Behaviour Reliability Test

Project	Index Number	a
Consumer Behaviour	5	0.841
Overall	10	0.849

According to the above test results, social support is 0.841, transaction convenience is 0.846, and the overall score is 0.849, all above 0.8, indicating good reliability.

Validity Test

The main method used in this inspection work is the KMO test, which tests the correlation and bias relationships between indicators. The values range from 0 to 1, and the closer the value is to 1, the more suitable factor analysis is. The specific refinement criteria are as follows: if the value is greater than 0.9, it proves to be very suitable. If the value is between 0.8 and 0.9, it is judged to be suitable. If the value is between 0.7 and 0.8, it is judged to be generally suitable. If the value is between 0.5 and 0.7, it is judged to be not very suitable. If the value is below 0.5, it is judged to be not suitable. The second method is mainly to perform Bartlett's sphericity test, which mainly tests whether the matrix belongs to the identity matrix. If it is the identity matrix, factor analysis is not suitable. A significance level of 0.1 or above is not suitable for factor analysis, and a significance level of 0.05 or below indicates an intentional relationship between the original indicators. In addition, factor load testing is also required. If the load is below 0.4, it indicates that the indicator needs to be deleted.

(1) Validity analysis of functional effects of social media

According to [Table 2-4](#), the atmospheric cues dimension KMO in terms of functional effects of social media is 0.814, the credibility dimension is 0.845, the accessibility dimension is 0.845, and the herd effect dimension is 0.834. Overall, it is 0.841, all greater than 0.8, indicating good validity.

Table 2-4: KMO and Bartlett Test Results of the Functional Effects of Social Media

Project	KMO	Bartlett		
		chi-square	Df	Sig
Atmospheric cues	0.814	104.20	30.55	0
Credibility	0.845	123.01	30.12	0
Accessibility	0.845	124.31	30.02	0
Herd Effect	0.834	129.30	30.06	0
Transaction convenience	0.831	129.20	30.06	0
Overall	0.841	604.53	101.14	0

(2) Analysis of consumer willingness validity

According to [Table 2-5](#), the overall consumption intention is 0.811, which is greater than 0.8 and has good validity.

Table 2-5: KMO and Bartlett test results of consumer willingness

Project	KMO	Bartlett		
		chi-square	Df	Sig
Consumption Willingness	0.811	124.22	36.55	0
Overall	0.811	124.51	35.14	0

(3) Analysis of Consumer Behaviour Validity

According to [Table 2-6](#), the KMO of the social support dimension is 0.831, the transaction convenience dimension is 0.832, and the overall value is 0.831, both greater than 0.8, indicating good validity.

Table 2-6: KMO and Bartlett Test Results of Consumer Behaviour

Project	KMO	Bartlett		
		Chi-squared	Df	Sig
Consumption Behaviour	0.831	224.23	56.35	0
Overall	0.831	234.51	215.04	0

Descriptive Analysis of the Sample

The functional role of e-commerce live streaming in the study sample is calculated using the mode of average, calculating its standard deviation and coefficient of variation, as detailed in [Table 2-7](#).

Table 2-7: Statistical Results of E-commerce Live Streaming Functions

Project	Average Score	Standard Deviation	Coefficient of Variation
Atmospheric cues	20.3	±1.2	0.102
Credibility	14.3	±1.8	0.114
Accessibility	22.5	±2.1	0.110
Herd Effect	20.3	±6.8	0.116
Transaction convenience	23.2	±1.1	0.098

Each dimension includes 5 items, and a score of 4 indicates satisfaction, resulting in a comprehensive score of 20, proving that it meets the standard of satisfaction. A score below 20 indicates that the elderly are not satisfied with the functional role of e-commerce live streaming.

Based on the analysis of the results from [Table 2-7](#), the following observations can be made:

Firstly, in terms of average scores, the average score for atmospheric cues is 20.3, which is higher than 20, indicating satisfaction. For credibility, the average score is 14.3, which is lower than 20, indicating dissatisfaction. The average score for accessibility is 22.5, which is higher than 20, indicating satisfaction. The average score for herd effect is 20.3, which is higher than 20, indicating satisfaction. This shows that elderly consumers are generally satisfied with the experience of e-commerce live streaming during the consumption process, but there is still room for improvement, especially in the credibility aspect, where the score is low, and the satisfaction level is low, proving that the credibility of e-commerce live streaming is relatively low. The analysis of the reasons suggests that the rapid development of live e-commerce and the insufficient regulatory efforts in our country have led to some merchants' live streaming practices being less standardized. The average score for transaction convenience is 23.2, which is higher than 20, indicating satisfaction. This indicates that the elderly consumers are generally satisfied with the influence of live e-commerce during the consumption process, and their consumption behaviour is greatly affected by it. In terms of transaction convenience, the communication between elderly consumers and live e-commerce can be enhanced to better understand the products, strengthen the impression of the products, and facilitate choice, subsequent use, and problem-solving.

Secondly, in terms of standard deviations, the standard deviation for accessibility is ± 2.1 , and the standard deviation for herd effect is ± 6.8 , while the standard deviations for other dimensions are relatively small. This shows that elderly consumers have varying opinions on the accessibility and herd effect aspects of live e-commerce, which will affect the representativeness of the related results. The reason for this phenomenon is that different survey subjects use social media differently, and the information quality and services of different social media platforms vary, leading to personalized research results. The standard deviation for transaction convenience is ± 1.1 , indicating that the opinions of the elderly on the influence of live e-commerce on consumption behaviour are relatively unified, with all respondents considering that live e-commerce can have a positive promotional effect on consumption behaviour.

Thirdly, in terms of coefficient of variation, the coefficient of variation for the functional role of social media in each dimension is below 0.2, proving that the fluctuations in opinions related to these aspects are relatively small. The results of this survey can be used in research, despite some fluctuations, which can reflect the actual situation.

Cluster Analysis of the Sample

In terms of cluster analysis, the main classification is based on different levels of "satisfaction" in the scoring to categorize the samples, and the proportion of each category is calculated to complete the cluster analysis. The categories are divided into

five levels: very satisfied, satisfied, neutral, dissatisfied, and very dissatisfied. Based on the results of the questionnaire survey, a cluster analysis of the functional role of e-commerce live streaming is conducted, with the detailed information shown in [Table 2-8](#).

Table 2-8: *Cluster Analysis of the Functional Role of Social Media (%)*

Project	Average Score	Very Satisfied	Satisfied	General	Dissatisfied	Very Dissatisfied
Atmospheric cues	20.3	15.0	65.0	10.0	7.0	3.0
Credibility	14.3	10.0	76.0	6.0	4.0	4.0
Accessibility	22.5	7.0	80.0	8.0	3.0	2.0
Herd Effect	20.3	16.0	69.0	10.0	4.0	1.0
Transaction convenience	23.2	20.0	76.0	1.0	2.0	1.0

Based on the cluster analysis results from [Table 2-8](#), China’s technology in the network field continues to innovate, and the network service system is growing stronger day by day, gradually infiltrating various industries and fields. Coupled with the increase in network coverage and the growing usage rate of the population, a unique e-commerce consumption culture has already formed. Live-streaming e-commerce is a new type of media under the Internet information era, and the demand for personalization among the elderly is constantly increasing. Some large enterprises also sign contracts with live streaming hosts to promote and market their products, expanding sales channels and improving sales performance. Overall, the existing e-commerce live streaming functions are relatively complete. Although there are shortcomings, they can meet the needs of most elderly people, and they have high satisfaction among the elderly.

Factor Analysis of the Sample

In this study, regression analysis was used to conduct a factor analysis of the functional roles of e-commerce live streaming, with the specific results shown in [Table 2-9](#).

Table 2-9: *Results of Factor Analysis of the Functional Roles of E-commerce Live Streaming*

Dependent Variable	Independent Variables	Regression coefficients	T values	Significance levels	Adjusted R2	F values
Functional role of e-commerce Live Streaming	Atmospheric cues	0.611	11.622	0.000	0.401	75.888
	Credibility	0.604	8.572	0.000	0.270	31.567
	Accessibility	0.613	12.212	0.000	0.337	55.336
	Herd Effect	0.516	9.721	0.000	0.331	44.118
	Transaction convenience	0.600	8.567	0.000	0.211	41.307
	Consumption Behaviour	0.510	8.327	0.000	0.223	32.507
	Willingness to consume	0.500	8.367	0.000	0.212	41.327

Based on the analysis results of Table 2-9, factors such as Atmospheric cues, credibility, accessibility, Herd Effect, Transaction convenience, consumption behaviour, and willingness to consume all affect the functional role of e-commerce live streaming. The analysis of the reasons is as follows: First, Atmospheric cues, credibility, accessibility, Herd Effect, and Transaction convenience are functional attributes of e-commerce live streaming, and their impact on the functional role of e-commerce live streaming is understandable. Second, the main target audience of live e-commerce services is young consumers. The personalized needs of consumers of different age groups will become the basis for the functional improvement of live e-commerce. Therefore, the influence of elderly consumers' willingness to consume and consumption behaviour on e-commerce live streaming is weak. Third, in the era of market-oriented economy, live e-commerce also faces certain competition. It needs to implement functional improvements and optimizations based on market demand to enhance its recognition and influence.

Structural Equation Model Analysis

The study mainly uses the regression analysis model, and the specific structural equation model analysis is as follows.

(1) Variable Setting

Table 2-10: Variable Code Setting

Variable	Code
Social Media Functional Role	SMF
Atmospheric cues	AC
Credibility	CB
Accessibility	AB
Herd Effect	HE
Transaction convenience	TC
Consumption Willingness	CW
Consumption Behaviour	CB

(2) Structural Equation

The structural equation used is a regression equation, which is as follows:

$$\begin{aligned}
 SMF &= \alpha + \beta_1 AC + \beta_2 CB + \beta_3 AB + \beta_4 HE + \beta_5 TC + \beta_6 CW + \beta_7 CB + u \\
 CW &= \alpha + \beta_1 AC + \beta_2 CB + \beta_3 AB + \beta_4 HE + \beta_5 TC + \beta_6 CB + u \\
 CB &= \alpha + \beta_1 AC + \beta_2 CB + \beta_3 AB + \beta_4 HE + \beta_5 TC + \beta_6 CW + u
 \end{aligned}$$

(2) Analysis Results

Table 2-11: *Structural Equation Model Analysis Results of Factors Affecting the Functional Role of Social Media*

Model	Non-standardized Coefficient		Standardized Coefficient	t	Sig.	R ²	Collinearity Statistics	
	B	Standard Error					Tolerance	VIF
(Constant)	309.266	309.001		3.411	0.002			
AC	1.201	1.002	0.206	0.743	0.231	0.791	0.201	1.011
CB	2.509	3.022	0.196	2.241	0.235	0.774	0.292	1.514
AB	2.225	0.222	0.196	1.466	0.233	0.736	0.362	1.018
HE	2.805	0.828	0.062	1.499	0.331	0.702	0.222	1.031
TC	0.235	0.202	0.196	1.461	0.233	0.532	0.323	1.018
CW	3.802	0.820	0.036	1.849	0.331	0.858	0.222	1.343
CB	3.827	0.824	0.236	1.541	0.231	0.855	0.207	1.342

Based on the results above, the structural equation can be formulated as follows:

$$SMF = 309.266 + 1.201AC + 2.509CB + 2.225AB + 2.805HE + 0.235TC + 3.802CW + 3.827CB$$

To optimize the structural equation, we sum up all the coefficients and divide each coefficient by the total sum to obtain the following results, which can be used as a basis for comparing the impact of different influencing factors:

$$SMF = 0.06AC + 0.13CB + 0.11AB + 0.14HE + 0.01TC + 0.17CW + 0.18CB$$

Analysing the influencing factors on the functionality of social media from largest to smallest impact, the results are as follows: Consumption behaviour > Consumption intention > Herd Effect > Accessibility > Atmospheric cues > Credibility > Transaction convenience.

The Limitations of the Study

The limitations of this study are as follows, considering the author’s level of research and experience:

Firstly, the SIPS research model used in this paper was proposed by Dentsu Japan in 2011. In the field of social media research, this concept is relatively new, and there are not many researchers involved. Additionally, relevant literature and materials are limited. The accuracy and applicability of this model still need to be established through longitudinal or experimental research.

Secondly, the sample of this study is limited to elderly individuals aged 55 and above living in a specific city in China. The general applicability of the research results to other populations and backgrounds is still uncertain. Future studies should replicate the above analysis conclusions in different populations and environments.

Thirdly, this study relies on the measurement of transaction convenience, the consumption willingness and behaviour of elderly consumers, and the data reports of

e-commerce live streaming, which may be affected by reporting biases and measurement errors. Future studies should use objective measures or multiple information providers to improve the validity and reliability of these measurements.

Lastly, this study did not investigate other potential factors that may affect the relationship between e-commerce live streaming and the consumption willingness of the elderly, such as the attractiveness of e-commerce live streaming, the impulsiveness of elderly consumption, and the social support factors obtained. Future studies should consider these factors to conduct more comprehensive predictive analysis.

Suggestions

(1) **Improve the Functional System of Social Media Based on the Needs of the Elderly**

The functional role of e-commerce live streaming should consider market demand, carry out functional innovation and service upgrading, especially for the elderly, who have a significant gap with middle-aged and young people in terms of consumption awareness, consumption concepts, consumption decision-making, etc. They are relatively conservative. In addition, their insufficient ability to operate new media technology makes them more eager to receive professional, convenient, and practical services. Therefore, various social media platforms should focus on obtaining market demand information and understand the needs of the elderly through online research. For example, social media connects with product manufacturers and sellers, establishes dedicated online service communities for communication, consultation, and ordering, reflecting professional characteristics.

(2) **Strengthen the Management of Live Streaming E-Commerce Platforms**

The threshold for live streaming platforms is low, the admission system is not perfect, and each platform has different consumption patterns. Consumers also have differentiated characteristics in their trust and usage of the platform. For example, some e-commerce platforms engage in false advertising in order to gain economic benefits. In addition, there are also some platforms that do not have strict and timely information review, resulting in a large amount of false information. If not effectively controlled, it may harm more of the interests of the elderly.

(3) **Improve the Experience of Elderly People Using Social Platforms**

E-commerce live streaming platforms should be equipped with human customer service or operation consultants, set up "elderly usage mode", slow down speech speed and actions, explain the requirements and processes of platform usage in detail, and demonstrate the operation, so that elderly people can proficiently use the platform to obtain relevant product sales information, and enhance the loyalty and dependence of elderly consumers on the platform.

References

- Akdevelioglu, D., & Kara, S. (2020). An international investigation of opinion leadership and social media. *Journal of Research in Interactive Marketing*, 14(1), 71-88. <https://doi.org/10.1108/jrim-11-2018-0155>
- Auxier, B., & Anderson, M. (2021). Social media use in 2021. In. <https://www.pewresearch.org/internet/2021/04/07/social-media-use-in-2021/>

- Barros, L. B. L., Petroll, M. d. L. M., Damacena, C., & Knoppe, M. (2019). Store atmosphere and impulse: a cross-cultural study. *International Journal of Retail & Distribution Management*, 47(8), 817-835. <https://doi.org/10.1108/ijrdm-09-2018-0209>
- Berg-Weger, M., & Morley, J. E. (2020). Editorial: Loneliness and Social Isolation in Older Adults during the COVID-19 Pandemic: Implications for Gerontological Social Work. *The journal of nutrition, health & aging*, 24(5), 456-458. <https://doi.org/10.1007/s12603-020-1366-8>
- Cham, T.-H., Cheah, J.-H., Memon, M. A., Fam, K.-S., & László, J. (2022). Digitalization and its impact on contemporary marketing strategies and practices. *Journal of Marketing Analytics*, 10(2), 103-105. <https://doi.org/10.1057/s41270-022-00167-6>
- Cham, T.-H., Cheng, B.-L., Lee, Y.-H., & Cheah, J.-H. (2023). Should I buy or not? Revisiting the concept and measurement of panic buying. *Current psychology (New Brunswick, N.J.)*, 1-21. <https://doi.org/10.1007/s12144-022-03089-9>
- Cham, T. H., & Easvaralingam, Y. (2012). Service quality, image and loyalty towards Malaysian hotels. *International Journal of Services, Economics and Management*, 4(4), 267. <https://doi.org/10.1504/ijsem.2012.050951>
- Chhatwani, M., Mishra, S. K., & Rai, H. (2022). Active and passive social media usage and depression among the elderly during COVID-19: does race matter? *Behaviour & Information Technology*, 42(2), 215-226. <https://doi.org/10.1080/0144929x.2022.2045359>
- Cho, H., Cannon, J., Lopez, R., & Li, W. (2024). Social media literacy: A conceptual framework. *New media & society*, 26(2), 941-960. <https://doi.org/10.1177/14614448211068530>
- Dewobroto, W. S., & Wijaya, K. (2022). Analysis of the Effect of Store Atmosphere and Social Factors on Emotional Responses Affecting Consumers' Purchase Decision. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 5(1), 356-370. <https://doi.org/10.31538/ijjse.v5i1.1800>
- Duarte, P., Costa e Silva, S., & Ferreira, M. B. (2018). How convenient is it? Delivering online shopping convenience to enhance customer satisfaction and encourage e-WOM. *Journal of Retailing and Consumer Services*, 44, 161-169. <https://doi.org/10.1016/j.jretconser.2018.06.007>
- Flacandji, M., & Krey, N. (2020). Remembering shopping experiences: The Shopping Experience Memory Scale. *Journal of Business Research*, 107, 279-289. <https://doi.org/10.1016/j.jbusres.2018.10.039>
- Guo, J., Li, Y., Xu, Y., & Zeng, K. (2021). How Live Streaming Features Impact Consumers' Purchase Intention in the Context of Cross-Border E-Commerce? A Research Based on SOR Theory. *Frontiers in psychology*, 12, 767876-767876. <https://doi.org/10.3389/fpsyg.2021.767876>
- He, Y., Li, K., & Wang, Y. (2022). Crossing the digital divide: The impact of the digital economy on elderly individuals' consumption upgrade in China. *Technology in Society*, 71, 102141. <https://doi.org/10.1016/j.techsoc.2022.102141>
- Hew, J.-J., Lee, V.-H., Ooi, K.-B., & Wei, J. (2015). What catalyses mobile apps usage intention: an empirical analysis. *Industrial Management & Data Systems*, 115(7), 1269-1291. <https://doi.org/10.1108/imds-01-2015-0028>

- Indiani, N. L. P., & Fahik, G. A. (2020). Conversion Of Online Purchase Intention Into Actual Purchase: The Moderating Role Of Transaction Security And Convenience. *Business: Theory and Practice*, 21(1), 18-29. <https://doi.org/10.3846/btp.2020.11346>
- Kasmad, K. (2022). Analysis of Purchase Decision Estimates Based on Store Atmosphere and Affordable Prices. *AKADEMIK: Jurnal Mahasiswa Ekonomi & Bisnis*, 2(1), 27-34. <https://doi.org/10.37481/jmneb.v2i1.246>
- Kaye, D. B. V., Chen, X., & Zeng, J. (2020). The co-evolution of two Chinese mobile short video apps: Parallel platformization of Douyin and TikTok. *Mobile Media & Communication*, 9(2), 229-253. <https://doi.org/10.1177/2050157920952120>
- Khan, S. K., Ali, N., Khan, N. A., Ammara, U., & Anjum, N. (2020). Understanding multiscreening phenomenon for online shopping through perspective of self-regulation and dual process theory: Case of Chinese young generation. *Electronic Commerce Research and Applications*, 42, 100988. <https://doi.org/10.1016/j.elerap.2020.100988>
- Komalasari, P. T., Asri, M., Purwanto, B. M., & Setiyono, B. (2021). Herding behaviour in the capital market: What do we know and what is next? *Management Review Quarterly*, 72(3), 745-787. <https://doi.org/10.1007/s11301-021-00212-1>
- Kotler, P. (1973). Atmospherics as a marketing tool. *Journal of Retailing and Consumer Services*, 49(4). <https://www.researchgate.net/publication/239435728>
- Kovalenko, A. (2020). Older Adults Shopping Online: A Fad or a Trend? In *The Impact of COVID-19 on E-Commerce: Proud Pen*. http://dx.doi.org/10.51432/978-1-8381524-8-2_5
- Lacap, J. P. G., CHAM, T.-H., & LIM, X.-J. (2021). The Influence of Corporate Social Responsibility on Brand Loyalty and The Mediating Effects of Brand Satisfaction and Perceived Quality. *International Journal of Economics & Management*, 15(1). <https://www.researchgate.net/publication/350739563>
- Liu, X. S., Shi, Y., Xue, N. I., & Shen, H. (2022). The impact of time pressure on impulsive buying: The moderating role of consumption type. *Tourism Management*, 91, 104505. <https://doi.org/10.1016/j.tourman.2022.104505>
- Loos, E., & Ivan, L. (2022). Not only people are getting old, the new media are too: Technology generations and the changes in new media use. *New Media & Society*, 26(6), 3588-3613. <https://doi.org/10.1177/14614448221101783>
- Luo, H., Cheng, S., Zhou, W., Song, W., Yu, S., & Lin, X. (2021). Research on the Impact of Online Promotions on Consumers' Impulsive Online Shopping Intentions. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(6), 2386-2404. <https://doi.org/10.3390/jtaer16060131>
- Rasidi, W. A. R., & Monika, T. (2021). The Effect of Convenience and Trust on Online Purchasing Decision (on Blibli Platform). *Journal of Business and Management Review*, 2(8), 531-543. <https://doi.org/10.47153/jbmr28.1862021>
- Sarah, F. H., Goi, C. L., Chieng, F., & Taufique, K. M. R. (2020). Examining the

- Influence of Atmospheric Cues on Online Impulse Buying Behavior across Product Categories: Insights from an Emerging E-Market. *Journal of Internet Commerce*, 20(1), 25-45. <https://doi.org/10.1080/15332861.2020.1836593>
- Sun, Z., Fu, S., & Jiang, T. (2022). Gain-framed product descriptions are more appealing to elderly consumers in live streaming E-commerce: Implications from a controlled experiment. *Data and Information Management*, 6(4), 100022. <https://doi.org/10.1016/j.dim.2022.100022>
- Ye, Y., Zhou, Z., & Duan, H. (2022). Philanthropic sales in live-streaming shopping: The impact of online interaction on consumer impulse buying. *Frontiers in psychology*, 13, 1041476-1041476. <https://doi.org/10.3389/fpsyg.2022.1041476>