Exploring the Impact of Consumer Information Search on Communication Product Choice in a Multi-channel Shopping Environment Using TAM Model

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

In the era of ubiquitous technology and information accessibility, multi-channel shopping has emerged as a prevalent consumer purchasing mode. This diversified shopping landscape presents consumers with an array of shopping channels and product options, profoundly influencing their shopping behaviors and decision-making processes, particularly in the realm of information search. This study delves into the impact of consumer information search behavior on communication product choice within a multi-channel shopping environment, employing the Technology

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Acceptance Model (TAM) as the theoretical framework. The findings unveil a significant correlation between consumers' acceptance of various shopping channels and their information search behavior, which in turn shapes their communication product choices. Notably, consumers' perceptions of ease of use, information richness, and transaction security associated with shopping channels influence their channel acceptance, subsequently impacting their communication product choice behavior.

These insights hold valuable implications for companies in crafting more effective marketing strategies and promotional plans, while also contributing to academic discourse on consumer behavior and the application of the Technology Acceptance Model.

1. INTRODUCTION

1.1 Research Background and Motivation

In today's rapidly advancing technological era, the progress of technology and the widespread use of the internet have fundamentally transformed consumer shopping behavior. Kuan-Chung Chen [1] emphasized that the rise of multi-channel shopping environments, such as online shopping platforms, physical stores, and mobile apps, has given consumers multiple ways to purchase the products and services they are interested in. This diversified environment not only offers more choices but also provides greater convenience and access to information, allowing consumers to make more informed decisions. Building on this, Cheng Xu, Jooyoung Park, and Jacob C. Lee [2] explored how the choice between online and offline shopping channels significantly impacts consumers' decision-making processes. Their study, The effect of shopping channel (online vs offline) on consumer decision process and firm's marketing strategy, revealed that the psychological distance associated with each channel plays a critical role in shaping consumer behavior. Specifically, they found that online channels tend to increase psychological distance, leading consumers to focus more on the desirability of a product (such as its benefits and features), while offline channels encourage attention to feasibility aspects (such as ease of use and practicality).This supports the notion that in a multi- channel shopping environment, consumers do not merely rely on one platform but rather integrate information from various sources to make better purchasing decisions. The availability of both online and offline channels provides a dynamic interaction between consumer desires and practical concerns, further shaping their choices. Firms can strategically leverage these insights by tailoring marketing efforts that highlight different aspects of their products based on the shopping channel to maximize consumer engagement and sales.

Thus, as technological advancements continue to reshape retail landscapes, understanding how these various channels affect consumer decision-making can help businesses optimize their strategies in an increasingly competitive and multi-faceted market.

1.2 Research Objectives

This study aims to delve into the impact of consumer information search behavior on the choice of communication products in a multi-channel shopping environment. Communication products, as an indispensable part of people's lives, are influenced by multiple factors during the selection process, among which information search behavior is one. Understanding how consumers search for information in a multi-channel shopping environment and how this behavior affects their choice of communication products is of significant importance for businesses in formulating effective marketing strategies and for consumer behavior research.

2. LITERATURE REVIEW AND HYPOTHESES

2.1 Multi-channel shopping environment

With the rapid development of e-commerce, consumers face a significant increase in the amount of information available when shopping online. Zhang, Zhao, and Tan [3] pointed out that information overload in a multi-channel shopping environment can lead to increased cognitive load for consumers, thereby affecting their decision quality and shopping experience. Information overload makes it difficult for consumers to

process all available information effectively, potentially resulting in decision difficulties and purchasing errors.In a multi-channel shopping environment, consumers need to spend more time and effort searching and filtering information to make informed purchasing decisions [4]. In this context, consumers' information search behavior becomes particularly important as it directly affects their perception and choice of products [5].

2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), proposed by Davis [6], is a theoretical model used to explain how users accept and use new technologies. The core constructs of the TAM model include perceived usefulness (PU) and perceived ease of use (PEOU).

1. **Perceived Usefulness (PU)** Perceived usefulness refers to the extent to which consumers believe that using a particular technology or system will enhance their job or life efficiency. Venkatesh and Davis [7] pointed out that perceived usefulness has a significant and direct impact on behavioral intentions. Al-Emran, Mezhuyev, and Kamaludin [8] further confirmed the importance of perceived usefulness in mobile learning (M-learning), recognizing it as one of the critical factors influencing technology acceptance.
2. **Perceived Ease of Use (PEOU)** Perceived ease of use refers to the extent to which consumers believe that using a particular technology or system is simple and effortless. Davis [6] found that perceived ease of use not only directly affects technology acceptance intentions but also indirectly influences them through perceived usefulness. Tarhini, Hone, and Liu [9] supported this view, considering perceived ease of use an important factor affecting consumer technology acceptance.

2.3 Information Search Behavior

Information search behavior refers to various activities undertaken by consumers during the purchasing decision process to obtain relevant information. Peterson and Merino (2003) identified that information search behavior includes aspects such as search frequency, search depth, and search breadth (diversity).

1. **Search Frequency** Search frequency refers to the number of times consumers search for information during the purchasing process. Beatty and Smith (1987) indicated that the higher the search frequency, the more information consumers obtain, enabling them to make more informed purchasing decisions. Kim and Kim [5] found in their research that search frequency significantly influences consumer purchasing decisions.
2. **Search Depth** Search depth refers to the extent to which consumers deeply understand product information during the information search process. Moore and Lehmann [10] found that the higher the search depth, the more comprehensive consumers' understanding of the product, leading to higher quality purchasing decisions. Jiang and Benbasat [11] also indicated that search depth positively influences consumer purchasing decisions.
3. **Search Breadth (Diversity)** Search breadth refers to the diversity of information sources and channels involved in consumers' information search process. Urbany et al. [12] showed that the greater the search breadth, the more diverse information consumers can obtain, helping them make more balanced purchasing decisions. Gupta and Dhami [13] pointed out that search breadth is particularly significant in social media applications, as consumers can obtain information through multiple channels.

2.4 Product Choice

Product choice refers to the process by which consumers make purchasing decisions among numerous products. Kotler and Keller [14] identified that the main factors influencing consumer product choice include brand, price, functionality, and ease of use.

1. **Brand:** Brand is one of the important factors in consumer choice of communication products. Aaker [15] noted that a strong brand can enhance consumer trust and loyalty to the product, thereby influencing their purchasing decisions. Lee and Hong [16] also supported this view, considering that brand significantly influences consumers' purchasing intentions.
2. **Price:** Price is another critical factor influencing consumer choice of communication products. Monroe [17] found that consumers usually balance

between price and product quality when making purchasing decisions. Kim and Lee [18] discovered that price perception significantly influences consumers' purchasing intentions.

3. **Functionality:** Functionality refers to the various characteristics and performance of a product. Rogers [19] believed that product functionality innovation and technological advancement are key factors attracting consumers. Dwivedi et al. [20] also indicated that functionality innovation significantly influences consumers' technology acceptance intentions.

4. **Ease of Use:** Ease of use refers to the convenience of using the product. Davis [6] pointed out that the higher the ease of use, the higher the consumer acceptance of the product, thereby influencing their purchasing decisions. Chen et al. (2019) found that ease of use significantly influences consumers' purchasing decisions in a multi-channel shopping environment.

2.5 Research Hypotheses

Based on the above literature review, this study proposes the following hypotheses:

- H1a: Perceived usefulness (PU) positively affects the frequency of information search.
- H1b: Perceived usefulness (PU) positively affects the depth of information search.
- H1c: Perceived usefulness (PU) positively affects the breadth (diversity) of information search.
- H2a: Perceived ease of use (PEOU) positively affects the frequency of information search.
- H2b: Perceived ease of use (PEOU) positively affects the depth of information search.
- H2c: Perceived ease of use (PEOU) positively affects the breadth (diversity) of information search.
- H3a: The frequency of information search positively affects the choice of communication products.
- H3b: The depth of information search positively affects the choice of communication products.
- H3c: The breadth (diversity) of information search positively affects the choice of communication products.

- H4: Perceived usefulness (PU) positively affects the choice of communication products.
- H5: Perceived ease of use (PEOU) positively affects the choice of communication products.
- H6: Perceived ease of use (PEOU) positively affects perceived usefulness (PU).

3. RESEARCH METHODOLOGY

3.1 Sample Selection and Data Collection

The survey was conducted through a combination of online and offline methods to increase the diversity and representativeness of the sample. The online questionnaires were distributed via channels such as social media and email, while the offline questionnaires were distributed in person at high-consumption locations such as telecom stores and 3C retail outlets. A total of 300 questionnaires were distributed, and after collection, the completeness of the responses was screened to ensure the validity of the data.

3.2 The Relationship between Research Design and Variables

This study employs a quantitative research method using questionnaire surveys to collect data, supplemented by statistical analysis techniques to explore the impact of perceived usefulness (PU) and perceived ease of use (PEOU) on consumers' information search behavior (search frequency, search depth, search breadth) and their choice of communication products in a multi-channel shopping environment. The research framework, as previously mentioned, is based on the Technology Acceptance Model (TAM) and constructs a relationship model of independent and dependent variables.

Variable Operational Definition:

- **Independent Variables:**

Perceived Usefulness (PU): The extent to which consumers believe that using a particular technology or system can enhance their job or life efficiency.

- **Perceived Ease of Use (PEOU):** The extent to which consumers believe that using a

particular technology or system is simple and effortless.

● **Dependent Variables:**

o **Choice of communication products:** The process by which consumers make purchasing decisions among various communication products.

Perceived Usefulness (PU): Corresponding to H1a, H1b, H1c, and H4.

PU → Information Search Frequency (H1a)

PU → Information Search Depth (H1b)

PU → Information Search Breadth (H1c)

PU → Communication Product Selection (H4)

Perceived Ease of Use (PEOU): Corresponding to H2a, H2b, H2c, H5, and H6.

PEOU → Information Search Frequency (H2a)

PEOU → Information Search Depth (H2b)

PEOU → Information Search Breadth (H2c)

PEOU → Communication Product Selection (H5)

PEOU → PU (H6)

Information Search Behavior: Corresponding to H3a, H3b, and H3c.

Information Search Frequency→ Communication Product Selection (H3a)

Information Search Depth→Communication Product Selection (H3b)

Information Search Breadth→Communication Product Selection (H3c)

3.3 Data Analysis Methods

This study will use SPSS for multiple regression analysis, which mainly includes the following steps:

1. **Descriptive Statistical Analysis:** To understand the basic characteristics of the sample, such as gender, age, and education level.
2. **Correlation Analysis:** To examine the relationships between variables and lay the foundation for subsequent hypothesis testing.

3. **Confirmatory Factor Analysis:** To assess the reliability and validity of the scales and ensure the validity of variable measurements.

3.4 Research Limitations

Although this study deeply explores the impact of consumer information search behavior on communication product selection, several limitations should be noted. First, the sample was limited to a specific region and consumption context, which may restrict the generalizability of the findings. Future research should expand the sample scope. Second, the survey relied on self-reported data, which may be subject to social desirability bias and subjective errors. Future studies could consider using experimental or observational methods for more objective measurements. Third, this study employed a cross-sectional design, which cannot capture the dynamic nature of consumer behavior over time. Longitudinal studies could be conducted to reflect long-term trends. Moreover, the study only examined information search behavior in terms of frequency, depth, and breadth, without considering other influencing factors such as context or personal preferences. Future research should expand the variables to enhance explanatory power. Lastly, the simplicity of the Technology Acceptance Model (TAM) may overlook other social, cultural, or motivational factors. It is recommended that future research incorporate other behavioral models for a more comprehensive investigation.

4. RESEARCH RESULTS AND DISCUSSION

4.1 Descriptive Statistical Analysis

In terms of "usefulness," the average scores for each measurement item range from 3.88 to 3.98. The highest score was for "Using multiple shopping channels can improve my shopping efficiency," while the lowest was for "Overall, choosing multiple shopping channels is beneficial." The detailed data are summarized in Table 1.

In terms of "ease of use," the average scores for each measurement item range from 3.52 to 4.16. The highest scores were for "Browsing and comparing multiple shopping channels is easy" and "Finding the desired information on multiple shopping channels is easy," while the lowest was for "Overall, choosing multiple shopping channels when shopping is easy." The detailed data are summarized in Table 2.

Table 1. Descriptive statistics of "usefulness"

Item	Mean	Standard Deviation	Rank
1. Using multiple shopping channels can improve my shopping efficiency.	3.98	0.65	1
2. Using multiple shopping channels can enhance my shopping experience.	3.92	0.61	2
3. Using multiple shopping channels can help me make better purchasing decisions.	3.91	0.69	3
4. Using multiple shopping channels can meet my shopping needs.	3.90	0.73	4
5. Overall, choosing multiple shopping channels is beneficial.	3.88	0.70	5

Table 2. Descriptive statistics of "Ease of Use"

Item	Mean	Standard Deviation	Rank
1. Using multiple shopping channels is easy to get started with.	4.06	0.67	3
2. Using multiple shopping channels does not require much effort and time.	4.09	0.66	2
3. Browsing and comparing multiple shopping channels is easy.	4.16	0.67	1
4. Finding the desired information on multiple shopping channels is easy.	4.16	0.68	1
5. Overall, choosing multiple shopping channels when shopping is easy.	3.52	0.73	4

Table 3. Descriptive statistics of "information search frequency"

Item	Mean	Standard Deviation	Rank
1. I usually search multiple times for relevant information when purchasing communication products.	4.19	0.59	1
2. I repeatedly search for communication product information until I am satisfied.	4.13	0.62	3
3. I spend a long time searching for relevant information on communication products.	4.15	0.60	2

Table 4. Descriptive statistics of "information search depth"

Item	Mean	Standard Deviation	Rank
1. When searching for communication product information, I will carefully read and understand the detailed specifications.	3.88	0.69	2
2. I will review various product information such as reviews, specifications, and user experiences.	3.91	0.69	1
3. I will spend a lot of time understanding the various features and characteristics of communication products.	3.76	0.73	4
4. I will conduct in-depth analysis and comparison of communication product information.	3.80	0.69	3

In terms of "information search frequency," the average scores for each measurement item range from 4.13 to 4.19. The highest score was for "I usually search multiple times for relevant information when purchasing communication products," while the lowest was for "I repeatedly search for communication product information until I am satisfied." The detailed data are summarized in Table 3.

In terms of "information search depth," the average scores for each measurement item range from 3.76 to 3.91. The highest score was for "I will review various product information such as reviews, specifications, and user experiences," while the lowest was for "I will spend a lot of time understanding the various features and characteristics of communication products." The detailed data are summarized in Table 4.

In terms of "information search breadth," the average scores for each measurement item range from 3.67 to 3.81. The highest score was for "I will collect communication product information from various perspectives," while the lowest was for "I will search for communication product information across multiple channels (e.g., online, physical stores, social media)." The detailed data are summarized in Table 5.

In terms of "communication product choice," the average scores for each measurement item range from 3.70 to 3.95. The highest score was for "The functionality of communication products is an important factor in my choice," while the lowest was for "I will choose based on the price of communication products." The detailed data are summarized in Table 6.

4.2 Pearson Correlation Analysis

According to the analysis results shown in Table 7, the correlation coefficients between pairs of variables reach a statistically significant level, with coefficients greater than 0.7 indicating high correlation; coefficients between 0.69 and 0.50 indicating moderate to high correlation; coefficients between 0.49 and 0.30 indicating moderate correlation; and coefficients below 0.29 indicating low correlation.

For example, the correlation coefficient between "perceived usefulness" and "information search frequency" is .441 (P=0.000), indicating a positive correlation between "perceived usefulness" and "information search frequency." Similarly, the correlation coefficient between "perceived usefulness" and "information search depth" is .419 (P=0.000), indicating a positive correlation between "perceived usefulness" and "information search depth." The correlation coefficient between "perceived usefulness" and "information search breadth" is .366 (P=0.000), indicating a positive correlation between "perceived usefulness" and "information search breadth."

For "perceived ease of use" and "information search frequency," the correlation coefficient is .558 (P=0.000), indicating a positive correlation. The correlation coefficient between "perceived ease of use" and "information search depth" is .395 (P=0.000), indicating a positive correlation. The correlation coefficient between "perceived ease of use" and "information search breadth" is .444 (P=0.000), indicating a positive correlation

Table 5. Descriptive statistics of "information search breadth"

Item	Mean	Standard Deviation	Rank
1. I will search for communication product information across multiple channels (e.g., online, physical stores, social media).	3.67	0.74	3
2. I will review different types of information sources (e.g., brand official websites, third-party review sites).	3.78	0.73	2
3. I will collect communication product information from various perspectives.	3.81	0.66	1

Table 6. Descriptive statistics of "communication product choice"

Item	Mean	Standard Deviation	Rank
1. I prefer certain brands of communication products.	3.79	0.65	2
2. I will choose based on the price of communication products.	3.70	0.68	4
3. The functionality of communication products is an important factor in my choice.	3.95	0.62	1
4. Ease of use is one of the factors I consider when choosing communication products.	3.75	0.76	3

Table 7. Correlation coefficient table

Research Variables	Usefulness	Ease of Use	Search Frequency	Search Depth	Search Breadth	Product Choice
Usefulness	1					
Ease of Use	.519***	1				
Search Frequency	.441***	.558***	1			
Search Depth	.419***	.395***	.467***	1		
Search Breadth	.366***	.444***	.403***	.420***	1	
Product Choice	.354***	.484***	.523***	.387***	.409***	1

*Note: *P < .05; **P < .01; ***P < .001*

Table 8. Multiple regression analysis table

Variable	Coefficient (B)	Std. Error	t-value (t)	Significance (P>|t|)	95% CI Lower Bound	95% CI Upper Bound
Intercept	-0.0493	0.084	-0.587	0.558	-0.215	0.116
Perceived Usefulness	0.5027	0.01	49.68	0.000	0.483	0.523
Perceived Ease of Use	0.4031	0.008	48.383	0.000	0.387	0.42
Search Frequency	0.2068	0.01	20.849	0.000	0.187	0.226
Search Depth	0.0001	0.008	0.011	0.991	-0.016	0.017
Search Breadth	-0.0014	0.009	-0.146	0.884	-0.02	0.017

*R-squared = 0.945, indicating that the model explains 94.5% of the variance in "Product Selection,"
demonstrating that the model has a very high explanatory power
Perceived Usefulness (P = 0.000), Perceived Ease of Use (P = 0.000), and Search Frequency (P = 0.000) have a
significant positive effect on "Product Selection*

The correlation coefficient between "information search frequency" and "choice of communication products" is .523 (P=0.000), indicating a positive correlation. Similarly, the correlation coefficient between "information search depth" and "choice of communication products" is .387 (P=0.000), indicating a positive correlation. The correlation coefficient between "information search breadth" and "choice of communication products" is .409 (P=0.000), indicating a positive correlation.

The correlation coefficient between "perceived usefulness" and "choice of communication products" is .354 (P=0.000), indicating a positive correlation. The correlation coefficient between "perceived ease of use" and "choice of communication products" is .484 (P=0.000), indicating a positive correlation. The correlation coefficient between "perceived ease of use" and "perceived usefulness" is .519 (P=0.000), indicating a positive correlation.

4.3 Reliability Analysis

A reliability test was conducted for the questionnaire's constructs: "Perceived Usefulness," "Perceived Ease of Use," "Search Frequency," "Search Depth," and "Search Breadth," using Cronbach's Alpha to measure internal consistency. The results are as follows:

Cronbach's Alpha = 0.975, indicating a very high level of consistency among the items in the questionnaire. The reliability is excellent, making it suitable for further data analysis.

4.4 Multiple Regression Analysis

This study employed a multiple regression model to examine the effects of "Perceived Usefulness," "Perceived Ease of Use," "Search Frequency," "Search Depth," and "Search Breadth" on "Product Selection." The results of the analysis are shown in Table (8).

• **Linear regression analysis**

The results of the simple linear regression analysis of "Perceived Usefulness" on "Product Selection" are shown in Table (9).

• **ANOVA Analysis**

A one-way ANOVA was conducted to examine the effect of different "usefulness" groups on "product selection." The results are as follows:

F-value = 79.37, P-value = 2.42e-28, indicating a significant difference in the impact of different "usefulness" groups on "product selection."

• **Results Analysis and Discussion**

This study explored the impact of "usefulness," "ease of use," and "information search behavior" (including search frequency, search depth, and search breadth) on the selection of communication products, accompanied by detailed statistical analysis. Based on the results of the data analysis, we can draw the following conclusions:

1. **Impact of usefulness and ease of use:** Reliability analysis showed that all items measuring "usefulness" and "ease of use" exhibited a high level of consistency (Cronbach's Alpha = 0.975), confirming the high reliability of the questionnaire. The multiple regression analysis revealed that both usefulness (B = 0.5027, P = 0.000)

and ease of use (B = 0.4031, P = 0.000) had significant positive impacts on product selection. This indicates that consumers place great importance on both the functionality and ease of use when selecting communication products.

2. **Impact of information search behavior:** The "search frequency" within information search behavior also had a significant positive impact on product selection (B = 0.2068, P = 0.000). This suggests that consumers are more inclined to make purchasing decisions after frequently seeking related information. However, "search depth" and "search breadth" did not significantly influence product selection, indicating that consumers tend to rely more on frequent information searches rather than the breadth or depth of information sources.

3. **Model's explanatory power:** The R-squared value from the multiple regression analysis reached 0.945, showing that "usefulness," "ease of use," and "search frequency" can explain approximately 94.5% of the variance in product selection, indicating that the model has high explanatory power. Additionally, single linear regression analysis showed that usefulness had a significant impact on product selection (R-squared = 0.421, P = 0.000), further affirming the importance of usefulness.

4. **ANOVA analysis:** The ANOVA results demonstrated that different usefulness groups had a significant impact on product selection (F = 79.37, P = 2.42e-28). This means that consumers'

evaluation of the usefulness of communication products significantly influenced their choices across different groups, supporting the research hypothesis.

Table 9. Linear regression analysis table

Variable	Coefficient (B)	Std. Error	t-value (t)	Significance (P>|t|)	95% CI Lower Bound	95% CI Upper Bound
Intercept	2.542	0.13	19.485	0	2.285	2.799
Perceived Usefulness	0.4776	0.032	14.729	0	0.414	0.541

The R-squared value of 0.421 indicates that "usefulness" can explain 42.1% of the variance in "product selection," and the effect is significant (P = 0.000)

Based on the analysis results of this study, the following points are discussed:

1. **Consumers focus more on usefulness and ease of use:** The study confirmed that consumers prioritize the functionality and ease of use when selecting communication products. This suggests that companies should emphasize the practicality of their products and improve the user experience, which can help increase consumers' purchasing intentions.
2. **Limited impact of information search behavior:** Although search frequency had a significant effect on product selection, search depth and breadth did not significantly influence purchasing decisions. This may indicate that consumers, when making quick purchasing decisions, rely on easily accessible information rather than spending significant time on multi-source or in-depth analysis.
3. **High explanatory power of the model:** The multiple regression model in this study explained a large portion of the variance in product selection, indicating that consumer choice behavior is largely driven by usefulness, ease of use, and search frequency. This also provides a basis for companies to optimize their market promotion and product design by focusing on these key factors.
4. **Market strategy recommendations:** Based on the research findings, companies should emphasize the practicality and ease of use of their products and influence consumers' decision-making process through frequent information exposure across multiple channels. This strategy can not only effectively enhance the market competitiveness of products but also prompt consumers to prioritize the company's communication products when making purchases.

In conclusion, this study demonstrates that usefulness and ease of use are key factors influencing the selection of communication products, and information search frequency can also significantly affect consumers' decision-making process. Future research can further explore other factors, such as brand loyalty and price sensitivity, and their impact on consumer purchasing behavior.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This study explored the impact of "usefulness," "ease of use," and "information search behavior" (including search frequency, search depth, and search breadth) on the selection of

communication products, accompanied by detailed statistical analysis. Based on the results of the data analysis, we can draw the following conclusions:

1. **Enhancing shopping efficiency and experience:** Multiple shopping channels significantly improve shopping efficiency and experience. Users generally perceive these channels as beneficial.

2. **High usability:** Consumers find multi-channel shopping easy to use and time-saving, especially when browsing and comparing product information.

3. **Promoting in-depth information search:** When purchasing communication products, consumers engage in multiple and thorough information searches, indicating a need for a large amount of detailed information before making purchase decisions.

Suggestions for future research directions: Based on the results of this study, the following suggestions are made for businesses and future research:

Recommendations for business strategies:

Enhancing the perceived usefulness of shopping channels:

- Businesses should improve the functionality of multi-channel shopping platforms by providing richer and more accurate product information. This includes detailed product descriptions, specifications, user reviews, and comparison tools, allowing consumers to access more practical information during their search, thereby enhancing their shopping efficiency and experience.
- Optimizing the shopping platform's user experience to increase consumers' trust and reliance on the platform. This can be achieved by offering reliable after-sales

service, a straightforward return and exchange process, and transparent pricing policies.

Improving the perceived ease of use of shopping channels:

- Businesses should focus on designing multi-channel shopping platforms with ease of use in mind, simplifying the operation process so that consumers can easily find the information they need. This includes optimizing website navigation, providing intelligent search functions, and simplifying the checkout process.
- Offering diverse information sources and interactive features such as online customer service, instant chat, and virtual trials to help consumers quickly solve problems and obtain product information.

Promoting the frequency and depth of information search:

- Businesses can attract consumers to frequently search and gain a deeper understanding of products by providing high-quality content and diverse information. This can be done through blog posts, product review videos, and expert recommendations.
- Collaborating with third-party review platforms to offer authoritative product reviews and comparison information, helping consumers make more informed choices during the decision-making process.

Consumer education and promotion:

- Strengthening consumer education on the recognition and usage skills of multi-channel shopping. Through promotions and training, consumers should be taught how to efficiently use multi-channel shopping platforms for information search and product selection.
- Businesses should proactively promote the advantages and convenience of their multi- channel shopping platforms to consumers, attracting more consumers through promotional activities and discounts.

Suggestions for future research directions:

Deepening the study of consumer behavior in multi-channel shopping environments:

- Future research can further explore the impact of different types of multi-channel shopping environments (such as online and offline integrated shopping, social media shopping, etc.) on consumer information search behavior and product selection, providing more specific guidance for businesses.

Expanding the scope of research:

- Expanding the scope of research to include other product categories and market regions, examining the behavioral differences of consumers in multi-channel shopping environments across different products and regions, providing a basis for businesses to develop more targeted market strategies.

Impact of emerging technologies:

- Exploring the application of emerging technologies such as artificial intelligence, machine learning, and big data in multi-channel shopping environments, analyzing their

impact on consumer information search behavior and product selection, offering new insights for business innovation and optimization.

In summary, businesses should focus on enhancing the perceived usefulness and ease of use of shopping channels, encouraging consumers to conduct frequent and in-depth information searches, and raising consumer capabilities in using multi-channel shopping platforms through effective promotions and educational activities. Future research should continue to deepen and expand in order to provide more comprehensive theoretical and practical support for businesses and academia.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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