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Consumer Research in Omnichannel Retailing: A Systematic Analysis

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Abstract

Purpose: In the past decade, Scholars, think tanks, and policymakers have had rich discussions about omnichannel distribution science. However, despite the growing body of research in this area, there is currently no universally accepted definition of what exactly an "omnichannel consumer" consists of and what the most relevant drivers are. This study aims to synthesize the empirical evidence surrounding omni-channel consumer research and its management. Additionally, we demonstrate how omnichannel consumer research has emerged from different theoretical perspectives and disciplines. **Research design, data and methodology:** Using the Systematic Literature Review method and searching the CNKI, Web of Science, and Scopus databases for 130 articles, the study analyzed the current state of omnichannel consumer research and categorized and summarized the findings in the literature. **Results:** This study analyzes the current state of omnichannel consumer research and categorizes the findings in the literature and identifies four research areas: consumer behavior, consumer experience, consumer sentiment dimensions, and consumer segmentation. **Conclusions:** This literature review offers the first comprehensive and systematic overview of "Chinese omnichannel consumers." It not only highlights the most critical research trends discussed in existing studies, but also outlines the expected direction of future research, which provides the basis for understanding omnichannel consumer research.

Keywords : Omnichannel, Consumer Research, Systematic Literature Review, Retailing

JEL Classification Code : :D39, L81, M11, M30, M31

1. Introduction

The rapid advancement of technology has revolutionized the retail industry, creating both opportunities and challenges for retailers. With the growing popularity of smart mobile devices and social networks, the lines between online and physical channels have become increasingly blurred. In response, a new approach to channel integration called omnichannel has emerged. According to Piotrowicz and Cuthbertson (2014), omni-channel involves collaborative management of multiple channels and customer touchpoints to enhance customer experience and optimize performance. This is a significant shift from the past multi-channel approach to retailing. The goal is to create a seamless omnichannel retail experience where physical and online shopping converge, and the distinction between the two disappears. The retail industry is evolving towards a concierge model that prioritizes helping consumers, rather than just focusing on transactions and deliveries (Brynjolfsson et al. 2013).

Currently, the omnichannel retail model has gained widespread popularity in China's business landscape. A report released by the China Department Store Business Association reveals that out of more than 100 companies mainly operating in the department store sector, 70% of brick-and-mortar businesses have adopted digital online channels. With the COVID-19 pandemic raging in 2020, the

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omnichannel model's development has accelerated. McKinsey's 'China consumer report 2021' highlights that in-store pickup, QR codes, and self-checkout are the most common digital retail initiatives. Approximately 74% of consumers purchased more groceries online during the pandemic's peak. Top omnichannel retailers' digital ecosystems enabled them to have the essential supply chain and digital application infrastructure in place, allowing them to quickly make strategic decisions and focus on a digitally enabled omnichannel business model. As mobile technology and digital channels continue to evolve, traditional retail barriers such as geography and consumer ignorance are breaking down. Retailers and their supply chain partner in other industries must rethink their competitive strategies to thrive in this multi-channel retail experience (Brynjolfsson et al., 2013).

Indeed, China's retail industry, one of the world's largest consumer markets, has undergone many reforms, challenges and disruptions over the past few decades. However, despite the growing body of research in this area, there is no systematic overview of what "Chinese omnichannel consumers" research encompasses and what the most relevant drivers are. there is still limited research focusing on consumers' perspectives on omni-channel retailing (Mishra et al., 2021). Chinese consumers have been under-researched in recent years, and this gap should be filled. As far as we know, no review paper systematically explores omnichannel management from the consumer perspective based on SLR, and this paper attempts to fill this research gap. This study will collect literature specific to the Chinese market to examine the following two questions to provide guidance for future research.

1. What are the current research status and research trends on consumer research in the context of omnichannel?

2. What are the shortcomings of current consumer research and future research directions in the context of omnichannel?

Regarding the structure of this study, the first section introduces the omnichannel, pointing out the objectives of the study and the gaps that need to be filled. This is followed by Section 2, which presents the methodology and operational steps that emerged from the study. We show the descriptive analysis of the search results in Section 3, where we present them separately by year, journal source, industry distribution, and research area. Section 4 shows the results of the classification. Finally, we give conclusions and future research directions in Section 5.

2. Methodology

This study used the Systematic Literature Review (SLR) methodology to address the research questions. SLR is a widely used method in various fields, including marketing and computer science. It is a rigorous method that involves identifying, evaluating, and interpreting all relevant literature on a particular research question, area of interest, or phenomenon (Kitchenham & Brereton, 2013). The objective of our SLR was to gain a comprehensive understanding of omnichannel retailing by identifying trends, and gaps in the scientific literature, and proposing future research directions (Mishra et al., 2021).

The SLR process typically comprises three stages: planning, execution, and reporting, with several steps in each stage depending on the research topic or discipline. In this study, we further divided the process of SLR research into five steps to achieve our objectives. These steps include selecting research questions, keywords, databases, and sources, data extraction and exclusion, selection of research literature, and topic classification and reporting.

Using the SLR methodology, we identified key themes and trends in the existing literature on omnichannel retailing. Additionally, we highlighted areas where further research is needed to fully understand this phenomenon. Our study provides a valuable contribution to the literature on omnichannel retailing and offers guidance for future research in this area.

Systematic literature reviews usually begin with general questions as they aim to provide a broad perspective on a given topic. Gerea et al. (2021) To guide our review of prior research, we propose three main points of inquiry to help us assess:

Q1: What is the overall state of consumer research in the omnichannel field?

Q2: What are the research theories used in these studies?

Q3: What are the principal domains of research in these studies?

In the phase of selecting keywords, database and sources, we first use "omni channel", "omni channel consumer or customer", " omni channel BOPS (buy-online, and pick-up-in-store)", "O2O consumer or O2O customer", "O2O ", "showrooming or web rooming" and other keywords in CNKI (www.cnki,net), Web of Science. The database of choice is CNKI, China's most comprehensive and authoritative knowledge resource repository. Web of Science was second, as it has been frequently mentioned and used in previous literature reviews. Finally, we searched again in Scopus and Elsevier to supplement the literature missing from the Web of Science.

After an initial search, we obtained many papers to be screened and excluded. The inclusion and exclusion criteria were based on the study by Gerea et al. (2021) and were organized into the following table 1.

The papers went through three rounds of screening. In the first round of screening, papers that did not meet the criteria were removed. Then, based on removing all

duplicate papers, a second round of screening was conducted based on titles and abstracts. Finally, the third round of screening was completed by reading the full text. Finally, we collected 130 papers as the target papers for the literature review. The process of selecting target papers is shown in table 2.

Table 1: The Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. The paper is based on the Chinese market as the research object. 2. The paper is available in an electronic format. 3. The paper theme is explicitly or implicitly related to omnichannel context. 4. The paper is a scholar peer-reviewed paper published in a journal or conference proceedings. 5. The paper presents empirical research.	1. The paper is not based on the Chinese market as the research object. 2. The paper is not available in an electronic format. 3. The paper is not related to omnichannel. 4. The paper is not peer-reviewed. 5. The paper is an editor's introduction, opinion paper or final article in a journal or proceedings. 6. The paper is a systematic mapping study or literature review.

Table 2: The Process of Selecting Target Paper

Sours	Keywords	Paper Amount1	Paper Amount2	Paper Amount3
Web of science, Scopus, Elsevier	omni-channel (omnichannel)	60	124	60
	omni-channel (omnichannel) consumer	56		
	omni-channel (omnichannel) consumer or omni-channel (omnichannel) customer	54		
	omni-channel (omnichannel) BOPS	5		
	O2O	181		
	showrooming or web rooming	23		
CNKI	omni-channel, customer	286	90	70
	omni-channel (omnichannel) BOPS	39		
	O2O customer	448		

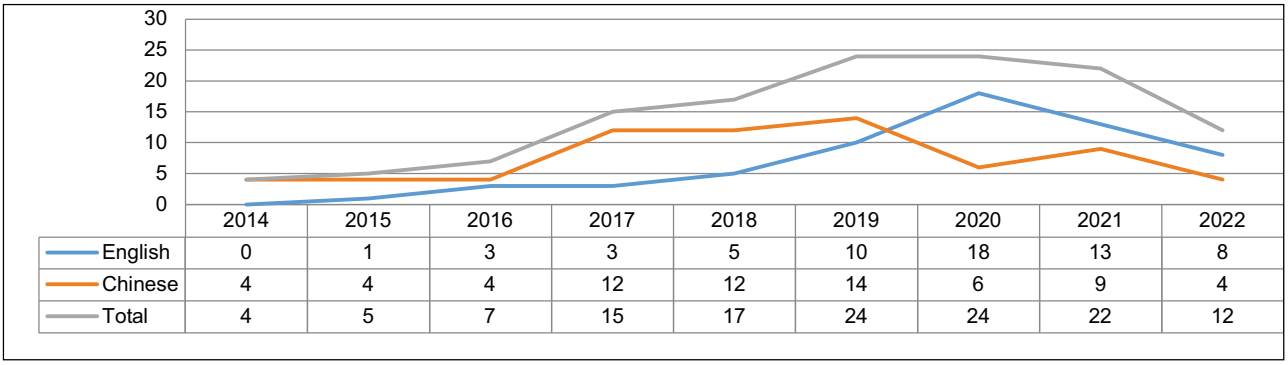
*Paper Amount1 shows the searching results of paper numbers after removing irrelevant papers.
*Paper Amount2 is the number of papers selected based on the title and abstract after removing duplicate papers.
*Paper Amount3 is the finally selected papers after filtering out the irrelevant papers by manual reading.

3. Descriptive Statistics

3.1. What is the General State of the Omnichannel Research Field?

3.1.1. Publication Distribution by Year

Figure. 1 shows the trend of published papers on omnichannel consumer research since 2014 to 2021. As can be seen from the figure, research on omnichannel consumers is very insufficient and research is in a slow rise from 2014-2016. Taking 2016 as a node, the number of studies increased rapidly through 2019 and there were consistently more Chinese papers than English papers. This is since 2016, China was in a transition period from multi-channel to omnichannel domestically. After that, omni-channel researched peaks in 2019. However, since 2020, researchers' interest in consumer research in the omnichannel space has begun to decline.



	2014	2015	2016	2017	2018	2019	2020	2021	2022
English	0	1	3	3	5	10	18	13	8
Chinese	4	4	4	12	12	14	6	9	4
Total	4	5	7	15	17	24	24	22	12

Figure 1: Paper amount Distribution by Year

3.1.2. Publication Distribution by Journal Source

Regarding the number distribution of journal sources, it can be seen from the figure 2 and figure 3 that most journals only published one paper, and the proportion of journals with more than two papers is not high (English: 26.7%, Chinese: 55.7%, total: 42.3%) Among English-language academic journals, Journal of Retailing and Consumer Services has the highest number of publications, followed by International Journal of Information Management. Among Chinese academic journals, the journal with the highest number of publications is Journal of Commercial Economics, followed by Journal of Beijing Institute of Clothing Technology (Natural Science Edition).

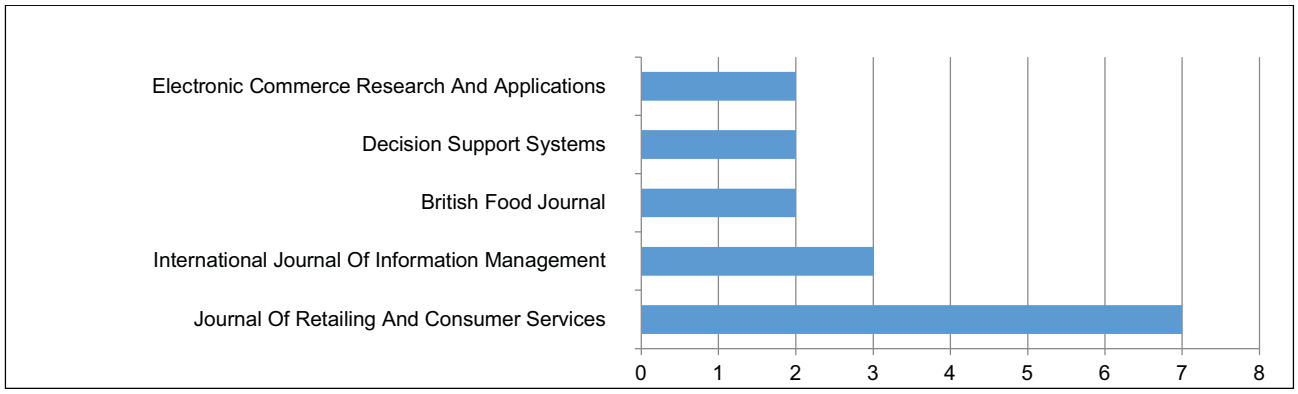


Figure 2: Paper amount Distribution by Journal Source (ENG)

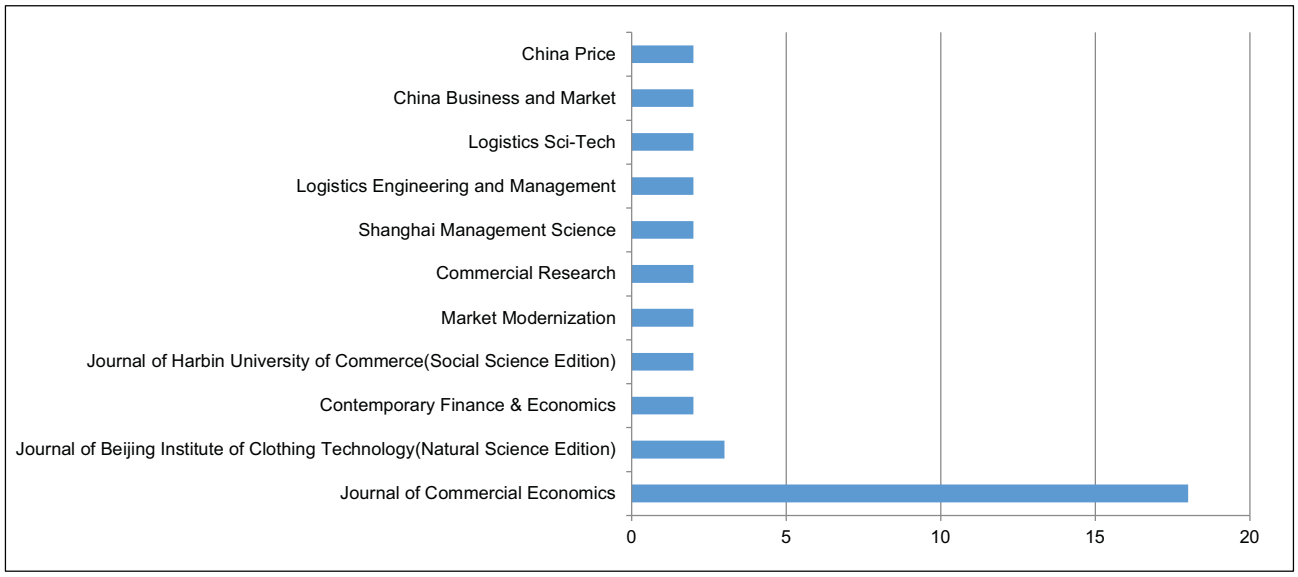


Figure 3: Paper amount Distribution by Journal Source (CH)

3.1.3. Publication Distribution by Industry

As for the distribution of the researched industries, it can be seen from the figure 4 that the most researched industry is food delivery platform, followed by fashion and fresh food. The industrial research focus of Chinese literature and English literature is quite different.

In English literature, food delivery platform is the most researched industry, followed by O2O platform; while in Chinese literature, fresh food and fashion are the most researched, followed by food delivery platform. It is worth mentioning that literature that does not mention the research industry still accounts for a large portion of the literature, whether in Chinese or English (English: 30%, Chinese: 42.9%, total: 36.9%).

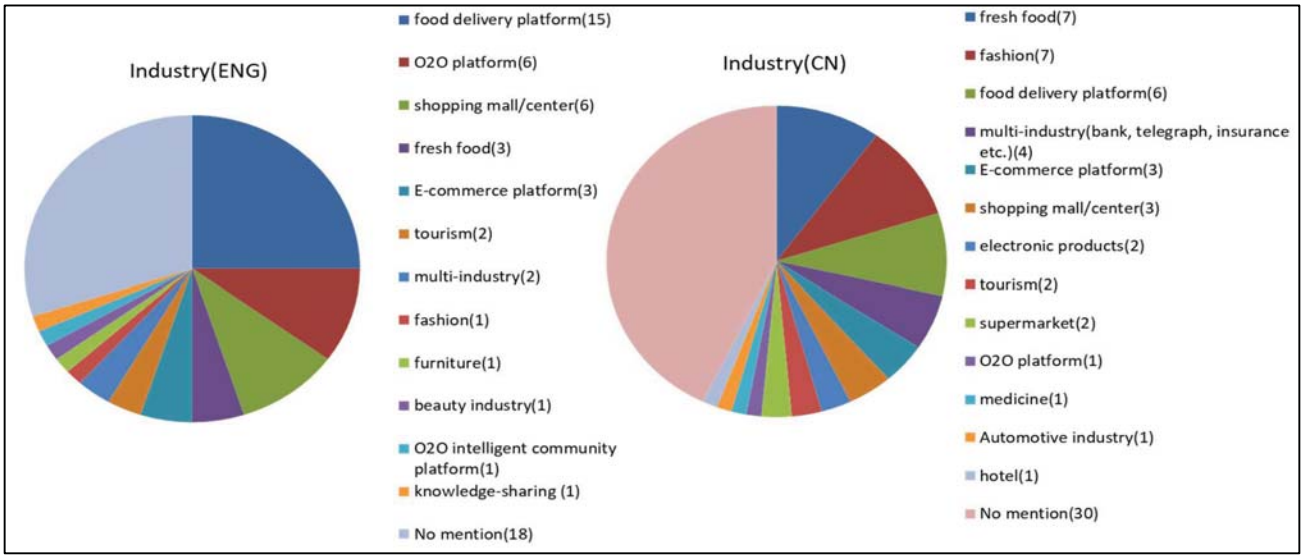


Figure 4: Publication Distribution by Industry

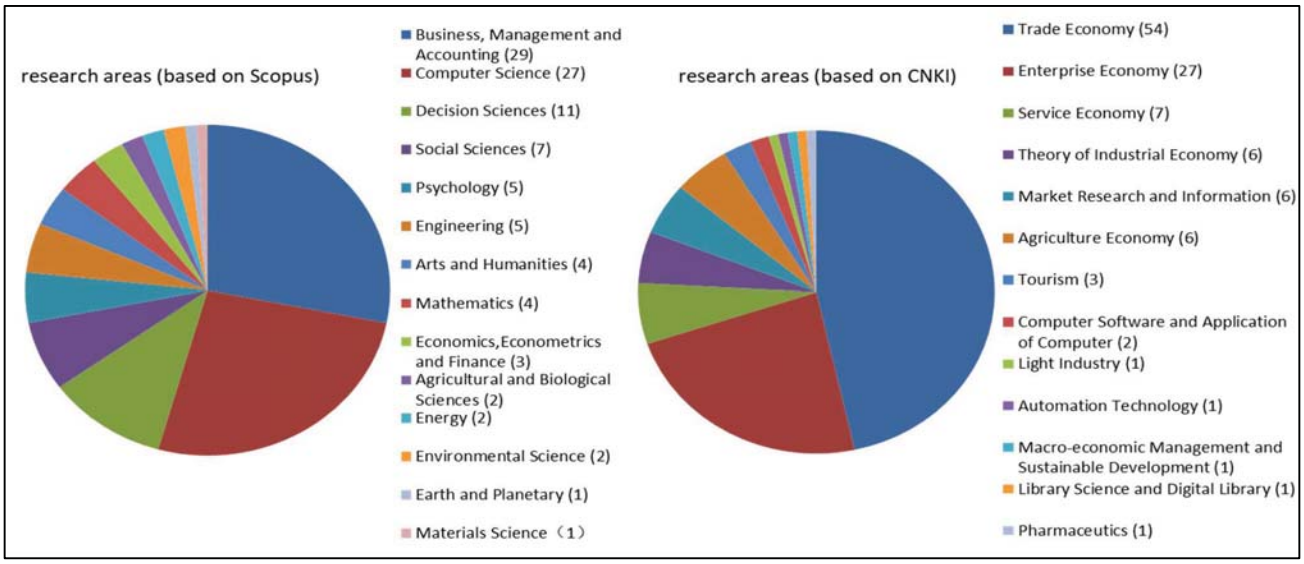


Figure 5: Publication Distribution by Research Areas

3.1.4. Publication Distribution by Research Areas

The literature collected in this research pertaining to the field of business encompasses 14 distinct research areas (as determined by Scopus). The top three areas include Computer Science, Business Management and Accounting, and Decision Sciences. Meanwhile, the Chinese literature surveyed covers 13 fields (as per CNKI), with Trade Economy and Enterprise Economy being the most researched areas. Beyond these core fields, this research also incorporates insights from a variety of other disciplines, including Psychology, Engineering, as well as Art and Humanities, as shown in the Figure 5.

3.2. What are the Theoretical Perspectives Adopted in Current Literature to Address Omnichannel?

Over the years, the field of omnichannel has drawn upon a multitude of disciplines and theories to better understand the phenomenon. Among these, the Theories on Technology Adoption (TAM) have been particularly popular among researchers. Other notable models include the TPB model, IDT model, TRA model, task-technology fit (TTF) theory, UTAUT, and various psychological models such as the Stimulus-Organism-Response (SOR) Model, Trust Transfer Theory, Maslow's hierarchy of needs, Means-end theory,

and cognitive psychology theory. Additionally, social science theories such as the Push-Pull-Mooring (PPM) theory and Social Exchange Theory have also been commonly utilized. Economic management and marketing disciplines have also contributed to the field, with the expectation confirmation model (ECM), Customer Delivered Value theory, Value Proposition theory, 4Cs theory, and 4Es theory being frequently cited. Table 3 illustrates the frequency of use for each of these theories.

Table 4: Industry Scope

Theory	N	Theory	N
Technology Acceptance Model	18	Regulatory Focus Theory	1
Stimulus-Organism-Response Model	5	Cognitive Psychology Theory	1
Theory of Planned Behavior	4	Media Richness Theory	1
Trust Transfer Theory	4	UTAUT 2	1
The Innovation Diffusion Theory	3	Psychological Reactance Theory	1
Push-Pull-Mooring	3	Service-Dominant Logic	1
Value-Based Adoption Model	3	Experiential Value	1
Theory of Reasoned Action	3	Value Co-Creation	1
Signaling Theory	2	E-Commerce System Successful Model	1
Task-Technology Fit Theory	2	Social Network Analysis (SNA)	1
Grounded Theory	2	Commitment–Trust Theory	1
UTAUT	2	Engel, Blackwell and Miniard Model	1
Maslow's Hierarchy of Needs	2	Network Externality Theory	1
Expectation Confirmation Model (ECM)	2	Agent-Based Model	1
SERVQUAL	2	The Expected Cost Model	1
American Customer Satisfaction Index.	2	Etail Q Model	1
Means-end Theory	1	Expect Disconfirmation Theory	1
Social Cognitive Theory (SCT)	1	European Customer Satisfaction Index	1
Wixom & Todd Model	1	Elaboration Likelihood Model (ELM)	1
Social Exchange Theory	1	Ordered Logistic Model	1
Activity Theory	1	Consumer Value Theory	1
The Theory of Self-Determination	1	Theory of Reasoned Action	1
Customer Delivered Value	1	4Es	1
Value Proposition	1	SERVPERF Model	1

4. Results

After detailed reading and differentiation, we divided the collected literature into the following four themes: Consumer behavior, Consumer experience, Consumer emotional dimension and Consumer segmentation.

4.1. Consumer Behavior

Consumer behavior is one of the most important research areas. After our analysis, it can be classified into several sub-categories. They are adoption of consumer omni-channel mode, consumer channel usage pattern, and consumer purchase behavior.

4.1.1. Adoption of Omnichannel Mode

Although retailers have realized the importance of omnichannel and have begun to implement omnichannel strategies, whether this strategy can achieve the expected results depends to a large extent on the perception and use of the omnichannel services provided by customers (Shen et al., 2018).

Consumers often have many considerations when using omnichannel. Many researchers have found that channel integration is a key factor. (Shen et al., 2018; Sun et al., 2020; Li et al., 2018; Gao et al., 2021; Wang & Jiang., 2022) found that channel integration quality, including channel selection breadth, channel service transparency, content consistency, and process consistency, would help ensure continuity of channel transitions and significantly positively impact perceived fluency.

In studying the willingness and behavior of O2O, consumers' acceptance at the technical level is the focus of researchers. In this regard, TAM has become a solid basic theory to explain the user's acceptance of new technologies. Its core structure is perceived usefulness, ease of use and attitude (Yang et al., 2020). Some studies have confirmed that perceived usefulness, perceived ease of use and attitude directly or indirectly affect usage intention and usage behavior (Tung et al., 2015; Yang et al.,2020; Bao & Zhu, 2021). Adopting the elaboration likelihood model, Xu & Huang (2019) examined how restaurant-generated information cues in O2O mobile apps impacts diners' expectations. And found that restaurant-generated information cues in mobile apps (i.e., message sidedness, information load, and image cues) influenced diners' expectations differently depending on the levels of need for cognition.

In addition to technology acceptance factors, other factors affect consumers' behavior in using O2O. Many studies show that perceived value, perceived risk and perceived trust are important variables influencing usage behavior. (Yang et al., 2020). This means that when faced with a new shopping model, consumers value the benefits and sacrifices that O2O will bring. In addition, fear of the epidemic, self-efficacy, and response efficacy has been found to influence consumers' motivations to protect and ultimately contribute to their behavioral intentions to use omnichannel retailing (Liu et al., 2022). Consumers' innovative and optimistic attitudes towards technology have a positive impact on their acceptance and usage behavior. When consumers demonstrate a higher level of technological innovativeness, their intention to shop across multiple channels becomes stronger (RYU, 2019). Hsu &

Lin, (2020) analyzed the continuous use behavior of O2O APP, found that for task based O2O application users, perceived utility benefits and transaction costs seem to affect their continued willingness. In the context of entertainment oriented O2O application users, perceived hedonic benefits and satisfaction seem to be important determinants of willingness to use continuation. Consumers' continued trust in the platform will also positively impact the continued use of the platform, and experienced and inexperienced customers have different performance in the continued trust and continued use of the platform (Zhang, 2020).

Apart from personal factors, other external factors influence consumers' intention to use. Tao & Tan (2014) found that functional value, emotional value, novelty value, and contextual value had a positive effect on usage attitudes, with novelty value being particularly significant for male consumers, while emotional and contextual values directly influenced female consumers' usage attitudes. On the other hand, Hu et al. (2017) found that merchants' promotion methods positively influence consumers' use of O2O, where low online product prices attract consumers to purchase, and discounted products are more tempting than coupons. (Choi et al., 2021; Geng & Chang, 2022) found that merchants' service quality factors (convenience, safety, economy, accuracy, and speed) played an important role when studying consumers' persistent usage behavior of takeaway O2O APPs.

Several researchers have also found that social and external influences can significantly affect consumers' usage behavior. That is, when consumers are surrounded by people using O2O services, it will prompt them to try O2O services (Tung et al., 2015; Bao & Zhu, 2021).

4.1.2. Consumer Channel Usage Pattern

Consumer channel usage patterns encompass both channel selection and channel migration. According to Liang et al. (2021), consumer channel selection behavior is significantly influenced by external contextual factors. Specifically, the degree of haze pollution was found to have a significant positive impact on consumers' tendency to select online channels. Additionally, factors such as traffic conditions, geographic location, and weather conditions emerged as influential in consumers' choice of online shopping. Moreover, time conditions and mood conditions were found to partially influence consumers' shopping channel selection.

Some researchers have explored consumer channel selection behavior in different shopping stages. Zhao & Deng (2020) found that for utility products, consumers tend to choose online channels for both search and purchase stages, while for hedonic products, consumers prefer offline channels in both stages. Dai et al. (2016) discovered that online channels are more likely to be selected during the pre-purchase and purchase stages when the product has a high level of perceptibility and security, and when online channels offer more useful features such as search, purchase, payment, reviews, returns, and exchanges.

Shi (2014) revealed that knowledge-based appeals are important in channel selection. For new products, consumers often browse physical stores first to make decisions about their final purchase channel. For familiar products, past shopping experiences can guide channel selection. Based on channel characteristics, variables such as perceived mobility, sociality, local serviceability, personalization, shopping convenience, risk perception, and compatibility are all influential factors in consumers' channel choice behavior (Chen & Qu, 2021)

Studies on consumer channel migration have shown that offline purchase price, time cost, offline purchase optionality, perceived service quality, cultural environment, and channel integration all influence consumers' willingness to migrate channels. Conversely, perceived migration costs, product risk, and physical store loyalty have a reverse hindering effect on consumers' willingness to migrate from offline to online (Cui & Liu, 2018; Jin et al., 2019)

4.1.3. Consumer Purchase Behavior

When studying consumer purchase decisions, many researchers study the impact of perceived usefulness, ease of use, and attitudes on purchasing behavior using the technology acceptance model (Chen &Yang, 2015; Liu et al., 2018). Zhong (2019) investigated additional factors, including UTAUT theory, perceived risk theory, innovation theory, perceived interactivity, and service capabilities. Trust and satisfaction are also key factors that impact consumer purchasing decisions, with internet trust, O2O platform trust, and merchant trust playing significant roles in repurchase intention and sharing intention (Xiao et al., 2018, 2019). Researchers have also found that offline and online satisfaction and purchase intention can influence each other, with offline satisfaction having a non-linear effect on online consumption intention (Liu, 2017). Channel integration quality also impacts purchase intentions directly or indirectly through trust and satisfaction (Lee et al., 2019; Zhang & Zhang., 2021; Cheah et al., 2022). Consumer empowerment is another important factor in increasing customer satisfaction and purchase intention (Zhang et al., 2018; Goraya et al., 2020; Gibson et al., 2022). Consumer experience is also a key consideration, with several dimensions of process, interaction, culture, and personality influencing the final purchase behavior (Chen et al., 2019). Omni-channel experience further affects the customer's purchase intention by influencing their perceived compatibility and perceived risk (Shi et al., 2020). The theory of planned behavior also suggests that subjective

norms and perceptual behavior control will significantly affect consumers' purchase intention (Zhang & Chen, 2019).

In addition to the above factors, scholars measure the impact of various indicators on purchasing decisions from the perspectives of store strategy and product characteristics. Flash mob visits significantly increased subsequent spending by customers (Zhang et al., 2019). Physical store functions such as consumer experience, leisure social interaction, value-added services, and product display positively impact purchasing decisions (Xu et al., 2019). When making purchase decisions, consumers consider online product prices, perceived product quality, product brands, promotion intensity, service personnel capabilities, after-sales, and online website performance (Wang et al., 2019, 2021; Tang & Zhu, 2019; Gao et al., 2016; Zhang & Zhang, 2021). The consistency of offline and online marketing strategies significantly promotes the propensity to consume (Chen, 2022).

Moreover. some industries will consider other special factors. For example, Zhang (2018) also mentioned the importance of factors such as logistics quality, convenience when studying the purchase intention of fresh produce; Huang et al. (2021) mentioned factors such as consulting services and drug quality when studying consumers' purchase intention on pharmacy O2O platforms. And that Online reviews and reviewer-related characteristics have a positive effect on review helpfulness and purchase intention (Yang et al., 2019; Zhang & Wang, 2021). In the context of multi-channel, free riding is an inevitable problem in consumer shopping behavior. However, when entering the omnichannel era, many retailers have realized the need to integrate existing channels to enrich customer value and reduce costs (Zhang et al., 2020). BOPS use has a significant positive impact on offline and online purchase frequency and amount (Song et al., 2020; Zuo et al., 2022). Store density affects customer adoption of BOPS (Li et al., 2022). Webrooming and showrooming behaviors improve online and offline store visits, with product risk affecting the likelihood of engagement (Goraya et al., 2020; Guo et al., 2021).

4.2. Consumer Experience

Consumer experience, defined as "a multi-dimensional structure that focuses on the customer's cognition, emotion, behavior, sensory, and social response to the company's products throughout the purchase journey" (Gerea et al., 2021), and is a key factor that helps companies gain a competitive advantage.

Gao et al. (2021) found that information-related integration practices have a greater impact on customers' cognitive experience than their emotional experience. Different value propositions and well-developed value perception elements can bring consumers a "seamless and consistent" consumption experience (Chen et al., 2019). On the other hand, Hsia et al. (2020) classified customer satisfaction into usability experience and hedonic experience and found that omnichannel platforms, platform synergy, and personalized incentives enhance the customer experience by influencing contextual interventions.

Zhang (2019) discuss the factors influencing consumer experience under the omnichannel retail model, and both believed that price was the primary consideration, consumers also value the overall shopping experience and after-sales and delivery convenience, timesaving, and product quality. Additionally, price coordination and service and distribution coordination have a positive impact on omnichannel shopping experience and customer loyalty (Chen et al. 2022).

Yu et al. (2019) used classification analysis to determine the importance of various factors in different Maslow's needs levels. Information comprehensively contributes the most to the level of physiological experience needs. In the acquisition of security experience, consumers most value payment security. In the realization of the attribution experience level, the role of post-purchase communication is stronger than social interaction.

In addition, consumers value different factors at different stages of the purchase. Cai et al. (2015) found that in the stage of receiving product information, consumers value the timeliness and effectiveness of information acquisition more. In the payment experience influencing factors, the convenience factor of payment is considered first, and in the after-sales experience influencing factors, what customers need more is the maintenance of customer relationship by merchants.

The original concept of service quality is the gap between consumer expectations and consumers' overall assessment of service experience (Parasuraman et al., 1988). It is also a key factor in evaluating service experience. Li (2016) believes that in the context of omnichannel take-out restaurants, the overall service quality should consider the three dimensions of empathy, timeliness, and reliability, while the evaluation of website service quality as an online channel needs to consider website security and design dimensions. Zhuang et al. (2021) believe that the five dimensions of ease of use, device aesthetics, reliability, cost performance, and product portfolio have a significant impact on the overall service quality.

Shen et al. (2019) concluded that omnichannel retailers should improve customer experience value co-creation behavior from three levels: service product, service interaction, and experience environment, and promote the balanced development and effective integration of service quality in offline and online channels.

4.3. Consumer Emotional Dimension

The study of the emotional dimension in management involves emotions, evaluative judgments, and opinions, which can be transformed into factors such as satisfaction, loyalty, and trust in the field of marketing (Mishra et al., 2021). Researchers have examined the formation mechanism of consumer satisfaction from various perspectives. Liang et al. (2021) used AHP to establish an O2O takeaway customer satisfaction evaluation system, with dish indexes, service indexes, price and promotion indexes, and value-added indexes as the four main indicators for evaluating the restaurant's satisfaction. Cui (2020) conducted an in-depth analysis of the relationship between customer delivery value and customer satisfaction, finding that customer satisfaction is mainly affected by six factors: service value, personnel value, product value, image value, non-monetary cost, and currency cost.

Consumer satisfaction in the omnichannel O2O model is influenced by both online and offline factors. Online factors, such as website function value, web design, and platform characteristics, as well as offline merchant characteristics, have been shown to impact the satisfaction of omnichannel consumers. Offline factors, such as store service value, logistics distribution science, and after-sales service, also have a positive impact on improving consumer satisfaction (Feng et al., 2019; Mu, 2020). Furthermore, consumer satisfaction and loyalty are influenced by the user experience of the O2O platform, as well as store appearance, employee interaction, efficacy, aesthetic design, safety, integration, and logistics satisfaction. consumer satisfaction significantly affects consumer loyalty (Li, 2017; Zhao et al., 2018; Pei et al., 2019; Li et al., 2020).

Shen et al. (2019) established a model to investigate the impact of omnichannel retail experience value co-creation behavior on customer loyalty. They found that both cognitive and emotional experiences can influence customer loyalty. Furthermore, omnichannel consistency and seamlessness can moderate the relationship between omnichannel shopping experience and brand loyalty. customer satisfaction, customer switching costs, customer trust, corporate image, and customer value all have positive effects on O2O customer loyalty (Leung et al. 2019).

The emotional dimension of consumers is also reflected in other factors. Xu et al. (2019) used the Elaboration Likelihood Model to examine how information cues generated by restaurants in O2O mobile applications affect customer expectations. The results of three experimental studies showed that the impact of information cues generated by restaurants in mobile applications (i.e., message sidedness, information load, and image cues) on diners' expectations varies depending on the level of cognitive needs.

4.4. Consumer Segmentation

Customer segmentation theory was proposed by America scholar Wendell Smith in the mid-1950s. It is a process of dividing customer groups into similar groups based on the diversity of customer purchasing behaviors and characteristics. Customer segmentation is the process of dividing customers into groups based on their purchasing behavior and characteristics. Companies use this method to provide tailored products and services to target customer groups based on specific business strategies and service models (Zhou et al., 2011).

Demographic segmentation is the most traditional and widely used method in omnichannel research. Analytical methods for customer segmentation include demographic segmentation, which involves dividing customers based on factors such as gender, education level, and income. Chang et al. (2020) found that men tend to prioritize functional features such as delivery payment and delivery time over food quality, while women are more concerned about brand trust and customer evaluation. Li et al. (2016) found that most young and middle-aged women with middle and high education and rational purchasing behavior are more likely to purchase furniture online, and their willingness to do so is influenced by income and education. Huang et al. (2017) identified four categories of users based on gender and work engagement and found that women prefer to shop on smartphones, while men prefer computers or laptops. Participants with lower work engagement rely more on social media and share shopping information more than those with higher work engagement.

Some studies have found that impulsive and tactile needs in omnichannel consumption, finding that mobile consumption is dominated by impulsive consumers, and those with high touch demand prefer to evaluate products in physical stores before consuming via computer (Chen et al., 2019).

Additionally, Chronotypes also influence channel choice in omnichannel consumption, with evening types biased towards mobile channels and early morning types paying attention to detailed information and preferring desktop channels (Haider et al., 2019, 2020).

Also, induced online shopping can affect offline sales differently depending on customer proximity to brick-and-mortar stores, with nearby customers increasing offline spending but remote customers purchasing fewer experiential products due to high travel costs (Luo et al., 2020).

Consumer behavior under omnichannel is classified into four types: "intra-channel switchers, intra-channel retention actors, cross-channel ride-sharing actors, and cross-channel retention actors" based on channel and company switching, and single and multi-person households value different attributes in take-out apps (Guo et al., 2021; Cho et al., 2019).

5. Conclusions and Suggestions for Future Research

Although omnichannel has more than ten years of research history since its inception, there are still very few omnichannel studies from the consumer perspective by Chinese scholars. This research is based on the four major literature databases of CNKI, Web of Science, Scopus, and Elsevier. Collected 134 papers from Chinese scholars, and systematically reviewed the current research status of consumer research in the context of omni channels through SLR research methods. The following conclusions can be drawn:

(1) Research on omni-channel from the consumer perspective has yielded fruitful results since 2014, but there has been a decline in the trend over the past two years. To overcome this, researchers should explore other research breakthroughs, such as the role of social media in shaping consumer behavior, the impact of augmented and virtual reality on the shopping experience, and the use of artificial intelligence in personalized marketing.

(2) The research covers 18 specific industries, including food delivery platforms, fashion, e-commerce, and tourism. Although food delivery and catering industries are the most talked about topic, there are relatively few studies on other industries, and studies on multiple industries are even rarer. Researchers should explore other industries and examine the effects of omni-channel on these industries.

(3) The research involves various disciplines and research fields such as business, management, computer science, psychology, and engineering. This highlights the interdisciplinary nature of omni-channel research, and researchers should continue to collaborate across different fields to gain a more comprehensive understanding of consumer behavior in omni-channel environments.

(4) The current research involves several theories, such as technology acceptance theory, psychology theory, sociology theory, and economic management theory. As the research on omni-channel evolves, researchers should explore other theories that can enhance the understanding of consumer behavior in omni-channel environments.

(5) The most common research method used is the structural equation model, followed by questionnaire surveys and the AHP method to construct an evaluation system. While these methods have been effective, researchers should also explore other research methods, such as data mining, machine learning, and experimental designs, to gain deeper insights into consumer behavior in omni-channel environments.

(6) The current research focus is on consumer behavior, experience, sentiment, and segmentation. Future research should also examine other topics, such as the impact of omni-channel on supply chain management, the role of influencers in shaping consumer behavior, and the ethical issues associated with personalized marketing. By broadening the research scope, scholars can gain a deeper understanding of the complexities of omni-channel retailing and develop strategies to improve customer satisfaction and loyalty.

According to the results of the analysis, we found that there are many gaps and challenges in advanced research. In this section, we propose a research agenda to address existing research gaps, which we summarize in Table 4.

Table 4: Future Research Agenda.

Gaps Identified	Potential Research Areas and Issues for Consumer-focused Studies
Consumer Behavior	• What kind of changes have been brought to consumers' consumption behavior patterns with the advent of the post-epidemic era? • What kind of consumer behavior will consumers make in the face of product and price differences between offline and online channels? What about after eliminating the differences? • How does social media and brand communities influence consumer behavior? • How will consumers react to new technologies such as AI, VR (or AR) RFID? • How do risks, security and personal privacy issues affect consumer behavior?
Compare Research	• How do sociodemographic variables such as gender, age group, income, and education level affect consumers' intentions and omnichannel retail behavior? • How do factors such as consumer geographic characteristics, cultural characteristics, and consumer characteristics affect consumer behavior? • Do different product categories and retailer types also lead to different consumer behaviors?
Consumer Life Cycle	• What factors before purchase can guide consumers to buy? • How do touchpoints guide consumers to purchase? • How to create a good consumer experience in the customer life cycle? • How do return management policies and reverse supply chains affect consumers' behavior when using omnichannel retail? • What are the factors influencing the failure of omnichannel services? • What factors should be considered for service recovery after omni-channel service failure? What impact do these factors have on consumers' attitudes and reuse behavior? • How can brands cultivate consumer loyalty in the post-purchase phase?

Gaps Identified	Potential Research Areas and Issues for Consumer-focused Studies
Customer Segmentation	• How to segment customers? Such as: customers who are sensitive to returns, customers who are sensitive to risks, rational customers, impulsive customers, etc.
Cross-channel Shopping Behavior (BOPS, Showrooming/ Webrooming)	• What are the subjective and objective factors that influence consumers to make cross-channel shopping behaviors? • How do consumer characteristics affect cross-channel shopping behavior? • How does product category and retailer category affect consumers' cross-channel shopping behavior?

In terms of research methods, technological advancements such as digitalization, artificial intelligence, VR, and mobile applications have not only created opportunities for omnichannel retailing but have also opened more possibilities for scholars' research in this field. Instead of relying on traditional questionnaire surveys, emerging technologies can now be used to directly observe consumers. For instance, eye-tracking technology, which was popular in marketing research, can now be widely applied. Furthermore, social networks and mobile smart devices can collect user behavior information on a larger and deeper scale, making it possible for researchers to analyze industry statistics or social media data to further explore consumer behavior in omnichannel retail (Li et al., 2020).

Most of the current literature on omnichannel retailing applies traditional linear statistical techniques, such as structural equation modeling and multiple regression analysis, which may oversimplify the complexity of the decision-making process (Mishra et al., 2021). Therefore, examining the nonlinear relationships between variables can provide more robust insights into the findings. Additionally, longitudinal studies are more valid than cross-sectional studies since they exclude non-time-varying unobserved individual differences and observe the temporal order of events (Van der Krieke et al., 2017). Thus, longitudinal studies can be utilized to explore the relationships between factors.

Lastly, it is worth noting that this study has some limitations. Since only literature prior to 2023 was selected, and qualitative studies and review literature were excluded, some relevant papers may have been missed. Moreover, some relevant papers may have been omitted due to the keyword structure and search operators used. Nonetheless, the innovative suggestions mentioned in this study can contribute to the development of omnichannel research.

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