Chapter 1

Introduction

Background and Significance of Research Problem

With the increasing improvement of China's internet infrastructure, people's activities have become more inclined or even dependent on the Internet, meanwhile Internet has also brought great convenience to people. The China Internet Network Information Center (CNNIC, https://www.cnnic.net.cn) released the 51st Statistical Report on the Development of Internet in China on March 2, 2023. The report shows that the number of internet users in China reached 1.067 billion until December 2022, an increase of 35.49 million compared to December 2021, and the internet penetration rate reached 75.6% as showed in Figure 1.1.
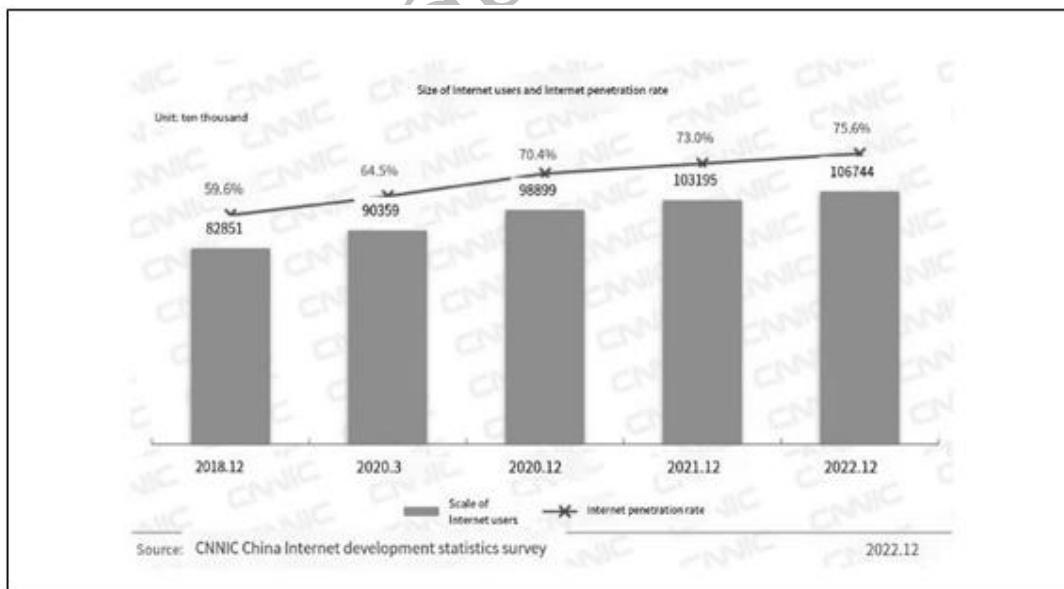

Figure 1.1 2018.12-2022.12 Netizen size and Internet penetration rate
Source: China Internet Network Information Center (CNNIC), 2023.

With the improvement of the internet system, the gradual improvement of laws, the awakening of consumer awareness, and the gradual establishment of mutual trust mechanisms, online shopping has gradually become one of people's online behaviors. Therefore, online consumption has become a purchasing method with long term development potential. As is well known, most consumers usually like to seek advice from their friends and colleagues when purchasing products or services. When colleagues and friends recommend products or services, they generate word-of-mouth for the products or services. With the rapid development of technology, the application of the meet is becoming more and more widespread. Consumers usually evaluate products or services objectively after online shopping, which is a new form of word-of-mouth compared to traditional word-of-mouth. Due to the wide coverage of the Internet, the dissemination ability of online word-of-mouth is much higher than traditional word of-mouth. According to research, 90% of consumers will read online reviews before buying a product, while 67% of purchases made by consumers are influenced by user-generated content from social media uploaded by users (PSHL eefalang et al, 2014, pp. 1-12). There are differences between the dissemination of online word-of-mouth and traditional word-of mouth. The difference between online word of-mouth and traditional word-of-mouth lies in the ability to post comments on products/services without disclosing personal information which directly affects consumers' shopping choices and willingness to spread again (Wang Rui, 2020, pp. 124125). From the 2015 China online shopping market research report, it was pointed out that online word-of-mouth, price, and website/merchant reputation have become them ost important factors for decisions of online shopping user, and online word-of mouth accounting for 77.5% receives the highest attention as shown in Figer 1.2. Others cholars have also stated that product sales will be affected by online word-of-mouth. According to the 2013 e Marketer survey data, 92% of consumers will browse product reviews online before making a purchase decision, while 67% of consumers purchases product with influence by online word-of-mouth (Tang, T, Fang, E,& Wang, F, 2014, pp41-58).
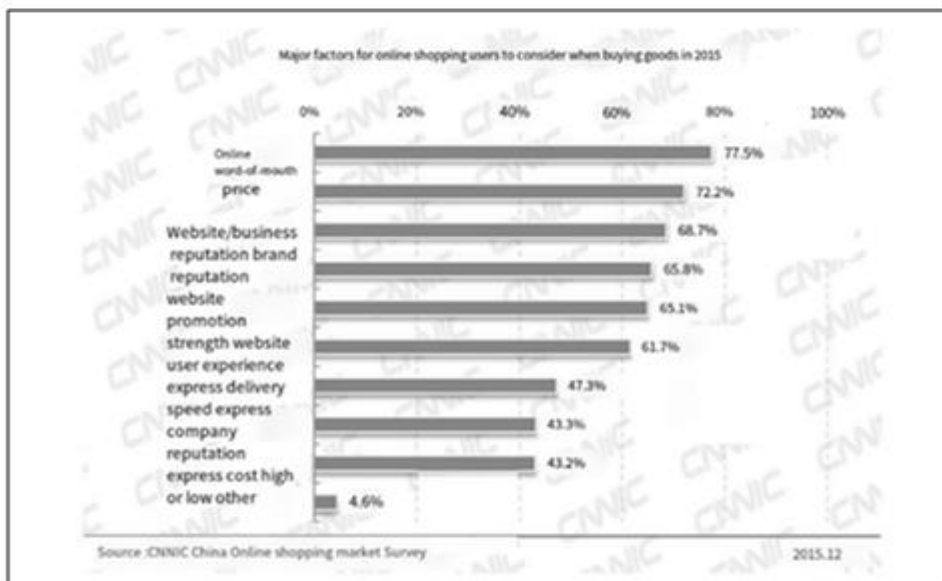
Figure 1.2 Main factors considered by online shopping users in 2015
Source: China Internet Network Information Center (CNNIC), 2016.

It can be seen that the internet information are increasingly influencing people's daily lives, and as an important component of internet information, online word-of-mouth has a crucial impact on consumers' purchasing intentions and behavior (Zhaoyang et al., 2022, pp. 84-96). Many consumers nowadays search for product related information as much as possible to reduce purchase risks before making purchase decisions. At the same time, businesses actively provide product information to encourage consumers to purchase products to reduce consumers' perceived risks. However, based on marketing motivation or advertising costs, the authenticity of the product or service information provided by businesses needs to be discussed. And potential consumers get the reference information for products or services mostly coming from online comments posted by purchased consumers on the trading website evaluation system. However, with the development of the Internet and e-commerce, in addition to shopping websites, social media platforms, online community platforms, etc. have also become important means for consumers to share individual shopping experiences, consumption experiences, and communication information. They provide a share platform for netizens with

common interests, needs, and experiences to communicate emotions and share experiences. From these platforms, consumers can not only easily obtain comments about product attributes and service quality, but also use these platforms to express their usage experience and feelings which form online word-of-mouth ultimately (Tapanainen, T., Dao, T. K., & Nguyen, T. T. H., 2021, p. 106656) Consumers often read these word-of-mouth comments extensively before making a purchase decision to determine whether to purchase the corresponding products and services. Therefore, valuing the role of online word-of-mouth and understanding how it affects product sales is of great significance for enterprises.

The Internet has enriched the consumer and changed people's consumption views. In today's society, people are increasingly valuing beauty, and skincare products have become an indispensable part of many consumers' lives. Although the skincare industry in China started relatively late, its growth momentum is strong, and the market potential cannot be ignored. The purchasing power of women in China is strong, and the development of the female economy has led to significant changes in the market structure. The increasing number of female users will lead to the expansion of the online shopping market. In view of this, this thesis selects skincare products related data from e-commerce platforms and other platforms to conduct a multidimensional analysis of online consumer online word-of-mouth, and on this basis, explores the impact of online word-of-mouth information on skincare product sales.

Research Objectives

The research objectives are as follows:

1. To study the comprehensive impact of various dimensions of online word-of-mouth on a single e-commerce platform.

2. To research on the impact of integrating social media platforms' online word-of-mouth on product sales.

3. To study and identify the most important online word-of-mouth factor that affects product sales.

Research Hypothesis

With the improvement of people's consumption level and the focus on appearance, women choose appropriate skin care products to maintain their skin. This trend has made the skin care market growing rapidly. Consumers have irrational consumption psychology, conformity psychology and beauty loving psychology when purchasing skin care products. From the above consumer purchase psychology and behavior, it can be seen that female consumers pay more attention to the online reputation of the product, such as product evaluation, recommendation, use effect, etc. Therefore, we can select different platforms to analyze the impact of the number of comments, pictures, star rating and other factors on product sales.

1. **Influence of single e-commerce platform online word of mouth on product sales.**

Many aspects of online evaluation of e-commerce platforms have important impact on commodity sales. At the same time, online product reviews are also an important way for enterprises to improve their sales performance by influencing consumers' purchase decisions.

1.1 The relationship between the number of product comments and product sales: When customers purchase skincare products, they will compare the number of comments of each product to preliminarily determine the sales status of the product. The herd mentality prompts customers to believe that the more comments a product has, the higher sales it gets. The number of comments is a dynamic cumulative quantity and increases over time. Many scholars indicate that the number of comments has a significant positive effect on product sales, that is, the more online comments, the higher product sales. There is a cross effect between word-of-mouth volume and word-of-mouth polarity, and word-of-mouth volume can indirectly affect brand performance of products through word-of-mouth polarity (Gopinath et al., 2014, pp. 241-258). Through empirical research that the number of comments has a positive effect on the sales of high-quality products, while it has no positive effect on the sales of low-quality products (Feng Jiao & Yao Zhong, 2016, pp. 106-114). Explored the impact path of online word-of-mouth on consumer attitudes

from the perspective of contradictory attitudes and found that the number of comments significantly affects the transformation of consumer attitudes (Shan Chunling, Zhao Hanyu, 2017, pp.108-111). Confirmed through research that the total number of online customer reviews for tourism products positively affects their product sales (Schuckert, M., Liu, X., & Law, R., 2015, pp. 608-621).

1.2 The relationship between star ratings and product sales: Rating product is divided into five grades in JD e-commerce platform, 4-5 stars are good reviews, 2-3 stars are medium reviews, and 1 star is bad reviews. In the process of purchasing, consumers are often faced with many choices and information, and product ratings have become an important basis for consumers to identify and choose. A high product rating usually leaves a positive impression on consumers, makes them more inclined to buy the product. Products with high ratings are often considered to have better quality and performance, thus prompting consumers to have a positive purchasing intention. There are big differences in the existing research on the relationship between star ratings and sales. Some scholars have carried out data mining-based theories and methods to study the influencing factors of food sales on the Internet. Taking beverage products as representative research objects, the influence of multiple factors on sales of beverages was investigated with a multiple nonlinear regression model. After the analysis and verification of actual data, six major factors had impact on beverage sales, one of which is user ratings (Meng Yuan et al., 2017, pp. 114-154). There are also research results that show that online reviews, as a kind of information stimulus, are of great importance to experiential consumers. However, unlike the number of online reviews, online review quality valence scores have no significant impact on the online sales of experiential products, which may be related to product types (Liu hua, 2020, pp. 83-91). Although product ratings serve as a key information in online reviews volume but did not have any significant impact on product sales. Although consumers may refer to product ratings during the purchase process, the ratings themselves are not the main factor affecting their purchase decisions (Liu Yilin, Guan Hongbo, 2021, pp. 106-116).

1.3 The relationship between the number of image reviews and product sales: Image comments refer to images of products posted by consumers under the

text content of comments when evaluating e-commerce platform products or services. Due to the virtual nature of the network, the product image information provided by merchants is often embellished and beautified that makes products look too perfect and lacks authenticity. Moreover, due to transaction costs, the product photos released by merchants will not be replaced in a timely manner, which increases consumers' perceived risk. In practice, to reduce perceived risks, potential consumers can evaluate the quality of products by viewing the product photos provided by purchased consumers. Based on research on Taobao data, it has been found that uploading images further enhances text content and provides better product display effects (Zhang Yanhui et al., 2017, pp. 77-85). Taking 2213 online comments on the Amazon platform as the research object, by analyzing of online comments and individual characteristics of comments, the results show that the comment images and individual characteristics have a significant positive impact on the usefulness of comments (You Jun, Zhang Xiaoyu et al., 2019, pp. 140-144).

Based on the above situation, combined with the characteristics of online word of mouth of e-commerce platform, this thesis makes the following assumptions:

H1a: The more the number of comments in e-commerce platform comments, the greater the impact on product sales, and it is a positive relationship.

H1b: The more image comments in the e-commerce platform reviews, the greater the impact on product sales, and it is a positive relationship.

H1c: The more star ratings in e-commerce platform reviews, the greater the impact on product sales, and it is a positive relationship.

2. Influence of integrating social media platform online word of mouth on product sales

Research shows that in terms of experiential products, consumers have more higher useful perception of evaluation than that of sellers' own platforms, and there are significant differences (Li Qi, Ren Xiaojing, 2015, pp. 41-47). Scholars have conducted empirical analysis on experiential products (Clothing) and search products (Books) and believe that the subject characteristics of third-party reviews are important factors that affect consumers' online purchase intention through online trust. The role of the subject characteristics of third-party reviews on experiential

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products is greater than that of search products (Shang guanghui, 2017, pp. 117-120). The relationship between the number of third-party platform reviews and product sales: When a product has a lot of reviews, it means it has attracted a lot of attention and discussion in the market. Consumers may generate greater trust and interest in products with more reviews which prompts them to be more inclined to choose to buy these products. Therefore, more reviews usually have a positive impact on product sales. Scholars took the third-party website Douban as the research object, and explored the impact of review valence, review differences, number of reviews, and number of readers on book sales by establishing an econometric model. The research results show that the total amount of book reviews significantly positively affects book sales (Zhao Zhirong, Fang Jiaming, 2015, pp. 668-673).

Based on the above situation, combined with the characteristics of social media platform online word of mouth, this thesis makes the following assumptions:

H2a: The higher the number of comments in social media platform, the greater the impact on product sales, and it is a positive relationship.

Scope of the Research

This thesis takes experiential products as the research sample. In terms of product types, compared to search-based products that can understand various characteristics and performance of the product before purchase, experiential products will get only a true understanding of the quality, effectiveness, and other aspects of the product after use. Take skincare products as example, the experience of consumers should pay more attention. Only by truly using them, we can have a comprehensive and detailed understanding of the product. In recent years, efficacy-based skincare products have become a highly regarded segment of the "Beauty Economy". Among them, essence products, especially facial essence, have become a competitive track for brands at home and abroad with the characteristics of high efficiency, high customer order and high repurchase. Therefore, the scope of this study is as follows:

1. This research is limited to the comments information mined from e-commerce platform JD.com and social media platform Xiaohongshu.

2. This research is limited to the impact of online word of mouth on product sales of experiential products (Facial essence in skincare products).

Conceptual Framework

1. S-O-R model

The theoretical model of SOR (stimulus organism response) originated from environmental psychology and was first proposed by Mechrabian & Russell in 1974. In the model, the external environment has an impact on the individual's cognition and emotional state, thus affecting the individual's behavior. In 1982, Donovan and Rossiter adapted the model and applied the SOR model to shopping scenarios for the first time. They proposed the basic emotional state of individual pleasure awakening control caused by the store environment, which in turn would affect the individual's behavior of seeking advantages and avoiding disadvantages. With the popularity of online shopping and e-commerce, SOR theoretical model has been applied to the Internet environment to study the impact of environmental factors on consumers' Internet use intention and online purchase intention under the network environment. After purchasing goods, consumers will make comments on businesses, channels, and products. When consuming through online channels, this situation may include consumers' online comments, the richness of product publicity information, the attractiveness of channel marketing activities, etc.
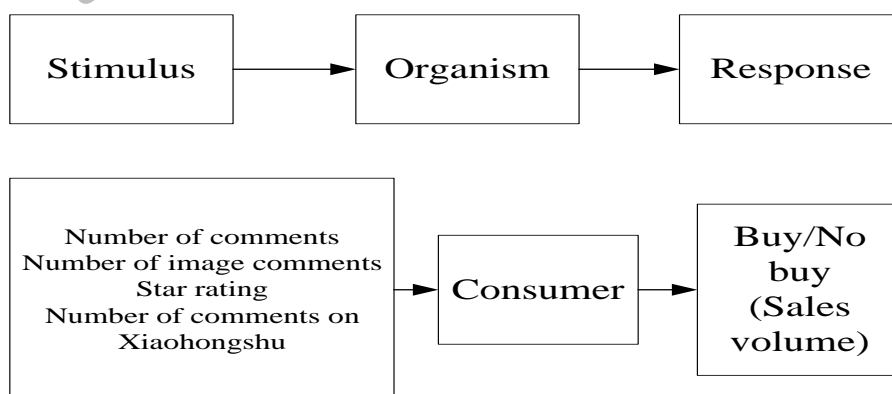

Figure 1.3 Online shopping S-O-R model

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2. Theoretical Model Design

The research models on online word-of-mouth vary due to different research perspectives and variables. From a research perspective, some scholars have conducted research on the impact of perceived usefulness of online comments, while others have focused on the influencing factors of consumer purchase decisions. In this study, we focus on product sales, namely how online word-of-mouth affects product sales. This study divides the collected data indicators into product indicators and online word-of-mouth indicators based on different attributes. Then, according to research needs and actual situations, product sales are used as the dependent variable, and online word-of-mouth indicators are used as independent variables to study the moderating effect of the platform on the relationship between various indicators and product sales in online reviews. Based on the selected variables, the following theoretical model is determined, as shown in the figure:
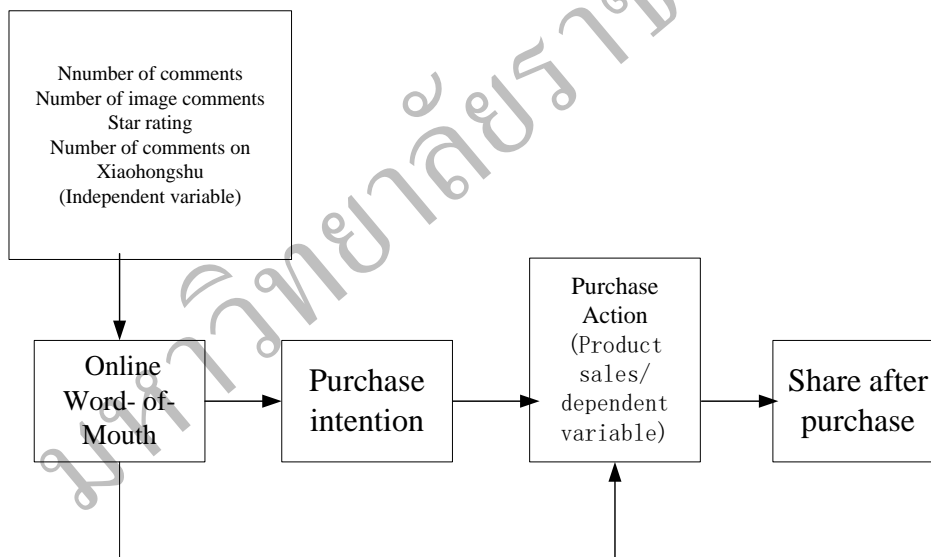

Figure 1.4 Conceptual framework

Definition of Terms

1. **word-of-mouth:** The earliest definition was information or opinions about brands, products, services, and manufacturers that people did not use for commercial marketing purposes through verbal communication (Arndt, 1967, pp. 291-

295). This reveals two important characteristics of word-of-mouth: 1) word-of-mouth is noncommercial in nature, that is, word-of-mouth is not aimed at commercial marketing; 2) Word of mouth has an informal characteristic, which is a form of verbal communication.

Word of mouth is the informal way in which consumers discuss their experiences or opinions about certain products they have used or have never used but want to purchase with others (Westbrook, 1987, pp. 258-270).

Some people also believe that word-of-mouth is not limited to a single piece of product information, but rather the sum of all product information (Rosen, Olshavsky, 1987, pp. 440-444).

On the basis of previous scholars' definitions of word-of-mouth, later scholars pointed out that the content of word-of-mouth communication not only includes positive and positive evaluations, but also negative and negative evaluations. They pioneered the idea that word-of-mouth has both positive and negative characteristics, which broken previous scholars' definitions of word-of-mouth (Tax, S., 1998, pp.60-76).

The object of word-of-mouth communication is not only limited to individuals but also includes groups. And the content disseminated is not only related to the product or service itself, but also to the business and credit status of the manufacturers and sellers who provide the product or service (Guo Huibin, 2005, pp. 44-46).

Word of mouth communication is the process in which customers communicate their opinions on a certain product or service to other customers when they have a relationship with a certain enterprise, product, brand, or service (Jiang Yushi, 2006, pp. 340-341).

Word of mouth communication refers to the informal communication of consumers' opinions on a certain product and service, including positive and negative opinions, which is different from formal communication with enterprises or brands (Liu Jianxin, Chen Xueyang, 2007, pp. 96-102).

Word of mouth is the communication and exchange of product characteristics, user experience, and supplier information among consumers (Allsop,

D.T.,et al, pp. 398-411). This definition also highlights the non-commercial and informal nature of word-of-mouth, as well as the relevance of word-of-mouth content to products.

Word of mouth is the informal way in which people discuss certain products or suppliers of interest. The starting point of this behavior is non-commercial and has both positive and negative aspects (Huang, J. H., et al, 2012, pp. 2326-2347).

Through research, it has been found that consumer groups are more confident in the authenticity of word-of-mouth compared to information published in the form of advertisements (Chiu, Y. L., et al., 2019, pp. 996-1025).

Traditional word-of-mouth communication is a lasting way for enterprises to spread product features or brand image through the sharing of information among consumers during the process of brand establishment (Phan Tan, L., 2023, pp. 1-18).

Based on the concept of word-of-mouth proposed by other scholars, this thesis believes that word-of-mouth refers to the private exchange and discussion of information about the characteristics and personal experience of a product or service by consumers. Word of mouth is not based on interest relationships; therefore, it has higher credibility. Word of mouth also includes not only positive information about the product, but also negative content.

2. Online word-of-mouth: Online word-of-mouth refers to the free and open communication and sharing of a product or service between buyers and potential buyers on an internet platform (Westbrook, 1987, pp. 258-270).

In the study, it was pointed out that consumers' behavior of communicating and exchanging information related to products or services through the internet also belonged to word-of-mouth communication, namely "online word-of-mouth". It is a new form of word-of-mouth communication that has evolved from traditional face-to-face communication to online communication through the internet (Gelb, Johnson, 1995, pp. 54-58).

Later, scholars explained online word-of-mouth as a form of word-of-mouth dissemination, using email, online forums, online communities, and the internet as a medium. The Internet greatly accelerates the dissemination of word-of-mouth information and expands its scope. It can be said that online word-of-mouth

dissemination is the process of word-of-mouth senders and receivers transmitting and receiving word-of-mouth information online. The importance of online word-of-mouth has also attracted the attention of many scholars, and the number of research theses on online word-of-mouth in the academic community has surged (Luo, J., et al, 2023, pp. 128-194).

 Online word-of-mouth refers to consumers expressing their user experiences of products or services on the internet community, and recipients views these user experiences through the community and making certain responses (T. Hennig, et al., 2003, pp. 51-74). Later, it was proposed that online word-of-mouth refers to the comments about products or services made by potential and actual consumers, which include both positive and negative information. Due to the dissemination of the internet, everyone can access these comments (T. Hennig, et al., 2004, pp. 38-52).

Online word-of-mouth is divided into synchronous communication and asynchronous communication. It is believed that online word-of-mouth has great contingency. He also pointed out that the characteristics of online word of mouth include high communication efficiency, anonymity, and interactivity (Guo Guoqing, 2006, pp. 23-24).

From the perspective of timeliness, the effects of online word-of-mouth can be divided into two categories: short-term effects and long-term effects. The short-term effects are mainly reflected before and during the first purchase of a product by consumers, such as repeating purchase of a product, habitual purchase of a certain product, and the behavior of spreading it to others (Zhang Xiaofei, Dong Dahai, 2009, pp. 51-54)

The number of online word-of-mouth specifically refers to the number of evaluations related to specific products, brands, or businesses disseminated by consumers on online service-related systems and platforms (Zhao, Y., et al, 2020, p. 100980).

Based on the concept of online word-of-mouth proposed by above scholars, this thesis believes that online word-of-mouth belongs to word-of-mouth and is a new form of it, mainly uses the internet as a medium of communication. Consumers

share some of their experiences with netizens through certain channels, such as e-commerce platforms such as JD, Taobao, Tmall, and WeChat stores, or social media platform such as Xiaohongshu, Weibo, BBS, and Blog, or video platforms such as Tiktok, Kwai, and Taobao Live, mainly the evaluation information of companies, products, or services they have experienced. After these discussions are spread and seen by more people, which will expand their impact, affect product sales, brand, and reputation, and have some positive or negative impacts on the enterprise ultimately. Some scholars believe that both experienced consumers and those with relatively little online experience are all influenced by online word-of-mouth because consumers with more experience may enjoy spreading their experiences, while consumers with less experience can search for information online to learn about the target product or enterprise, thus improve professionalism, and reduce risks.

3. Online marketing: Online marketing is defined as an important part of the company's overall marketing strategy, and is the key to achieve the company's overall business objectives through Internet business (Han, J. P., & Huang, F., 2003, pp. 23-27).

Online marketing refers to a series of activities carried out by enterprises or individuals on internet platforms, including product and service promotion, advertising promotion, brand building, and commercial promotion, in order to achieve business or other goals (Cui Ming, Jiang Yalei, 2015, pp. 61-65).

Online marketing can be defined that it connects enterprises, users, and the public based on the Internet and social networks and provides valuable information and services to users and the public, while planning, implementing, and operating management activities to achieve customer value and corporate marketing goals (Zhang, C., & Gong, T., 2023, pp.257-277).

Based on the concept of online marketing proposed by other scholars, this thesis believes that online marketing is a marketing strategy adopted by businesses or companies to improve revenue by connecting businesses and consumers with the help of the Internet. It uses the Internet to transmit information to users, provide

services for them, so as to achieve the relationship between business marketing purposes and consumer needs.

4. Word of mouth marketing: Philip Kotler, the father of world marketing, said that word of mouth marketing in the 21st century means that individuals other than commodity producers, through explicit or implicit methods, without the permission of a third party, transmit information about a specific or certain kind of products, brand manufacturers, sellers, as well as any organization or personal information that can make people associate with the above objects, thus causing the audience to obtain information. A two-way interactive communication behavior that changes attitudes and even affects purchasing behavior.

According to Arndt's viewpoint, word-of-mouth marketing is defined as a way for consumers to communicate product usage information without any interference from commercial interests (Arndt & Johan, 1967, pp. 291-295).

The so-called word-of-mouth marketing refers to the process of consumers, especially users, recognizing products and conveying this favorable impression to people around them through word-of-mouth communication, thereby influencing their purchasing actions. (Yao Dan, Li Yuhan, 2017, pp. 17-18).

Word-of-mouth marketing refers to the sales method of using word-of-mouth communication methods and certain communication platforms to spread information between individuals and groups, and to market the products or services provided by enterprises to customers (Zhu Zhiwen, Sun Jiaxi, Pan Shuai,2020, pp. 59-60+69).

Based on the concept of word-of-mouth marketing proposed by above scholars, this thesis believes that enterprises can plan corresponding word-of-mouth themes and utilize various online and offline platforms for dissemination, enhance the visibility and reputation of enterprises and brands, and influences consumer purchasing behavior with the aid of individuals and groups to share and exchange information about products or services.

5. Consumer purchasing behavior: Before shopping, consumers will search for information to obtain the necessary knowledge and reduce uncertainty. (Beatty, S. E., & Smith, S. M., 1987, pp.83-95).

Research has shown that when consumers are stimulated by external factors such as comments, word-of-mouth, and advertising. These external factors have an impact on consumers' psychological activities, which in turn affect their purchasing tendencies and intentions, and ultimately affect their purchasing decision-making behavior (Valarie, A., & Zeithaml., 1988, pp. 2-22).

The perceived risk of consumers in online shopping is related to product categories. Due to the limited information available to evaluate the quality of experiential products before purchase, consumers have a higher perceived risk of experiential products compared to search based products (Bulte, 2001, pp. 1409-1435).

In terms of consumer behavior research, the theory regards people's consumer behaviour as a reflection of internal and external stimuli. After consumers carry out a series of psychological activities, stimuli will eventually appear in the form of purchase or rejection (Pan Qiuyu, 2022, pp. 189-191).

Based on the concepts of consumer purchasing behavior proposed by other scholars regarding, this thesis believes that when customer motivation is used as an intermediate factor, there is a significant difference in the impact of online word-of-mouth on consumer purchasing behavior. For experiential products, online word-of-mouth has a more significant effect on enhancing consumer purchasing intention.

6. **Experiential products:** Nelson divides products into experiential products and search based products based on whether consumers can obtain product quality information before purchasing. Experiential products are products that consumers must evaluate their main attributes through a short period of use, or whose search cost for attribute related information is high (Nelson, 1970, pp. 729-754).

Experiential products are defined as consumers who obtain services or products through personal experience during the process of selection, purchase, and use, and all consumption in this process is to meet the personal needs or spiritual enjoyment of consumers (E Cooper Martin, 1992, pp. 756-761).

Experiential products refer to products that are difficult to obtain quality information before use, have subjective nature, and are difficult to compare. Therefore, it is necessary to evaluate and measure them through personal sensory

awareness, such as food and beverage, makeup, children's shoes, etc (Lee Chong Wei, 2013, pp. 42-45).

Based on the concept of experiential products proposed by above scholars, this thesis believes that experiential products refer to products that consumers cannot accurately obtain knowledge about the product before use, have high risk, and are less likely to make purchasing decisions. So, in the decision-making process of purchasing experiential products, consumers usually need to estimate the quality of the products through online word-of-mouth to ensure that the purchased products meet their expectations and requirements. The skin care product (Facial Essence) studied in this thesis is a typical representative of experiential products.

With the help of others use experience, consumers can improve their awareness of the product, and thus reduce the risk of purchase.

Expected Benefits

1. From the perspective of sellers, we suggest that they should realize the important role of online word-of-mouth in marketing and pay attention to the main factors affecting product sales, such as what kind of reviews consumers pay more attention to, improve the operation mode to generate better marketing effects and further expand the market.

2. From the perspective of consumers: promote merchants to provide consumers with more perfect product information and help consumers to buy products with satisfactory quality and service.

3. From the perspective of producers, online word-of-mouth data can be used to obtain consumers' requirements for products, more accurately grasp the market trend and consumer preferences, reduce the unsalable products caused by the asymmetry between the consumer market and the production market, and help increase the income of product producers.