Graphic or Short Video Recommendation? the Effect Mechanism of Recommendation Type on Consumers' Purchase Intention—-Take Xiaohongshu as an Example

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Graphic or short video recommendation? The effect mechanism of recommendation type on consumers' purchase intention
——Take Xiaohongshu as an example

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Abstract

The rise of social commerce has prompted user-generated content to become an important reference point for consumers shopping online. Consumers are often motivated to purchase because of the content shared by others, but existing studies have not focused on the impact of recommendation types on consumers' purchase intention. This paper selects Xiaohongshu as the research object, builds a research model based on media richness theory, perceived value theory and celebrity effect theory, etc. Through seven field experiments, we aim to explore the mechanism of action and boundary conditions of different recommendation types (graphic vs. short video) affecting consumers' purchase intention, and verify the mediating effect of perceived value and perceived psychological distance and the moderating effect of blogger status (celebrity vs. generalist) and the moderating effect of experiential disclosure. The results found that short video recommendations lead to higher purchase intention than graphic recommendations, perceived value mediates between recommendation type and purchase intention, perceived psychological distance mediates between recommendation form and perceived value, blogger identity moderates the relationship between recommendation type and perceived value and purchase intention, and experiential information disclosure moderates the relationship between recommendation type and perceived psychological distance. This study extends the research on the type of product recommendation on consumers' purchase intention in the e-commerce industry, elaborates the inner mechanism and influence path of the difference in consumers' purchase behavior, and enriches the moderating effect of consumers' purchase intention from two dimensions. The findings help companies to provide theoretical guidance for product promotion and allow brands to match appropriate product promoters and expand their brand influence considering the source of bloggers' identities.

Keywords：Recommendation type, Perceived value, Perceived psychological distance, Blogger identity source, Experiential disclosure, Purchase intention

1 Introduce

With the development of communication technology, mobile social networking has gradually become a part of people's daily life, people's social network is no longer limited to real life friends and family, strangers from thousands of miles away may also be your close friends in the social platform all night long. As traditional e-merchants seek cooperation with social media platforms, a new business model - social commerce (SC) - has emerged. SC refers to the use of social networking sites (SNS) to enhance user-supplier and user-user interaction, allowing users to be directly involved in the process of buying, selling, comparing and sharing products or services (Wu & Li, 2018). Traditional SNS users have also transformed from passive recipients of information to active producers, completing the diversification from a single user identity to "user and consumer" (Zwass, 2010). Through SC platform, potential consumers can browse the content

shared by others to get more realistic and comprehensive information about the products, and also post their own experience for others to refer to through the SC platform, creating a relaxed shopping atmosphere in which consumers can interact and communicate with others to enhance their understanding of the products, to help increase consumers' purchase intention.

The research related to SC platforms and consumer purchase has been explored by previous scholars from several aspects. For example, word-of-mouth marketing can enhance consumers' purchase decision of platform products while influencing their perceived trust (Hung & Li, 2007; Zhao, Wang et al., 2020), factors that build user relationships in SC platforms, the impact of user relationships on consumers' purchase intention (Xiang, Zheng et al., 2016), the impact of business models on consumers' purchase intention (Hajli, 2015), and etc. In the SC platform, products, tags, users, notes and other information are all gathered on the platform, forming a massive "information pool" in which users can search for products of their choice, and at the same time, enrich the shopping experience on the basis of information co-creation (Cheung, Xiao et al., 2014). However, some researchers argue that the vast amount of information tends to create information overload, confusing consumers' purchasing decisions and thus reducing their purchase intention (Olbrich & Holsing, 2011). Therefore, a number of studies have explored how to improve consumers' perceived value from the perspective of product reviews (Ye, Law et al., 2011), and how accurate recommendations generated using data technology can help consumers reduce the distraction of information overload and increase consumer satisfaction (Liang, Lai et al., 2006). While many of these studies show that SC is generally positive, there are a number of complex factors that influence consumers' purchasing decisions. A review of the literature revealed, in terms of recommendation methods, both graphic and short video marketing methods have some influence on consumer behavior (Sreejesh, Paul et al., 2020, Gao, Zeng et al., 2022), but no research has been conducted on the differences in the impact of recommendation formats on consumers' purchase intentions and the underlying mechanism. In terms of bloggers, the hotspots discussed by scholars are in terms of professionalism, homogeneity, authenticity and influence (Urrutikoetxea Arrieta, Polo Peña et al. 2019; Mainolfi & Vergura, 2022), and fewer studies have analyzed bloggers in terms of their identity. In terms of UGC information disclosure, current research is limited to online reviews (Nelson, 1974; Qin, Zhu et al., 2023), and no research has been conducted on the type of recommended content on consumers' purchase intentions.

Based on this, this study selects Xiaohongshu from SC platform UGC as the research object to discuss the effects of different forms of recommendation types (graphic vs. short video) on consumers' purchase intention and the moderating effects of blogger identity and experience-based disclosure. This paper develops a research model based on perceived value theory, level of explanation theory and media richness theory. And we design and implements five field experiments to collect data, analyze the data using SPSS software and test the proposed research model and hypotheses to analyze the underlying mechanisms that influence consumers' purchase intentions in the SC environment. In our study, we first demonstrates that short video recommendations can bring consumers closer to a product than image recommendations, thereby increasing their purchase intention in SC. Secondly, The bloggers' identity and the moderating effect of experiential disclosure on consumer purchase intentions are validated, as celebrity recommendations are more likely to motivate consumers to purchase than generalist recommendations, and the content of recommendations with experiential disclosure is more likely to increase consumers' desire to purchase. This research aims to provide theoretical guidance for

enterprises' product promotion, help broaden the research perspective of UGC, enrich theories related to the influence effect of bloggers, and allow brands to match suitable product promoters and expand their brand influence while considering the bloggers' identities.

2 Theoretical Foundations and Research Hypotheses

2.1 User-generated content

The Web 2.0 era has seen a change in the presentation of information on the Web, with technological developments making it increasingly difficult for users to create their own work, and a huge change in the way individual users interact with the Web (Lange, 2007). The "cognitive surplus" dividend has led to an increasing number of individual users who are no longer passive recipients of content, but rather content producers (Shirky, 2010). User are free to share content on the web in the form of text, images, audio, video, etc., this kind of media content created to share information and opinions is known as user-generated content (UGC) (Tang, Fang et al., 2014).

Existing research on UGC includes product reviews, product usage descriptions, marketing advertisements, blogs, etc. (Fader & Winer, 2012). Related research can be broadly divided into three major categories. 1) The first category starts from the properties of UGC itself, and explores the differences of UGC nature, source, property type and other internal characteristics acting on consumers' purchasing behavior and intentions (Ukpabi & Karjaluoto, 2018). In terms of the nature of UGC, scholars have classified it into positive, neutral and negative descriptions of products or services. Studies show that negative descriptions have a stronger impact on consumers' purchase decisions than positive descriptions, that neutral descriptions do not have a neutral impact on products, and that ignoring neutral descriptions can lead potential consumers to overestimate or underestimate the utility of a product or service and create bias, the direction of which depends on the proportion of positive and negative descriptions in the platform (Tang, Fang et al., 2014). In terms of UGC sources, the emotional factors released by UGC from close friends (strong relationship), from acquaintances (weak relationship) and from strangers (visitor relationship) are different, and the strength of the bond between the sharer and the sharer will positively influence the benign jealousy feeling of potential consumers (Kaosiri, Fiol et al., 2019). Since most UGC is content created by consumers based on their real feelings and published by resources, it can quickly and effectively build trust with potential consumers and thus gain content adoption support (Sohn & Kim, 2020; Qin, Li et al., 2023). In terms of UGC attribute types, existing literature mostly classifies UGC attribute types as informative, entertaining, reliable and annoying (Yu & Ko, 2021). Depending on the needs of potential consumers, different attribute types will also have different effect differences on consumers' intention to purchase (Jin & Phua, 2016). Research shows that UGC created and shared by users reduces the risk of benefit-driven machines generating deceptive behavior (Susan & David, 2010), and product-related UGC reduces uncertainty in purchase decisions and helps consumers form an understanding and perception of the product (Kim & Song, 2018), which in turn leads to purchase intentions (Gan & Wang, 2017). 2) The second class studies the role mechanism of external factors affecting UGC from the perspective of enterprises and individuals. In terms of enterprise development, the maturity of the platform is the foundation of UGC creators, and different platforms give different nutrients to UGC creators, and the presented UGC contents show large differences (Smith, Fischer et al., 2012). In addition, due to the different marketing strategies of brands, enterprises will also guide UGC creators in terms of cultural concepts, marketing methods and activities to stimulate them, thus generating multiple forms and dimensions of UGC (Kim & Johnson, 2016). For

individuals, the motivation of creators to produce UGC is a crucial issue (Wang & Li, 2017), early research argued that the motivation of users to produce UGC is a single, static and individual phenomenon, Crowston & Fagnot (2018) developed this research, he proposed a stage theory and generated by three independent motivations, namely, initial motivation, continuous motivation and meta-motivation, and interact with each other. Different generated content generated by different motivations also influence consumers' decision making process at the same time (Zhao, Zhang et al., 2022). In addition to this, the willingness of platform users to engage and the perceived value of UGC have a significant positive impact on UGC usage (Davcik, Langaro et al., 2022). 3) The third category starts from the relevant influence between UGC and enterprises and individuals, and emphasizes that the development of UGC needs to be adapted to the development of enterprises and customers' needs. On the one hand, UGC has a significant impact on consumers' purchasing decisions (Hills & Cairncross, 2011), therefore, many e-commerce enterprises spend huge costs and efforts to improve UGC, while achieving better results in product marketing and promotion (Li, Zhang et al., 2021). For example, companies prefer to use popular product recommenders to produce brand-related UGC because the higher social recognition that UGC creators have will also influence consumers' attitudes toward the brand and thus their willingness to voluntarily comply with recommendations (Kim & Lee, 2017). On the other hand, companies create a good environment for UGC creators to adapt to their own development and build brand awareness and loyalty on social media platforms, which can also lead to more consumer recognition and thus increase consumers' purchase intentions for specific products (Zhuang, Zeng et al., 2023). For example, strict control of the content and technical quality of UGC to enhance the brand stickiness of online customers also has a significant impact on the functional and emotional value of UGC (Mohammad, Quoquab et al., 2020). From the above literature, it can be seen that UGC has attracted the attention of a large number of scholars with its rich characteristics, whether as an antecedent to influence consumption this purchase intention or as a tool means of corporate marketing promotion, along with the resulting research has strongly promoted is the development of e-commerce enterprises.

It is worth noting that although the characteristics of UGC and its impact on consumers' decision making have been the focus of scholarly research (Roma & Aloini, 2019; Zhuang, Zeng et al., 2023), does the form of UGC generation play a role in consumers' purchase intention? Is there any difference in the influence of different recommendation types (text, image, short video) on consumers' purchase decision for the same content of UGC? This is a question that deserves deeper investigation but has been ignored. Traditional UGC is represented by online reviews, which mainly show consumers' shopping experience in the form of text. It is considered as one of the most important communication methods in eWOM marketing and an important source of information for potential consumers to make purchase decisions (Kwok, Xie et al., 2017; Gavilan, Avello et al., 2018), which has a significant impact on consumers' purchase intention (Ruiz-Mafe, Bigne-Alcaniz et al., 2020). In addition to text, image content is also an important clue for consumers to grasp product information, which is more prominent than text, enhances consumers' judgment of products, and helps attract more attention (Bigne, Ruiz et al., 2021). The short video format combines the two functions of text expression and image presentation, and can contain richer product information (Cao, Foth et al., 2021). Studies have shown that product recommendations in the form of short videos influence consumers' perceptions of product quality and trust. It can be seen that different recommendation types produce different degrees of UGC

richness and their influence ability may be different. Therefore, it is necessary to study the inner mechanism of the influence of recommendation types on consumers' purchase intention.

2.2 Recommendation Types, Perceived Psychological Distance and Perceived Value

SC platforms, such as Xiaohongshu, are gradually becoming the main battleground for people's online shopping. While maintaining the original social function, these platforms have developed e-commerce modules to develop the "'planting grass'[1] - consumption - 'pulling grass'[2] - share" path, forming a closed loop of business. According to information processing theory (IPT), when consumers interpret the vast amount of recommended content in the "information pool", they will first make overall cognition, then make judgmental reasoning based on information clues to extract relevant and useful information, and the perception and emotional changes in this process are also the primary process of information processing (Bettman, 1970). In other words, consumers facing different product recommendation contents will have different intuition, imagination, judgement, thinking and reasoning processes to the information they receive, which will trigger different emotional responses, including trust, product attitude, perceived psychological distance, perceived motivation, etc. After a series of information processing processes such as cognition, evaluation and memory, the recommended content will form different psychological impressions among consumers and influence their psychological distance (Park, 2019).

The psychological distance between the consumer and the cognitive object perceived by the consumer mainly includes temporal distance (Treister, Daniels et al., 2020), spatial distance, social distance (Zhao & Xie, 2011) and probability (Bar-Anan, Liberman et al., 2007; Chou & Lien, 2012), which affects the individual's cognitive activities such as judgement and predictive assessment of things (Wang, Lei et al., 2017). In recent years, psychological distance theory has been increasingly applied in the field of consumer behavior, with scholars using psychological distance as a measurement tool or phenomenon to explain consumer behavior that responds differently to differences in psychological distance between people or things (Reyt & Wiesenfeld, 2015; Pauketat & Anthis, 2022), influencing purchase decisions.

The connection between the consumer and the product is fragile due to the virtual nature of the online shopping process, uncertainty, information asymmetry and a sense of unfamiliarity that increases the consumer's distance from the product. Therefore, the key to effective recommendations is how the recommended content closes the psychological distance between the product and lifts the state of vulnerability. During interaction in social media, users have different abilities to express information depending on how the content is delivered. Media richness theory (MRT) explains this principle. It divides the degree of richness of the medium into four dimensions (Trevino, Lengel et al., 1987). The degree of message reception in the communication process depends to a large extent on the choice of medium, which will increase the efficiency of message delivery if it matches the needs of the user (Webster & Trevino, 1995). Typically, high levels of media richness contain a large amount of information that enhances the certainty of the message and reduces the confusion of the message, while low levels of media richness may result in more ambiguous messages and more limited messaging. Compared to written media,

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[1]Planting grass, Network language, refers to an act where you recommend a good product to someone else, or someone else recommends a good product to you.
[2]Pulling grass, Network language, it means that the desire to buy is no longer there, or the plan to buy has been implemented.

face-to-face communication is defined as a richer medium of communication due to its visual presentation, diversity of information and immediate feedback (King & Xia, 1997). However, not all high levels of media richness will deliver satisfactory results; it is the specific content of the organizational task that matters, and media richness delivers better results when it is matched to the task (Daft, Lengel et al., 1987). Currently, MRT is used in a wide range of fields (Liu, Liao et al., 2009; Kaplan & Haenlein, 2010; Tseng, Cheng et al., 2017, Chen, Min et al., 2020). Content generators on SC platforms enhance the exchange and sharing of goods with varying degrees of media richness, giving a new lease of life to traditional e-commerce. When potential consumers are exposed to rich product information, they will change their understanding of the product over time and automatically search for more product information cues to overcome the knowledge blindness barrier. As a result, consumers are more likely to adopt and accept visual recommendations that are rich and visually specific. Based on MRT and IPT, when bloggers adopt graphic recommendations and short video recommendations for the same product, consumers, as information receivers, adopt different information processing processes for these two types of recommendations, thus forming different mental images. The dynamic presentation of short video recommendations is featured by its short duration and high information carrying capacity, which allows users to watch it anytime and anywhere in fragmented time, and the appearance and speaking style of the blogger in the short video will leave a deeper impression on consumers, creating an illusion of "face-to-face communication" and making it easier for consumers to trust them and get closer to them psychologically (Maity, Dass et al., 2018). Hence, the following hypotheses are proposed.

H1. The type of product recommendation affects the consumer's perceived psychological distance, with short video recommendations bringing the consumer closer to the perceived psychological distance than graphic recommendations.

The psychological distance between what people perceive and the cognitive object determines the level of interpretation (Gao, Wang et al., 2021). The Construal-level theory (Trope & Liberman, 2010) (CLT) suggests that the different levels of mental representations of cognitive objects that people display influence their preferences and behavior. While High constructive level representations of things are abstract, focusing on core, essential, goal-related content outside the context of the event, and are good at using global thinking patterns; low constructive level representations of things are concrete, focusing on superficial, secondary content, related to the context and process of the event, and are more likely to capture local interests (Sun & Miao, 2018). Consumers' mental representations of different levels of constructs of the event determine their reactions to the event. When consumers' perceptions are close, they tend to interpret the relationship between the recommendation form and the purchase decision in a low constructive level, i.e. figuratively, and pay more attention to the feasibility of the decision process and the outcome; while when consumers' perceptions are far away, they tend to interpret the relationship between the recommendation form and the purchase decision in a high constructive level, i.e. abstractly, and pay more attention to the desirability of the decision process and the outcome. As a result, different interpretations lead to different values being perceived by the consumer of the product.

Perceived value theory (Zeithaml, 1988) (PVT) suggests that a consumer's perception of the value of a product or service is an overall evaluation of the perceived benefits against the perceived costs, and is used as the basis for consumption. The most intuitive impact of perceived

value on consumers is in the purchase decision. The richness of social features in the SC platform will affect consumers' perception of value and thus their purchase intention (Molinillo, Aguilar-Illescas et al., 2021), while too much social features will also lead to information overload and thus have a negative impact (Chen, Chen et al., 2022), Price levels further incentivize purchase behavior by influencing consumer perceptions of value (Kim, Xu et al., 2012). Consumer perceptions of product quality and information reflect a company's relationship with its users, and drawing on this research can help bring companies closer to their consumers and strengthen their value propositions (Zheng, Yu et al., 2017). Different research perspectives have shown that consumers' subjective perceptions determine the value of a good or service. Combined with the interaction effect between CLT and psychological distance, changes in psychological distance due to different recommendation methods reflect changes in consumers' perceptual perceptions, which affect their subjective perceptions and value-utility evaluations of goods. Therefore, we speculate that consumers' perceived psychological distance from the recommendation method may influence their perception of the value of the product, which in turn influences their subsequent decisions and behavioral consequences. Specifically, consumers' perceived psychological proximity, the perception that the recommendation is less deceptive and of higher perceived value, and consumers' willingness to trust the recommendation, thereby enhancing their certainty in evaluating and selecting the product. Hence, the following hypotheses are proposed.

H2. The perceived psychological distance triggered by the type of recommendation negatively affects the consumer's perceived value.

In view of the above, this paper combines CLT and trust theory connotations to suggest that short video recommendations generate a higher level of perceived value for consumers than graphic recommendations, and that the underlying mechanism is that the type of recommendation has an indirect effect on perceived value by influencing consumers' perceived psychological distance. Existing research has argued for this, with Zenithal (1988) argued that customer perceived value is a subjective value judgement after comparing the benefits with the costs paid, providing side support for this paper's hypothesis. Media richness has the ability to change the level of understanding of information, as information disseminated and processed by media with high richness can help users overcome knowledge barriers and subjective distractions in order to understand ambiguous information and extract useful clues. Conversely, information disseminated by a low richness medium is less effective in providing clues and interpretations for users. In contrast to the two recommendation types, short videos with dynamic product presentation, the persuasive language of the blogger and other contextual information convey a richer amount of information and help consumers to fully perceive and measure the value that the product has to offer. From this, it is reasonable to speculate that bloggers' use of recommendations with different levels of richness affects consumers' perception of the value of the product, with higher richness leading to higher perceived value. Hence, the following hypotheses are proposed.

H3. The way bloggers recommend influences the perceived value of consumers, with short video recommendations generating higher perceived value for consumers compared to graphic recommendations.

2.3 Recommendation Type, Perceived Value and Purchase Intention

According to the previous hypothesis, short video recommendations result in higher perceived value for consumers compared to graphic recommendations. In the study of the

relationship between consumers' perceived value and purchase intention, scholars have concluded from a large number of empirical studies combined with consumer psychological analysis that consumers' perceived value of a product or service is positively influenced by consumers' perceived benefits, i.e. perceived value increases with perceived benefits, and perceived value in turn significantly and positively influences consumers' purchase intention of a product or service (Chiu, Hsu et al. 2012; Luo and Ye, 2019). Eggert and Ulaga (2002) confirms that consumer satisfaction is a necessary incentive for consumers to make purchases, but that perceived value is the main driver of purchase behavior compared to consumer satisfaction. And Jackie (Tam, 2004) again proves that consumer perceived value is a stronger trigger for purchase than consumer satisfaction. This paper therefore proposes that perceived value mediates the relationship between blogger recommendation methods and purchase intentions. When bloggers visualize product attributes, design, functionality and quality in the form of graphics or short videos, they not only make consumers feel the functional value of the product, but also increase their curiosity and trust in the product, i.e., the emotional value of the product. When consumers feel that the product attributes have a certain value, the propensity to buy increases. Based on MRT, when bloggers dynamically present the various attributes and functions of a product in short videos, consumers have a higher perception of functional and emotional value and are therefore more willing to buy. Hence, the following hypotheses are proposed.

H4. The perceived value triggered by the blogger's recommendation method positively influences consumers' purchase intention.

Black, Lockett et al. (2002) found that media richness influences user behavior, i.e. consumers adopt different consumption behaviors when faced with different richness of media usage channels. Combined with the above-mentioned relationship between recommendation methods and perceived value, short video recommendations lead to a higher level of perceived value than graphic recommendations, and consumers' perception of product value influences subsequent purchase behavior, and the higher the perceived value, the higher the purchase intention. The Dual Coding Theory (Clark and Paivio, 1991) (DCT) of information suggests that the human cognitive system is made up of verbal and non-verbal codes, corresponding to text, language and information such as pictures and videos respectively. According to the DCT, scholars believe that the multimodal information dissemination environment does not impose a cognitive burden on users to interpret information, but rather enabling multi-sensory and multi-channel cooperation will increase the correctness and efficiency of information interpretation (Lwin, Morrin et al., 2010). The DCT and MRT of the combined information, we believe that consumers will activate both the verbal and non-verbal systems of the cognitive system when faced with two different recommendation methods, namely graphic and short video recommendations, and that short video recommendations will trigger more perceptual channels for simultaneous processing than graphic recommendations, improving the efficiency of user encoding and information extraction and leaving a deeper mental impression in consumers' minds. This paper thus hypothesizes that the type of recommendation may influence consumers' purchase intention, with short video recommendations eliciting a higher level of purchase than graphic recommendation recommendations. Hence, the following hypotheses are proposed.

H5. The type of recommendation affects the customer's purchase intention, with short video recommendations generating a higher purchase intention compared to graphic recommendations.

2.4 The Regulative Effects of Blogger Identity

In mobile social media, creator interactivity and creative content are the focus of most scholarly research, but few studies have explored the role of interactivity from the creator's perspective (Zhuang, Zeng et al. 2023). UGC creators in mobile social media are often called Bloggers, also known as Key Opinion Leaders (KOLs). Communication science believes that KOLs are the more active part of information dissemination, and there is a relationship between them and their followers in which information is copied and promoted (Shoham & Ruvio, 2008). In consumer behavior, KOLs is a group of people who filter false information, interpret ambiguous information and provide useful advice for others; this group differs from ordinary consumers in that they have more knowledge and experience (Wang, Ding et al., 2020). Due to the one-sided nature of personal information about products, consumers often refer to the more honest opinions of bloggers when choosing a product or service (Beverland, Lindgreen et al., 2008). The bloggers use their knowledge and experience to share their experiences and attitudes towards products on social media platforms, helping consumers to understand product information in more dimensions and providing reference for their purchasing decisions, which in effect changes consumers' attitudes towards products, and the bloggers gain more followers, thus expanding their influence (Chu & Kamal, 2008). At present, research has focused on the concept of bloggers, their attributes, influence, consumer behavior and its application in different fields, and very little has been done on the origin of bloggers' identities. Due to the relatively low threshold of mobile social media and the relatively diverse bloggers' identities, we divided the bloggers' identities into two categories: celebrities blogger (celebrity groups and famous bloggers with certain influence, and the number of followers on the platform is usually over one million or even ten million) and generalist blogger (without profiles on the internet, and the number of followers on the platform is less than 1,000), and explored the differences in the effect of the bloggers' identities on product recommendation. Due to the celebrity effect, the presence of well-known bloggers and celebrity groups can have the effect of drawing attention to themselves, reinforcing things and expanding their influence, while also potentially causing people to compete for imitation (McCracken, 1989). Traditional commercial promotions use celebrities as spokespersons and their influence on consumer purchasing decisions has been proven (Choi & Rifon, 2012; Wahab, Tao et al., 2022). In contrast, product promotion by celebrities in mobile social media is more often in the form of soft articles or selfie videos, avoiding the consumer resistance caused by direct publicity. In recent years, more and more celebrities are sharing videos of their lives on Xiaohongshu, breaking the mystique of celebrity and the distance between them and the public, and the sharing of the goodies featured in the videos can lead to a significant fan economy (Kim & Lee, 2017; Meng, Duan et al., 2021). As a result, many advertisers use the influence of celebrities in their advertising campaigns, capitalizing on the public's desire for fame and admiration to raise awareness of their products and achieve increased product sales. Many previous studies have shown that the content produced by celebrities in social media has a direct impact on consumers' purchase intention (Carroll, 2009; Keel & Nataraajan, 2012; Jin & Phua, 2014). Combining MRT and customer perceived value, this paper hypothesizes that when celebrity bloggers make product recommendations, consumers will have higher trust in the products they recommend because of the celebrity's image and style of verbal narration in the short video, combined with their identification with the celebrity, resulting in higher perceived value and greater purchase intention, compared to unattended introductions in graphic recommendations. Hence, the following hypotheses are proposed.

H6. bloggers' identity regulates the effect of blogger recommendation type on perceived value.

H6a. When a celebrity blogger makes a product recommendation in the form of a short video, it leads to a higher perceived value for the consumer.

H6b. When generalist blogger makes product recommendations, the use of graphics or short videos does not have a significant impact on consumers' perceived value.

Combined with the previous hypothesis on the relationship between perceived value and purchase intention, it is further hypothesized that the relationship between recommendation type and perceived value varies across bloggers' identity, and that consumer perceived value directly influences purchase intention. Therefore, with perceived value as a mediating variable, the effect of recommendation type on purchase intention also varies across bloggers' identities, i.e., the effect of recommendation type on purchase intention is moderated by the blogger's identity. Hence, the following hypotheses are proposed.

H7. The bloggers' identity regulates the effect of product recommendation type on purchase intention.

H7a. When a celebrity blogger makes a product recommendation in the form of a short video, consumers are more likely to purchase.

H7b. When a generalist blogger makes a product recommendation, there is no significant effect of either graphic or short video on consumers' purchase intention.

2.5 The Moderates Effect of Experiential Disclosure

In research on online reviews, scholars have classified them into attribute and experience based on the type of information in the content of online reviews, with attribute reviews focusing on the functions and features of the product and experience reviews emphasizing personal subjective feelings and emotional assessments (Nelson, 1974). Similarly, UGC on mobile social platforms can be classified similarly. For product recommendations with positive valence, bloggers will give more detailed descriptions of the products or services in order to gain higher attention, so as to improve the quality and reference value of the recommended content. Experience-based UGC highlights the symbolic and enjoyable attributes of a product or service, including emotional expressions, intuitive feelings and other subjective judgments, and the information content is vague and abstract and may be emotionally charged (Franke, Huhmann et al., 2004). Experiential information in this article refers mainly to the subjective feelings and emotions expressed by bloggers after using the product (Reeve, 2018). Research has shown that the same message can lead to differences in consumer decisions depending on the intensity of the emotion, with messages of higher emotional intensity being more credible and influential than those of lower emotional intensity. Appropriate emotive, subjective and emotional messages can reduce the psychological distance between the two parties and increase the perceived emotional value of the message, which is one of the most important factors influencing consumers' purchase intentions and behavior (Baumeister, Vohs et al. 2007). Therefore, it is hypothesized that experiential disclosure in recommendation content moderates the relationship between recommendation style and perceived psychological distance. The more experiential information is disclosed in a blogger's testimonial content, or the more experiential information is disclosed, the closer the consumer's perceived psychological distance is, and the greater the trust in the blogger and the product. Hence, the following hypotheses are proposed.

H8. Experiential information disclosure moderates the effect of recommendation method on consumers' perceived psychological distance. Among the recommendation contents containing experiential information, short video recommendations bring consumers closer to the perceived

psychological distance than graphic recommendations.

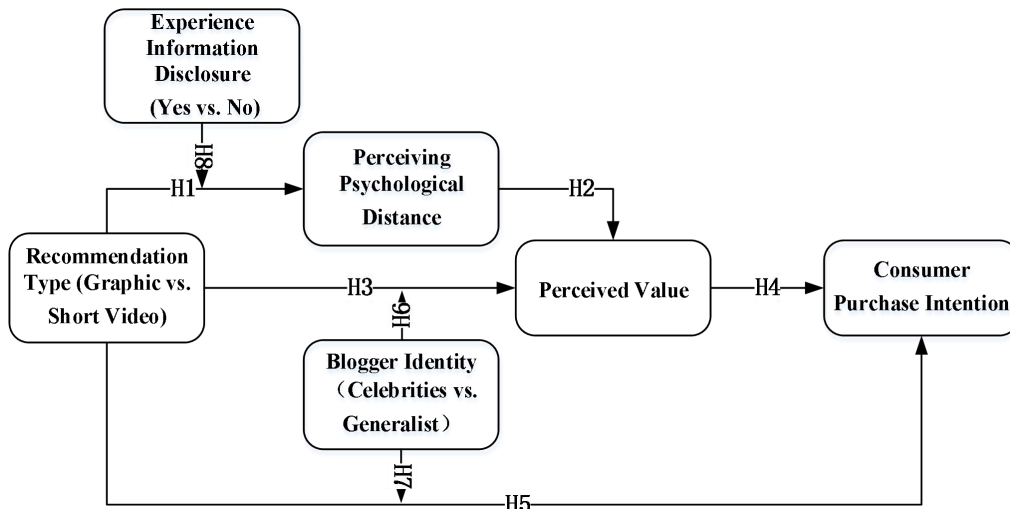In summary, the research framework for this paper is shown in Fig. 1.

Fig. 1. Proposed Theoretical Model

3 Experimental Design and Variables Measurement

3.1 Experimental Design

Since the Xiaohongshu SC platform was chosen as the research object for this study, the analysis of the Xiaohongshu user group is characterized by a majority of users who are female, have a bachelor's degree, and have a monthly disposable income of between RMB 1,000 and 3,000. In this study, university students were considered as the experimental subjects. Considering their familiarity with the platform and students' coursework, the experimental subjects were further restricted to the group of sophomore students, and the subjects were required to have used or be using the Xiaohongshu platform and have some knowledge of it. The study began with a pre-experiment, using research and questionnaires to pre-determine the experimental product and ensure that the formal experimental product met the experimental criteria. Secondly, the proposed research model and hypotheses were tested through one pre-test experiment + five formal experiments (the experimental framework is illustrated in Fig. 2). The experimental subjects were all sophomore students from Jiangxi Normal University, aged between 18-24 years old, with a basic control of between 20%-30% male and 70%-80% female. All graphics and short video materials involved in this experiment are taken from the public sharing content of the Xiaohongshu platform. Without informing the true purpose of the experiment, consent was sought from class tutors to conduct a field questionnaire experiment with evening study students. This study set up a special experimental classroom and a rest room, and set up the experimental equipment in advance to ensure a suitable experimental environment. In order to allow the subjects to better integrate into the experimental scenario, the subjects were shown a real pre-purchase scenario described in text form to improve external validity and were given a small snack as a reward after the experiment.
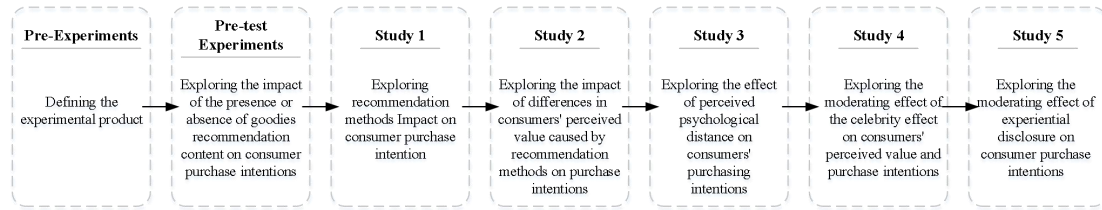
Fig. 2. Experimental Framework Diagram

3.2 Variable Measurements

In this study the independent variable is the recommendation method (graphic vs. short video), the dependent variable is consumers' purchase intention, the mediating variables are perceived psychological distance and perceived value, the possible confounding factors are product familiarity, and the moderating variables are the blogger's identity (celebrity vs. generalist) and experiential disclosure (yes vs. no). The variables involved have all been validated and applied in previous studies, and this study has studied and drawn on existing established scales both nationally and internationally. The Perceptual Psychological Distance Scale was designed and adapted with reference to the scale of Hautz, Füller et al. (2014), Three questions were selected to measure "I feel close to the heart of the blogger" (PD1), "I feel close to the recommended content and the blogger" (PD2) and "I find the recommended content easy to adopt/the blogger easy to approach" (PD3). The Perceived Value Scale was based on Sharma & Klein (2020)'s scale and was adapted to measure "I can feel the quality of the product from the blogger's recommendations" (PV1), "Having the same product recommended by the blogger is valuable to me" (PV2), "I can understand the features of the product well from the blogger's recommendations" (PV3) and "I can feel the function of the product from the blogger's recommendations" (PV4). The purchase intention scale was adapted from Hwang & Zhang (2018)'s design by selecting four questions to measure "I would consider this product" (PI1), "I am interested in buying this product" (PI2), "I am interested in buying this product" (PI3) and "I am highly likely to buy this product in the future" (PI4). The Product Familiarity Scale was adapted from Kaur, Lal et al. (2017)'s scale by selecting the questions "I can often see other forms of advertising about this product" (PF1), "I can often see displays or recommendations about this product" (PF2), "I can often hear others around me talk about or tell me about this product" (PF3), and "I know this product well and can often access it from my surroundings" (PF4). In order to maintain a scale of measurement for each variable, the individual questions were administered using Likert's 7-point scale, and the formal research questionnaire was finalized after a pre-research test [Appendix 1].

4 Pre-test Experiment

The purpose of the pre-test experiment was to examine the likelihood of a consumer purchasing a particular face wash on a traditional shopping website without showing the subject any recommendation content, but only showing them product information. The results were analyzed in comparison with the results of Experiment 1 that followed to investigate the difference in the effect of the presence or absence of the goodies recommendation content on consumers' purchase intentions.

4.1 Experimental Procedure

The experiment randomly selected 22 subjects who were eligible to go to a designated classroom to be seated centrally and at intervals to ensure a space for independent judgement by

the subjects. The pre-purchase scenario was described as follows.

It's the annual shopping spree on a shopping platform and the sales atmosphere is strong. You find that you are running out of face wash and you want to take advantage of this event to buy a cost-effective face wash that suits your skin type and costs less than 200 RMB, so you open any shopping app to browse and select a face wash product.

In this experiment, the subjects were given 2 minutes to browse the description of the pre-purchase scenario and 1 minute to browse the screenshot of a product information of a facial wash in a shopping platform (Fig. 3), and were guided to scan the code to fill in the questionnaire. Twenty-two questionnaires were collected for this experiment, and two invalid questionnaires were excluded, resulting in 20 valid questionnaires (the ratio of male to female was 3:7).

Fig. 3. Screenshot of the product in the recommended content

4.2 Data Analysis

All data for this study were analyzed using SPSS 26.0. The test yielded an α value of 0.983 for purchase intention and a KMO value of 0.800, which passed Bartlett's sphericity test (Sig. = 0.001). The orthogonal rotation using the maximum variance method revealed that the question items all fell under the corresponding factors and the cumulative overall variance of the variables explained 95.248% and the purchase intention scale was reasonably designed.

5 Study 1: The effect of recommendation type on consumers purchase intention

The aim of this project is to test the effect of different recommendation types on consumer choice preferences through a field experiment. That is, whether the two different types of recommendations - graphic or short video recommendations - used by bloggers in their recommendations can lead to differences in consumers' choices? The experiment is designed to provide a theoretical basis for testing the hypothesis. The experiment used a one-factor component design (recommendation type: graphic vs. short video), with the independent variable being the recommendation type (graphic vs. short video) and the dependent variable being purchase intention.

5.1 Procedure

The experiment was conducted by selecting 44 eligible subjects and dividing them randomly into two groups, one group of 22 in turn. Before the experiment the subject members played a two-minute piece of soft music to relax the subjects and showed the pre-purchase scenario, described as follows.

You've downloaded or used Xiaohongshu before, you browse and borrow from some bloggers' outfits, and you're often "inspired" by some bloggers' goodies recommendations. You're about to

run out of your cleanser for a shopping spree, and since your current cleanser doesn't feel very good to you, you're thinking of choosing one of the cleansers recommended by the bloggers on the Xiaohongshu platform that is good value for money and suitable for your skin type. The price is less than 200 RMB, so you open Xiaohongshu and directly search for "face wash recommendations" and see the following recommendations.

The subjects were given 2 minutes to read the above background material, followed by showing the graphic recommendations to the first group of subjects (Fig. 4), and the video recommendations to the second group of subjects (Fig. 5). A total of 4 unqualified questionnaires were excluded from this experiment, resulting in a valid sample of 40, of which 20 were in the graphic group and 20 in the short video group (the ratio of males to females was 1:4).
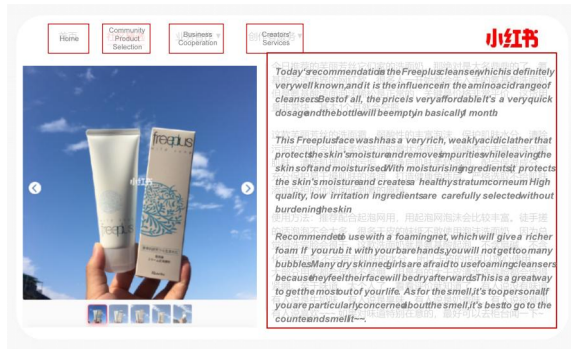

Fig. 4. Graphic Recommendation

Fig. 5. Short video Recommendation

5.2 Data Analysis

1) Taking recommendation type as the independent variable and purchase intention as the dependent variable, two sets of data, graphic and short-video recommendations, were used to conduct independent samples t-tests, yielding that short-video recommendations had a more significant effect on purchase intention ($M_{Graphic}$ = 3.325, $M_{Short-video}$ = 4.113, t = -2.492, p = 0.017 < 0.05).

2) Taking the whether there is recommendation as the independent variable and the purchase intention as the dependent variable, a one-factor ANOVA test analysis was conducted using three groups of data: no recommendation (pre-test experiment), graphic recommendation and short video recommendation (M_{None} = 3.2, SD_{None} = 1.099; $M_{Graphic}$ = 3.325, $SD_{Graphic}$ = 1.042; $M_{Short-video}$ = 4.1125, $SD_{Short-video}$ = 0.954; F = 4.582, p = 0.014 < 0.05), obtaining that both graphic and short video recommendations were higher than the effect of no recommendation on purchase intention, and the effect of short video recommendation was significantly higher than the other two groups, as shown in Table 1 for multiple comparisons.

Table 1 Multiple Comparisons（LSD）

recommendation type		Significance
No-recommendation	Graphic	0.704
	Short video	0.007
Graphic	None-recommendation	0.704
	Short video	0.019
Short video	None-recommendation	0.007
	Graphic	0.019

5.3 Results

The results of the experiment prove that the recommendation type significantly affects consumers' purchase intention, supporting hypothesis H5. Comparing the pre-test experiment, it can be seen that SC platforms with recommendation content, such as Xiaohongshu, can lead to higher online purchase intention than ordinary shopping sites without any recommendation content. In addition, comparing the two different recommendation types (graphic vs. short video) on Xiaohongshu, it can be seen that short video recommendations stimulate a stronger purchase intention than graphic recommendations. Therefore, the hypothesis of H5 is true.

6 Study 2: The effect of differences in consumers' perceived value due to recommendation type on purchase intention

As consumers' familiarity with the products recommended by bloggers may influence their evaluation of the content recommended by bloggers, this experiment was designed to measure consumers' product familiarity in the study in order to remove its interference in the analysis of the results. This is a one-factor (recommendation type: graphic vs. short video) between-group design, with the independent variable being the recommend type (graphic vs. short video), the mediating variable being perceived value and the dependent variable being purchase intention.

6.1 Procedure

The experiment selected 44 eligible subjects and randomly divided them into two groups, one group of 22 in turn. The experimental procedure and the product recommendation information involved in the experiment were the same as in Experiment 1, except that the subjects were required to complete three measurement scales of perceived value, purchase intention and product familiarity. In this experiment, the order of the three aforementioned variables was randomized to avoid the possible influence of response order. A small number of invalid questionnaires were collected and removed from the experiment, resulting in a final collation of 40 valid samples, 20 each in the graphic and short video groups (the ratio of males to females was 1:4).

6.2 Data Analysis

6.2.1 An analysis of variance

An independent samples t-test and one-factor ANOVA with recommendation type as the independent variable and perceived value as the dependent variable yielded a significant effect of recommendation type on perceived value ($F_{(1,66)} = 19.368$, $p = 0.000$). Compared to short video recommendations, graphic recommendations brought lower perceived value (M $_{Graphic}$ = 3.03, SD $_{Graphic}$ = 1.138 vs. M $_{Short-video}$ = 4.29, SD $_{Short-video}$ = 0.592). In addition, to exclude the interference of product familiarity, the group conducted an independent samples t-test and one-factor ANOVA with recommendation type as the independent variable and product familiarity as the dependent variable, and obtained that there was no significant difference in product familiarity between the two groups of subjects (M $_{Graphic}$ = 3.738, M $_{Short-video}$ = 3.45, $F = 0.445$, $t = 0.667$, $p=0.509>0.05$). Therefore, the interference of product familiarity with the results can be excluded.

6.2.2 Two methods to test the mediating effect

First, the mediating effect of perceived value was tested using the PROCESS model. After controlling for the mediating variable perceived value, the effect of the independent variable recommendation type (graphic vs. short video) on purchase intention became insignificant with a 95% confidence interval with the interval containing 0 (LLCI = -0.188, ULCI = 1.307). In summary, it can be seen that perceived value taken a fully mediating effect.

Second, a regression method was used to verify the mediating effect. ①Taking purchase intention as the dependent variable and recommendation type (graphic vs. short video) as the

independent variable (set graphic recommendation as 1 and short video recommendation as 2, same below), a regression analysis was conducted, which yielded a significant effect of recommendation method on purchase intention (p = 0.000, t = 4.787, β = 0.708), which validated H5. ②Taking perceived value as the independent variable and purchase intention as the dependent variable, a regression analysis found a significant effect of perceived value on purchase intention (p = 0.000, t = 7.094, β = 0.805), which verified the hypothesis H4. ③Taking recommendation type as the independent variable and perceived value as the dependent variable, a regression analysis found a significant effect of recommendation method on perceived value (p = 0.000, t = 5.002, β = 0.689), which verified H3. ④Taking purchase intention as the dependent variable and recommendation type and perceived value as the independent variables, a binary regression analysis was conducted to determine the cut-off value by calculating the total and mean scores of purchase intention. The mean value of purchase intention was found to be 3.5, so this paper set those with a purchase intention score of 3.5 and above to 1 and those with a score of less than 3.5 to 0 when conducting the binary logistic analysis. The results found that the effect of recommendation type on purchase intention became insignificant (p = 0.39 3 > 0.1, β = -0.756), and perceived value had a significant positive correlation on purchase intention (p = 0.025) with a Beta coefficient value of 1.406, indicating that perceived value taken a mediating effect. (See Table 2-3).

Table 2 The mediating effect test for perceived value (1)

	purchase intention		purchase intention		perceived value	
	t	p	t	p	t	p
Gender	-0.3717	0.7124	0.7576	0.4536	2.7597	0.009
Age	1.9869	0.0548	2.5699	0.0145	1.6217	0.1136
Recommendation type	1.2462	0.221	3.558	0.0011	5.0015	0
Perceived value	2.6716	0.0114				
R^2	0.6329		0.5276		0.6899	
F	5.8482		4.6293		10.9012	

Table 3 The mediating effect test for perceived value (2)

	Effect	Boot SE	Boot LLCI	Boot ULCI	Relative effect values
Mediating effect of perceived value	0.699	0.347	0.054	1.404	57.86%
Direct effects	0.509	0.379	-0.188	1.307	42.14%
Overall effect	1.208	0.429	0.371	2.051	

6.3 Results

This experiment confirmed the differences in perceived value caused by different recommendation types among consumers through field experiments. Compared to short video recommendations, graphic recommendations brought lower perceived value, supporting hypothesis H3. In addition, the analysis found that product familiarity did not differ significantly between the two groups of subjects, so the interference of product familiarity on the results could be excluded. The mediating effect of perceived value was tested by both the process model test and the regression method, both of which proved that perceived value mediated the relationship between recommendation type and purchase intention, and the process model test obtained that perceived value played a fully mediating role. Hypothesis H3 and hypothesis H4 are true.

7 Study 3: The effect of perceived psychological distance on consumer purchase intentions

The aim of this experiment was to verify, through a field experiment, whether the recommendation type affects the perceived psychological distance, which in turn affects the perceived value and finally the purchase intention. The experiment uses a one-factor component design (recommendation type: graphic vs. short video), with the independent variable being recommendation type (graphic vs. short video), the mediating variable being perceived psychological distance and the dependent variable being purchase intention.

7.1 Procedure

In this experiment, 44 eligible subjects were selected and randomly divided into two groups, with one group of 22 subjects conducting the experiment in turn. The experimental procedure and the product recommendation information involved in the experiment were the same as in Study 1. The difference was that in this experiment the subjects were required to complete the perceived value and psychological distance scales and fill in the basic information. The experiment eliminated a small number of incomplete samples, resulting in 40 valid samples, 20 each in the graphic and short video groups (the ratio of males to females was 1:4).

7.2 Data analysis

The test yielded a α value of 0.908 for psychological distance. by Bartlett's spherical test (Sig. = 0.000) and orthogonal rotation using the maximum variance method, it was found that the question items all fell under the corresponding factors and the cumulative overall variance of the variables explained 78.84% (bigger than 70%). In summary, this indicates that the overall design of the scale is good.

7.2.1 Analysis of variance

Taking recommendation type as the independent variable and psychological distance as the dependent variable, independent samples t-tests and one-factor ANOVAs were conducted. After passing the chi-square test, it was concluded that recommendation type had a significant effect on psychological distance ($F_{(1,55)} = 9.188$, $p = 0.004$). Compared to short video recommendations, graphic recommendations resulted in lower perceived psychological distance ($M_{Graphic} = 3.15$, $SD_{Graphic} = 1.263$ vs. $M_{Short-video} = 4.22$, $SD_{Short-video} = 0.938$), with a significant difference in psychological distance by recommendation type, and hypothesis H1 was tested.

7.2.2 Mediating effects test

Testing of the mediating effect of perceived psychological distance was conducted using the process model. With a sample size of 5000 and a 95% confidence interval, the results show that the mediation test does not contain 0 (LLCI = 0.1275, ULCI = 1.2014), indicating that the mediation effect of perceived psychological distance is significant and the mediating effect size is 0.4142. In addition, after controlling for the mediating variable perceived psychological distance, the independent variable recommendation method (graphic vs. short video) has a significant effect on the effect of perceived value was also significant, with an interval not containing 0 (LLCI=0.3175, ULCI=1.4274) and a direct effect size of 0.5858. In summary, it can be seen that perceived psychological distance taken a partially mediating effect, and hypothesis H4 was tested. (See Table 4-5)

Table 4 Mediating effects test of perceived psychological distance (1)

	Perceived value		Perceived value		Psychological distance	
	t	p	t	p	t	p
Gender	1.9921	0.0542	2.7597	0.009	1.7942	0.0812

Age	0.8013	0.4284	1.6217	0.1136	1.6064	0.1169
recommendation type	3.0659	0.0042	5.0015	0	3.5437	0.0011
Psychological distance	4.2633	0.0001				
R²		0.8094		0.6899		0.5462
F		16.6208		10.9012		5.1028

Table 5 Mediating effects test of perceived psychological distance (2)

	Effect	Boot SE	Boot LLCI	Boot ULCI	Relative effect values
Mediating effect of Psychological distance	0.6198	0.2813	0.1275	1.2014	41.42%
Direct effects	0.8765	0.2804	0.3175	1.4274	58.58%
Overall effect	1.4963	0.335	0.797	2.158	

7.3 Results

This experiment confirms through field experiments that different recommendation types cause differences in consumers' perceived psychological distance, which in turn affects perceived value. In particular, the perceived psychological distance from graphic recommendations is lower compared to short video recommendations, and H1 holds. For the test of the mediating effect of psychological distance, the process model was applied and confirmed that the perceived psychological distance mediates the relationship between recommendation type and perceived value, and is partially mediated. It can therefore be concluded that perceived psychological distance partially intermediates the relationship between recommendation type and purchase intention. Hypothesis H1 and hypothesis H2 hold.

8 Study 4: The moderating effect of the celebrity effect on consumer perceived value, consumer purchase intention

In this study, bloggers' identity types are divided into celebrities and generalists, two groups that differ significantly in terms of popularity. The aim of this experiment was to verify, through a field experiment, whether there was a moderating effect of bloggers' identity between recommendation type and purchase intention and between recommendation type and perceived value. The experiment uses a 2 (recommendation type: graphic vs. short video) x 2 (blogger identity source: celebrity vs. generalist) factorial group experimental design, with the independent variable being recommendation type (graphic vs. short video), the mediating variable being perceived value, the dependent variable being purchase intention and the moderating variable being bloggers' identity (celebrity vs. generalist).

8.1 Procedure

The experiment selected 88 eligible subjects and randomly divided them into 4 groups (22 in each group). The pre-purchase scenario was described as follows.

You have recently been very distressed because you have some acne on your back. You have sought solutions from the internet several times and after reviewing the information the possible causes are: 1. endocrine disorder, 2. high oil secretion, 3. mite infection, 4. improper diet, 5. inadequate cleaning. Combining the advice of your doctor and friends, you plan to buy a functional body wash product to treat back acne. So, you open Xiaohongshu and search directly for "shower gel recommendations" and you see the following recommendations.

Subjects were given 2 minutes to read the above background material. Then, the first group ("generalist + graphic" group) was shown a body wash recommended by a generalist blogger in

graphic form (Fig. 6); the second group ("generalist + short video" group) was shown the same product recommended by a generalist blogger in short video form (Fig. 7); to the third group ("celebrity + graphic" group) the same product recommended by Xu Lu (a famous Chinese actress with 4.2 million followers on the platform) in the form of a graphic (Fig. 8); to the fourth group ("celebrity + short Video" group) the same product recommended by Xu Lu in the form of a video appearance (Fig. 9). A small number of invalid questionnaires were excluded from this experiment, and 80 valid samples were obtained, 20 from each group (the ratio of males to females was 1:4).
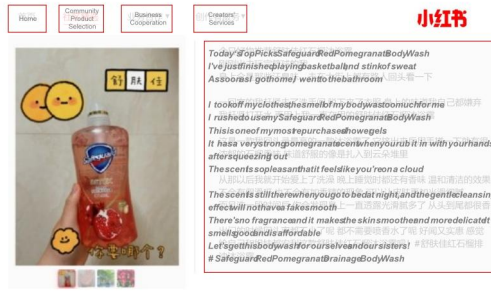
Fig. 6. Graphic recommended by generalist

Fig.7. Short videos Recommended by generalist

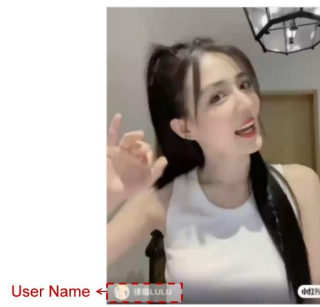Fig. 8. Graphic recommended by celebrity

Fig. 9. Short videos Recommended by celebrity

8.2 Data Analysis

8.2.1 Reliability and validity analysis

After testing, the α value of perceived value was 0.951, the α value of purchase intention was 0.962, and the KMO value was 0.927, which passed Bartlett's spherical test (Sig. = 0.000); orthogonal rotation using the maximum variance method found that the relevant question items all fell under the corresponding factors, and the cumulative overall variance explained by the variables was 81.276% (bigger than 70%). This indicates that the scale measure items explain the raw total variance better.

8.2.2 Moderation effect test

Two moderating effects were tested using the process model, and the data were standardized to obtain the results of the analysis. As shown in Table 6. In model 1, recommendation type significantly influenced perceived value (β = 1.400, p < 0.05) and this effect was moderated by blogger status (β = -0.6000, p < 0.05). In model 2, recommendation type significantly influenced purchase intention (β = 1.6369, p < 0.05) and this effect was significantly moderated by the source of bloggers' identity (β = -0.5364, p < 0.05).

Table 6 The moderating effects of bloggers' identity

Variables	Model 1	Model 2

	Dependent variable: perceived value				Dependent variable: purchase intention			
	β	se	t	p	β	se	t	p
Constant	3.9188	0.0624	62.774	0	3.2293	0.4047	7.9795	0
Recommendation type	1.4	0.1249	11.2133	0	1.6369	0.1814	9.0242	0
Blogger identity	1.0375	0.1249	8.3098	0	1.1006	0.1538	7.1557	0
Perceived value					0.2102	0.1023	2.0553	0.043
Recommendation type × Blogger Identity	-0.6	0.2497	-2.4028	0.019	-0.5364	0.231	-2.3222	0.023
R^2	0.8516				0.9264			
F	66.855*				113.5669*			

*Represents $P<0.05$

8.3 The moderating effect of blogger identity on recommendation type influencing perceived value

In order to test again the moderating effect of bloggers' identity (celebrity vs. generalist) on the perceived value of the impact of recommendation type, this study used a two-factor ANOVA combined with a simple effects analysis on the experimental data.

1) Taking perceived value as the dependent variable, recommendation type as the independent variable and bloggers' identity as the moderating variable, a two-factor ANOVA of 2 (graphic vs. short video) x 2 (celebrity vs. generalist) was conducted, and after passing the chi-square test, it was found that, firstly, the main effects of both recommendation type and bloggers' identity were highly significant. ①The main effect of recommendation type was highly significant ($F=125.738$, $p=0.000$, $\eta^2=39.200$), indicating that recommendation type significantly affected perceived value ($M_{Graphic} = 3.2188$, $SD_{Graphic} = 0.9167$ vs. $M_{Short-video} = 4.619$, $SD_{Short-video} = 0.604$), again validating the hypotheses H3. ②The main effect of bloggers' identity was highly significant ($F = 125.738$, $p = 0.000$, $\eta^2 = 21.528$), indicating that bloggers' identity significantly affects perceived value ($M_{Generalist} = 3.400$, $SD_{Generalist} = 1.0497$ vs. $M_{Celebrity} = 4.4375$, $SD_{Celebrity} = 0.746$). Secondly, there was a significant interaction effect between recommendation type and bloggers' identity ($F=5.774$, $p=0.019$, $\eta^2=1.800$), showing that bloggers' identity played a moderating effect in the process of recommendation type influencing perceived value.

2) To analyze the different effects of the interactions in detail, a further simple effects analysis found that when the blogger was a generalist, short video recommendations triggered higher perceived value compared to graphic recommendations ($M_{Generalist-graphic} = 2.55$ vs. $M_{Generalist-short-video} = 4.250$, $F = 92.700$, $p = 0.000$). When the blogger was a celebrity, the perceived value triggered by short video recommendations was higher compared to graphic recommendations ($M_{Celebrity-graphic} = 3.887$ vs. $M_{Generalist-short-video} = 4.988$, $F = 38.812$, $p = 0.000$), and the gap in perceived value triggered by the two recommendation types narrowed (see Fig. 10 and Fig. 11), Hypotheses H6a and H6b were verified.
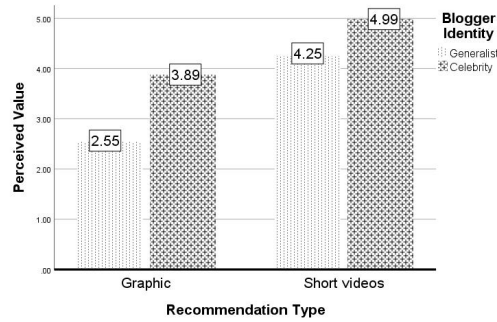
Fig. 10. Mean plot of the moderating effect of bloggers' identity on perceived value
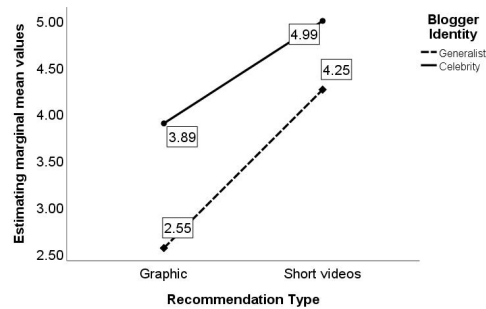

Fig. 11. Folding graph of the estimated marginal mean values of perceived value

8.4 The moderating effect of blogger identity on the type of recommendation influencing purchase intention

In order to test again the moderating effect of bloggers' identity (celebrity vs. generalist) on the influence of recommendation type on purchase intention, this study used a two-factor ANOVA combined with a simple effects analysis on the experimental data.

1) Taking purchase intention as the dependent variable, recommendation type as the independent variable and bloggers' identity as the moderating variable, a two-factor ANOVA of 2 (recommendation type: graphic vs. short video) x 2 (blogger identity: celebrity vs. generalist) was conducted, and after passing the chi-square test, it was found that, firstly, the main effects of both recommendation type and bloggers' identity were highly significant. ①The main effect of recommendation type was highly significant (F = 288.646, p = 0.000, η^2 = 74.595), indicating that recommendation type significantly influences purchase intention (M $_{Graphic}$ = 3.088, SD $_{Graphic}$ = 1.004 vs. M $_{Short-video}$ = 5.019, SD $_{Short-video}$ = 0.666), again validating the hypotheses H5. ②The main effect of bloggers' identity was highly significant (F = 134.590, p = 0.000, η^2 = 74.595), indicating that recommendation type significantly influences purchase intention (M $_{Graphic}$ = 3.088, SD $_{Graphic}$ = 1.004 vs. F = 134.590, p = 0.000, η^2 = 34.782), indicating that bloggers' identity significantly affects purchase intention (M $_{Generalist}$ = 3.394, SD $_{Generalist}$ = 1.251 vs. M $_{Celebrity}$ = 4.7125, SD $_{Celebrity}$ = 0.953). Secondly, there was a significant interaction effect between recommendation type and bloggers' identity (F = 8.492, p = 0.005, η^2 = 2.195), showing that bloggers' identity played a moderating role in the process of recommendation type influencing perceived value.

2) To analyze the different effects of the interaction in detail, a further simple effects analysis found that when the blogger was a generalist, short video recommendations triggered higher purchase intentions compared to graphic recommendations (M $_{Generalist-graphic}$ = 2.263 vs. M $_{Generalist-short-video}$ = 4.525, F = 198.078, p = 0.000). In addition, when the blogger was a celebrity,

short video recommendations triggered higher purchase intentions compared to graphic recommendations (M $_{Celebrity-graphic}$ = 3.913 vs. M $_{Celebrity-short-video}$ = 5.513, F = 99.060, p = 0.000), and the gap in purchase intention triggered by the two recommendation types narrowed, as shown in Fig. 12-13. Hypotheses H7a and H7b were verified.
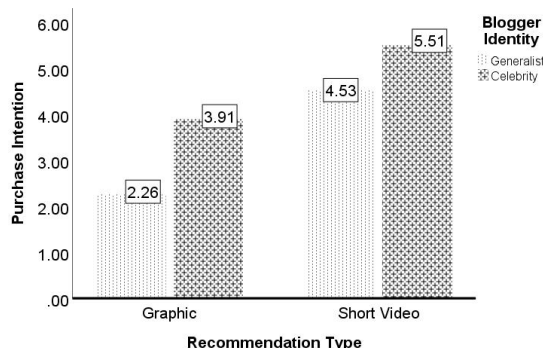

Fig. 12. Mean plot of the moderating effect of bloggers' identity on purchase intention
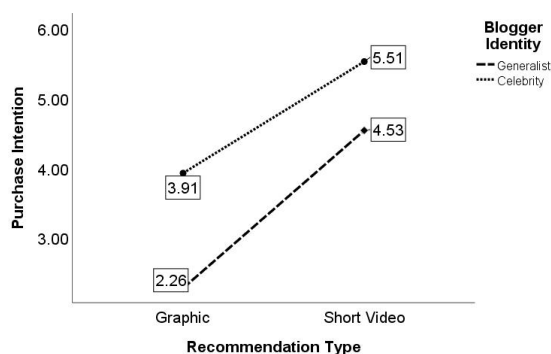

Fig.13. A line graph of the moderating effect of bloggers' identity on purchase intention

8.5 Results

This experiment examined the moderating effect of bloggers' identity on the role of recommendation type in influencing perceived value and purchase intention by using a process model and a two-factor ANOVA combined with a simple effects analysis. The analysis found that there were significant differences in the effect of bloggers' identity on the perceived value and purchase intention of recommendation type. When the blogger's identity is an ordinary person, there is a significant difference in the effect of different recommendation types on perceived value and purchase intention, and the difference is larger, which confirms hypothesis H6a and H7a. When the blogger's identity is a celebrity, there is also a difference in the effect of different recommendation types on perceived value and purchase intention, but the difference is reduced, which confirms hypothesis H6b and H7b. This suggests that there is a moderating effect of blogger status (generalist vs. celebrity) on perceived value and purchase intention for recommendation type (graphic vs. short video). That is, hypothesis H6 and hypothesis H7 are proven to hold.

9 Study 5: Moderating effect of experiential disclosure on consumer purchase intention

Words such as "doesn't clean my face, fake slippery, my face will break out after using it" and "it's gentle to use, no tightness or dryness after using it" appear in the testimonials are called

experiential disclosure, which refers to the subjective feelings and emotions of the blogger after using the product. This experiment aims to verify the experience-based disclosure. The aim of this experiment was to examine the moderating effect of experiential disclosure on the relationship between recommendation type and psychological distance. The experiment was designed as a 2 (Recommendation type: graphic vs. short video) x 2 (Experiential disclosure: yes vs. no) group experiment, with the independent variable being recommendation type (graphic vs. short video), the mediating variable being perceived psychological distance, the dependent variable being perceived value and the moderating variable being experiential disclosure (yes vs. no).

9.1 Procedure

The experiment selected 88 eligible subjects and divided them randomly into 4 groups (22 in each group) to demonstrate the pre-purchase scenario and described it as follows.

With so many brands of facial cleansers on the market today, you need to learn about the products from a variety of sources, especially what consumers really feel about using them. You trust the products recommended by bloggers more than those advertised by merchants, and generally, you will refer to the recommendations of bloggers to increase your understanding of a product before you buy it. You are currently in need of a face wash, so you search for "face wash recommendations" on Xiaohongshu and try to find a suitable face wash that is of the right quality and at the right price from the many face wash products recommended by bloggers. You came across the following recommendations.

The subjects were given 2 minutes to read the above background material and were shown to the first group ("graphic + experiential disclosure" group) the facial wash product recommended in the graphic with experiential disclosure (Fig. 14); to the second group ("graphic + no experiential disclosure" group) the same product recommended by the graphic without experiential disclosure (Fig. 15); to the third group ("short video + experiential disclosure" group) the same product recommended by the short video with experiential disclosure (Fig. 16); to the fourth group ("short video + no experiential disclosure" group) the same product recommended by the short video without experiential disclosure (Fig. 17). A small number of non-compliant samples were excluded from this experiment (The questionnaire was not completed, etc.), resulting in a valid sample of 80, 20 per group (the ratio of males to females was 3:7).
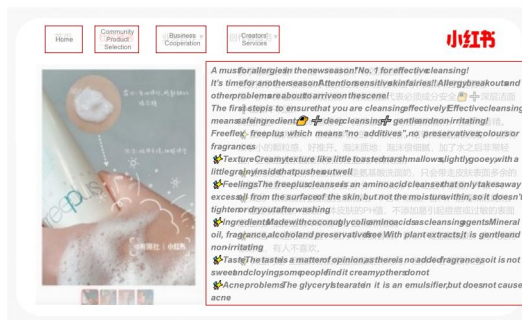

Fig. 14. "Graphic + experiential disclosure" group

Fig. 15. "Graphic + no experiential disclosure" group

Fig. 16. "Short-video + experiential disclosure" group   Fig. 17. "Short-video + no experiential disclosure" group

9.2 Data Analysis

9.2.1 Moderating effect test

Using process model1 for the moderating effect test, the data were standardized and analyzed and the results are shown in the Table 7. In this model, recommendation mode significantly influenced perceived psychological distance (β = 1.1167, p < 0.05) and this influence effect was moderated by experiential disclosure (β = 0.8667, p < 0.05).

Table 7 The moderating effect of experiential disclosure

Variables	Psychological distance			
	β	se	t	p
Constant	4	0.1052	38.0193	0
Recommendation type	1.1167	0.2104	5.3069	0
Experiential Disclosure	0.9833	0.2104	4.6732	0
Recommendation type × Experiential Disclosure	0.8667	0.4208	2.0594	0.0429
R^2	0.6453			
F	18.0809*			

*Represents P<0.05

In order to test again that experiential disclosure plays a moderating role in the way recommendation affects perceived psychological distance, a two-factor ANOVA combined with a simple effects analysis was used to process the experimental data.

1) Taking perceived psychological distance as the dependent variable, type of recommendation as the independent variable and experiential disclosure as the moderating variable. We conducted a 2 (recommendation type: graphic vs. short video) x 2 (experiential disclosure: yes vs. no) two-way ANOVA. The chi-square tests revealed, first, that the main effects of both recommendation type and experiential disclosure were highly significant. ①The main effect of recommendation type was highly significant (F = 28.163, p = 0.000, η^2 = 24.939), indicating that recommendation type significantly influenced perceived psychological distance (M $_{Graphic}$ = 3.4417, SD $_{Graphic}$ = 1.028 vs. M $_{Short-video}$ = 4.558, SD $_{Short-video}$ = 1.12), again validating H1. ② The main effect of experiential disclosure was highly significant (F = 21.839, p = 0.000, η^2 = 19.339), indicating that experiential disclosure significantly affects perceived psychological distance (M $_{No}$ = 3.5083, SD $_{No}$ = 1.035 vs. M $_{Yes}$ = 4.492, SD $_{Yes}$ = 1.179). Second, consistent with the hypothesis, there was a significant interaction effect between recommendation type and experiential disclosure (F = 4.241, p = 0.043, η^2 = 3.756), indicating that experiential disclosure played a moderating role in the process of recommendation type influencing perceived psychological distance.

2) in order to analyze the different effects of the interactions in detail, a further simple effects analysis found that when there was no experiential disclosure, short video recommendations triggered a higher perceived psychological distance compared to graphic recommendations (M $_{No-graphic}$ = 3.1667 vs. M $_{No-short-video}$ = 3.8500, F = 5.273, p = 0.024). When experiential disclosure was available, the perceived psychological distance triggered by short video recommendations was higher compared to graphic recommendations (M $_{Yes-graphic}$ = 3.717 vs. M $_{Yes-short-video}$ = 5.267, F = 27.131, p = 0.000), and the gap in perceived psychological distance triggered by the two recommendation types became larger. This is shown in Fig. 18-19.
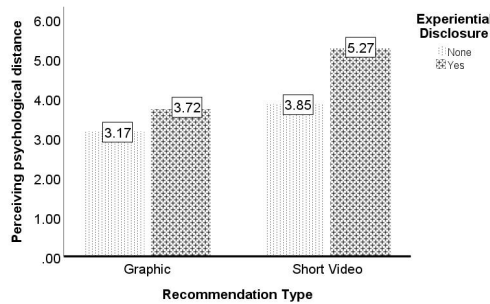
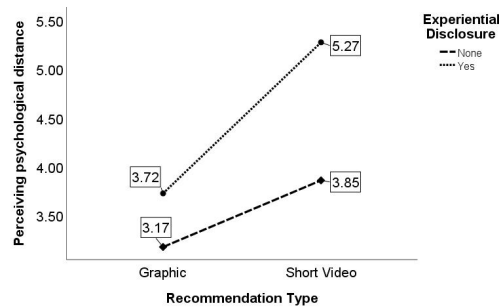Fig. 18 Moderating effect of experiential disclosure　　Fig. 19 Moderating effect of experiential disclosure

9.3 Results

This experiment used a process model and two-factor ANOVA combined with simple effects to verify the moderating effect of experiential disclosure in the pathways of action of recommendation type and perceived psychological distance. The analysis found significant differences in the role of experiential disclosure in influencing perceived psychological distance with and without experiential disclosure. In particular, with experiential information disclosure, both graphic and short video recommendations shorten consumers' psychological distance compared to no experiential information disclosure. Hypothesis H8 was proved to be valid.

10 Conclusion

Based on the SC environment, this study uses perceived value and perceived psychological distance as mediating variables and bloggers' identity sources and experiential disclosure as moderating variables to analyze the effect of different recommendation types of bloggers on consumers' purchase intention, and uses PVT (Zeithaml, 1988), IPT (Bettman, 1970), MRT (Daft & Lengel, 1986), CLT (Trope & Liberman, 2010) and celebrity effect (McCracken, 1989) as the theoretical basis of the model. The theoretical model with recommendation type (graphic vs. short video) as the independent variable and purchase intention as the dependent variable was constructed, and research hypotheses were proposed for the relationship between the variables. Secondly, drawing on established scales from home and abroad, an experimental research method was used to design the variables and conduct the experiment. Finally, the data collected were analyzed using SPSS26.0 statistical software for descriptive statistics, reliability testing and correlation analysis, where the mediating effects of perceived value and perceived psychological distance, as well as the moderating effects of bloggers' identity source and experiential disclosure, were verified in various ways in this study. The combined analysis leads to the following main conclusions.

Firstly, the type of recommendation significantly affects consumers' willingness to buy. SC platforms with recommendations can lead to higher online purchase intentions than regular shopping sites without any recommendations, and short video recommendations are more likely to motivate consumers to purchase than graphics.

Secondly, different types of recommendations can cause differences in perceived value for consumers. Compared to short video recommendations, graphic recommendations resulted in lower perceived value. In addition, it was found that product familiarity did not differ significantly between the two groups of subjects, so this finding was not confounded by product familiarity. At the same time, different types of recommendations can also cause differences in consumers' perceived psychological distance, which in turn affects perceived value. Compared to short video recommendations, graphic recommendations resulted in a lower perceived psychological distance.

Thirdly, the moderating effect of both bloggers' identity and experience disclosure on perceived value and purchase intention was found in the type of recommendation. In terms of the identity of the blogger: when the blogger is a generalist, there is a significant difference in the effect of recommendation type on perceived value and purchase intention, and the difference is larger; when the blogger is a celebrity, there is also a difference in the effect of recommendation type on perceived value and purchase intention, but the difference is smaller. This suggests that the effect of celebrity on perceived value and purchase intention is greater. In terms of experiential information disclosure, both graphic and short video recommendations shorten the psychological distance between consumers when experiential information is disclosed, compared to when no experiential information is disclosed.

11 Implications and limitations

11.1 Theoretical implications

This paper selects Xiaohongshu and blogger groups as research objects, and makes some theoretical contributions to the study of UGC, recommendation methods and the influence of consumers' purchase intention on social e-commerce platforms.

First, founded that different recommendation types act on consumers' purchase intention to different degrees of influence. Existing studies have focused more on which characteristics of UGC affect consumer decisions and which external factors lead to changes in the creation of UGC, such as the relevance of UGC to the product (Gan & Wang, 2017), the amount of information contained in UGC (Kim & Song, 2018), the marketing strategy of the company (Kim & Johnson, 2016), and the personal motivation of the creator (Wang & Li, 2017), etc, but not on how different recommendation types of UGC have an impact. As different richness of media information brings different feelings to consumers (Daft & Lengel, 1986), and the level of interpretation adopted by consumers in the face of different forms of information is also different (Trope & Liberman, 2010), after a series of cognitive, evaluation, memory and other information processing process on the goods produced by the psychological distance is also different (Park, 2019). By integrating MRT, CLT, DCT and other theories, we find that the difference of UGC recommendation types (graphic vs. short video) affects consumers' purchase intention to different degrees and in different ways. Therefore, in this paper, we explore and argue the differential performance of different recommendation types on consumers' purchase intention from multiple dimensions, and strengthen the inner mechanism of the influence of recommendation types on consumers' purchase intention.

Second, further refining the study of consumer purchase intention path, the perceived psychological distance is used as a chain mediator, and the influence path of perceived psychological distance, and thus perceived value, is proposed to be influenced by recommendation type. For the study of consumer behavior, the study of consumer purchase intention caused by value perception is very mature, therefore, most of the scholars directly focus on the different dimensions of value perception (Prebensen & Xie, 2017; Busalim, Ghabban et al., 2021). (The influence path is *perceived value → purchase intention*). Or the difference in consumers' value perceptions directly caused by the independent variables leading to different purchase behaviors (Wang & Hazen, 2016). (The influence path is *independent variable → perceived value → purchase intention*). While in the more diversified forms of UGC in e-commerce, short video recommendations contain more information sources compared to graphic recommendations, and at the same time the vivid presentation form gives potential consumers the intimacy of

face-to-face communication, resulting in a closer psychological distance. That is, in the path of consumers' perceived value for goods (independent variable), the psychological distance between consumers and goods is the direct cause of the difference in consumers' perceived value, and the psychological distance as the leading variable of value perception should also be taken into consideration, which has been neglected in previous studies. Therefore, this paper proposes the influence path that the recommendation type affects the perceived psychological distance and thus the perceived value, (*recommendation type → perceived psychological distance → perceived value → purchase intention*), which further enhances the tightness of the conduction path and refines the study of the influence path of consumers' purchase intention.

Third, clarifies the boundary conditions under which recommendation type affects consumers' purchase intention. Since the differences in recommendation types may also take different forms in different contexts, this paper investigates the moderating mechanisms of blogger status (celebrity vs. generalist) and experiential disclosure (yes vs. no) on consumers' purchase intention under different recommendation types. On the one hand, considering the diversity of UGC contents in social commerce platforms may have different effects on consumers, based on the information type classification theory, the UGC types are classified into attribute type and experience type (Nelson, 1974), where attribute type explains the objective content of goods, while experience type outputs more emotional expressions and will likely have an impact on the emotional aspect of information recipients. Therefore, this paper incorporates experiential disclosure UGC into the research model and serves as a moderating variable for recommendation type to influence perceived psychological distance and verify its boundary effect in the path of action. Our findings prove that UGC with experiential information disclosure leads to a closer psychological distance for consumers. The findings help scholars further refine their research on the types of information in UGC, and also provide guidance for improving textual content in graphic recommendations and improving verbal expression in videos. On the other hand, due to the low entry barrier of UGC, the identities of UGC creators are very diverse. Previous studies have focused on the influence of bloggers' personal objective information on consumers' interactive behavior on the platform (Beverland, Lindgreen et al., 2008; Chu & Kamal, 2008), and no studies have yet been conducted on the identity of bloggers on social e-commerce platforms. And research has found that due to the celebrity effect (McCracken, 1989), companies are more willing to hire celebrities as brand spokespersons for product marketing (Jin & Phua, 2014, Kim & Lee, 2017), which shows that blogger identity has an important influence on consumers' product purchase decisions. Therefore, this paper incorporates blogger identity into the research model and serves as a moderating variable of recommendation type affecting perceived value and purchase intention to verify its boundary effect in the path of action. Our findings demonstrate that celebrities' product recommendations in the form of short videos are more likely to stimulate consumers' purchase intentions, and the findings help scholars to further investigate the impact of celebrity effects in social commerce platforms. The above two moderating variables together enrich the study of the moderating mechanism of consumers' purchase intention in different contexts.

11.2 Practical implications

First, from the platform side. First, should focus on the introduction of celebrity bloggers. Users are the most core competitiveness platform to introduce celebrity bloggers, can use the influence of celebrities to attract users. Compared with ordinary people bloggers, the good

products shared by celebrity bloggers in the platform are more able to stimulate fans to buy. Therefore, for the long-term development of social platforms, they should pay attention to the retention of celebrity bloggers and increase the number of celebrity bloggers in social platforms. Secondly, the platform should support the diversification of recommendation methods. Different users have different preferences for different UGC forms, and different UGC presentation forms will have different product perceptions in users' psychology, which will lead to different effects on purchase intention. The platform should encourage the joint development of different UGC forms and support the diversification of recommendation methods to meet the needs of different users.

Second, from the business side. On the one hand, full use should be made of celebrity bloggers for product and brand marketing. Without considering the cost, choosing celebrity bloggers for product promotion will often yield better results. Due to the strong fan base behind celebrity bloggers, the products shared by celebrities will strongly stimulate consumers' intention to imitate and form purchase intentions. As a businessman, you should clearly understand the value and influence of celebrity bloggers, reasonably position your brand, and choose bloggers who match your brand for cooperation. On the other hand, it is necessary to strictly control the quality of UGC, whether for bloggers or businesses in social platforms, making and publishing UGC that can attract users to browse is the core, and how to make both real and professional UGC content is the key consideration for bloggers and businesses, because only by ensuring the quality of UGC can we get the recognition of users and a constant flow of fans.

12 Limitations and future scope

This paper explores the relationships and mechanisms between recommendation type, perceived value, perceived psychological distance, purchase intention, bloggers' identity and experiential disclosure, and draws conclusions by combining theoretical deduction and empirical analysis.

First, this paper only chose perceived psychological distance and perceived value as mediating variables for model construction, and there may be imperfections in the selection of variables in this dimension, and multiple dimensions of perceived value (Sheth, Newman et al., 1991; Babin, Darden et al., 1994; Sweeney & Soutar, 2001) will be added to the research model in the future with reference to the existing literature.

Second, there may be mediating and moderating variables that were not fully considered in this study. In addition to the two mediating variables selected in this paper, there may be other variables that influence the model. Therefore, in future research, other perspectives such as the proximity of the UGC release, the level of product involvement and the proximity of the relationship between bloggers and users can be explored in depth, and the model can be improved by continuously adding other variables.

Third, the data collection aspect. This study was conducted by selecting Xiaohongshu as the research object, which is relatively homogeneous and may lead to differences in the role of the findings obtained on other platforms. In future studies, data from multiple platforms can be collected for comparative studies to enrich the subject group as much as possible and enhance the representativeness of the data and the generalizability of the research findings.

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Appendix 1

Experimental questionnaire

Variables	Question No.	Questionnaire	Reference
Psychological distance	PD1	I feel close to the blogger's heart	(Zeithaml, 1988) (Hautz, Füller et al., 2014)
	PD2	I feel close to the content and the blogger	
	PD3	I feel that the recommendations are easy to adopt or the blogger is approachable	
Perceived value	PV1	I can feel the quality of the product from the content of the blogger's recommendations	(Sharma & Klein, 2020)
	PV2	Having the same product recommended by the blogger is of value to me	
	PV3	I can get a good idea of the product's features from the blogger's recommendations	
	PV4	I can get a sense of the product's functionality from the blogger's recommendations	
Product familiarity	PF1	I often see other forms of advertising about the product	(Kaur, Lal et al., 2017)
	PF2	I often see displays or testimonials about the product	
	PF3	I can often hear others around me talking about or telling me about the product	
	PF4	I know the product well and have regular access to it from my surroundings	
Purchase intentions	PI1	I will consider buying the products presented by the blogger	(Hwang & Zhang, 2018)
	PI2	I am interested in purchasing the products presented by the blogger	
	PI3	I am interested in purchasing the products presented by the blogger	
	PI4	I have a high probability of purchasing the products presented by the blogger in the future	