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The e-WOM intention of artificial intelligence (AI) color cosmetics among Chinese social media influencers

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Abstract

Purpose – The recent advancements in smartphone technology and social media platforms have increased the popularity of artificial intelligence (AI) color cosmetics. Meanwhile, China is a lucrative market for various foreign beauty products and technological innovations. This research aims to investigate the adoption of AI color cosmetics applications and their electronic word-of-mouth (e-WOM) intention among Chinese social media influencers. Several key concepts have been proposed in this research, namely body esteem, price sensitivity, social media addiction and actual purchase.

Design/methodology/approach – An online questionnaire design was used in this research. A combination of purposive sampling and snowball sampling of AI color cosmetics users who are also social media influencers in China yields 221 respondents. To analyze the data, this research employs Structural Equation Modelling (SEM) method via SPSS and AMOS software. A 2-step approach, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), is implemented to prove the hypotheses and generate the results.

Findings – 1) Social media addiction is a positive predictor of AI color cosmetics usage, (2) AI color cosmetics usage is a positive predictor of actual purchase, (3) actual purchase is a positive predictor of e-WOM intention and lastly, (4) there is a full mediation effect of actual purchase.

Originality/value – This research draws on the uses and gratification (U&G) theory to investigate how specific user characteristics affect Chinese social media influencers' adoption of AI color cosmetics, as well as how this may affect their decision to purchase branded color cosmetics and their e-WOM.

Keywords Artificial intelligence, Cosmetics, e-WOM intention, Social media influencers, Social media addiction, China

Paper type Research paper

1. Introduction

The adoption of artificial intelligence (AI) among cosmetics retailers is a recent innovation. The temporary closure of stores during the COVID-19 pandemic has prompted retailers to

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investigate various digital platforms and, more recently, advanced technologies such as artificial intelligence (AI), augmented reality (AR) and virtual reality (VR) to replace in-store shopping and enhance the shopping experiences (Xu *et al.*, 2019; Abed, 2021; Hsu *et al.*, 2021; Nanda *et al.*, 2021). Previous studies have discussed the adoption of facial enhancement technology, such as AI color cosmetics applications, to enhance online self-presentation (Fastoso *et al.*, 2021; Hsu *et al.*, 2021; Javornik *et al.*, 2021). Specifically, existing research on the use of AI color cosmetics applications focuses on the user's feelings during actual application use, highlighting the importance of emotions (Wang *et al.*, 2022), positive experiences (Butt *et al.*, 2021) and cognitive responses (Whang *et al.*, 2021) evoked by those applications. However, in this research, we focus on individual user characteristics that influence the adoption of AI color cosmetics applications. It is important to understand how a user's individual characteristics, rather than their experience with the application, influence their intent to use it. This allows one to forecast which user segments will be interested in such products. Furthermore, application designers can provide a tailored end-user product based on individual characteristics and online activity.

User characteristics have been overlooked in previous research on AR beauty applications although Venkatesh (2022; p. 13) suggested that they "*are critical in most technology adoption and use contexts*". We draw on uses and gratifications theory (U&G; Ibáñez-Sánchez *et al.*, 2022) to understand the influence of Chinese user characteristics on application usage, product purchase and electronic word-of-mouth (e-WOM). The main research question is therefore: to what extent do users' individual characteristics determine the use of AI color cosmetics application? The purpose of the research directly corresponds to the research question: to identify the influence of individual characteristics of Chinese social media influencers in the adoption of AI color cosmetics applications and their e-WOM intention. To achieve the goal of the research, we created the Structural Equation Modelling (SEM) model, which was preceded by a two-step approach: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

Based on a critical literature review, several key user characteristics were selected that correspond with U&G theory that has been studied in the domain of attitudes toward AI/AR but has not been tested in the context of AI color cosmetics, namely body esteem, price sensitivity, social media addiction and actual purchase. According to Fastoso *et al.* (2021), low self-esteem is the primary reason for users' selfie-editing behavior. As a selfie-taking and selfie-editing platform, AI color cosmetics applications can provide virtual makeup services, manually edit users' facial features and beautify users' selfies without using physical makeup. Body esteem is one of the most important domains of self-esteem for people who are self-conscious about their physical appearance (Cristiana, 2016). Improving one's appearance is a source of gratification for the user and allows one to satisfy the utilitarian needs (Gan and Li, 2018) associated with self-presentation. According to U&G theory, the desire to create one's desired image can be a motivation factor for using AI color cosmetics (Javornik *et al.*, 2022).

Previous studies have also linked the price sensitivity of users in the digital environment, including virtual or augmented reality (Grewal *et al.*, 2017, 2020; Meißner *et al.*, 2020). According to Tan *et al.* (2022), product uncertainty can reduce consumer purchase intention due to an undervaluation of the product's benefits. AI color cosmetics applications can help customers determine whether products meet their needs and preferences, reducing uncertainty, boosting their purchase decision confidence (Romano *et al.*, 2022), making them feel more comfortable purchasing products and making them less price sensitive. From the U&G perspective, users can more effectively satisfy their appeal needs because many AI color cosmetics applications are free. Thus, users can utilize the money to derive entertaining gratifications (Hamari *et al.*, 2019).

U&G and social media usage research are especially interested in how to improve one's appearance to receive positive feedback from other users. The adoption of AI color

cosmetics functions (e.g. filters and virtual makeup) has been linked to TikTok, Instagram and Facebook usage (Barker, 2020). Because social media influencers expect to be admired (Casale and Fioravanti, 2018), the need to improve their appearance is critical. As a result, we assume that the willingness to use AI color cosmetics is influenced by the frequency and even addiction to social media. Influencers who profit directly from their social media activity may be a subset of AI color cosmetics users. In recent years, China has witnessed the rise of cosmetics social media influencers who also use AI color cosmetics to enhance their facial features. Social media influencer marketing has become a significant strategy in businesses to influence consumer purchasing behavior (Haenlein *et al.*, 2020). Li Jiaqi, a well-known cosmetics social media influencer, is an example of cosmetics e-WOM intention among Chinese social media influencers, with cosmetics presales reaching RMB 4.327 billion (approximately USD 667 million) in 2020 (Li and Wei, 2020). Moreover, due to advancement in e-commerce, shopping for cosmetics via online platforms have become more enjoyable and safer, hence the most preferred way (Nguyen, 2020).

Despite the great interest of researchers in the issue of acceptance of new technologies, there is a lack of research on the individual factors determining the willingness to use AI color cosmetics. In this research, we use U&G theory to determine how body esteem, price sensitivity and social media addiction affect the use of AI color cosmetics. This research makes several important contributions to both theory and practice. First, we show that social media addiction is a predictor of AI color cosmetics. By that, we provide the first empirical evidence in the context of Chinese social media influencers that social media addiction is a user individual feature that influences the utilization of AI-based technologies. Second, we demonstrate that frequent usage of AI color cosmetics applications leads to actual purchase of branded color cosmetics. This is important as producers of such applications can turn users into actual buyers. Third, we support previous findings that show a positive relationship between actual purchase and e-WOM in the context of social media (Park *et al.*, 2021). In our research, however, actual purchase mediates the effect of AI color cosmetics applications usage on e-WOM intention.

2. Critical review

2.1 Current progress in facial enhancement technology (FET) research

Facial Enhancement Technology (FET) was used as an umbrella term in this research to refer to artificial intelligence (AI), augmented reality (AR) and virtual reality (VR) technologies capable of altering users' facial features in a virtual environment. FET research in the marketing context is still in its infancy, but commercial interest in the technology is growing. FET research may address face filters, virtual makeup (e.g. AI color cosmetics), virtual try-on (e.g. virtual glasses and face-related accessories), facial distortion, age manipulation, gender bender and other face-related features. We focused on AI color cosmetics in this research. A previous study by Javornik *et al.* (2021) shed a light on the role of appearance self-esteem in influencing the ideal-actual attractiveness gap toward AR mirrors, a form of FET; however, body esteem, as one of the most important domains of self-esteem (Mendelson *et al.*, 2002), was ignored in their study. Our research contributed to the discussion by examining the relationship between body esteem and AI color cosmetics usage. Baek *et al.* (2018) investigated the role of virtual mirror or try-on, another form of FET, on consumers' purchase intentions. To the best of our knowledge, actual purchases, as one of the most important marketing consequences, had not been investigated in the limited FET literature. Our research contributed to the discussion by investigating the role of AI color cosmetics applications on users' actual purchases of branded color cosmetics. A recent study by Javornik *et al.* (2022) uncovered the impact of AR face filters on an individual's well-being on social media platforms; however, users' social media addiction, which we believe is a relevant

concept, was not investigated. Our research contributed to the discussion by investigating the relationship between social media addiction and AI color cosmetics usage. Furthermore, we believed that earlier studies in FET were still too broad, making it difficult to draw practical managerial insights. For instance, Cowan *et al.* (2021) investigated the role of AR face filters on the behavioral intentions and e-WOM of social media users. The authors made no distinction between social media influencers and followers, despite the fact that the former had a commercial interest (Lou, 2022) and thus might respond differently than the latter. Our research contributed to the discussion by focusing on social media influencers. Finally, our research identified the role of individual social media influencer characteristics in the adoption of AI color cosmetics applications, as well as the implications for actual purchases and e-WOM intentions of branded color cosmetics. Table 1 summarizes relevant literature on FET in the marketing context.

2.2 Determinants of the AI color cosmetics usage: uses and gratifications theory

Artificial Intelligence (AI) is "*the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making and translation between languages*" (Sanghani and Doukky, 2018, p. 1361). AI can also be defined as a system that can accurately understand external data, learn from obtained data and apply certain learnings to meet specific targets in various areas (Rashidin *et al.*, 2021). AI color cosmetics applications in retail take the form of augmented reality (AR) applications and Magic Mirrors (Faust *et al.*, 2012). AR is a smart technology that allows users to superimpose virtual items such as computer-generated images, messages and sounds on their real-world surroundings (Ahmed *et al.*, 2022). Users may use the AR beauty applications to try out different products and colors, read product reviews, learn about their loyalty points, make payments and contact customer services (Smink *et al.*, 2019). One of the applications of AR technology is a magic mirror that reflects the image of the user's body in a 3D environment (Kurul *et al.*, 2020).

The uses and gratifications theory (U&G) was developed to better understand people's motivations for using various forms of new media (e.g. watching television but also using mobile applications) or virtual reality (VR) (Ruggiero, 2000; Lee and Cho, 2020). With the development of the Internet and social media, this theory allows for identifying factors influencing online consumer behavior (Saridakis *et al.*, 2016), with a particular interest in social media (Whiting and Williams, 2013). Most recently, U&G theory contributed to capturing the intention to use artificial intelligence (Lee and Cho, 2020) and augmented reality (Rauschnabel *et al.*, 2018) among individual users.

Given this theory's focus on gratification, satisfaction (Ibáñez-Sánchez *et al.*, 2022) and enjoyment (Sharma and Crossler, 2014), satisfaction and gratification (S&G) provide an elegant framework for exploring factors that determine intentions to use AI-based solutions in the social media context. The main premise of the theory is the belief that users voluntarily choose the media they want to use because of what needs they want to satisfy (Ruggiero, 2000). Thus, users are not passive recipients of these media, but rather choose them according to their preferences. This assumption is especially important when we consider that social media influencers are motivated to use AI or AR tools to fulfil their unsatisfied needs and obtain related gratifications (Rauschnabel *et al.*, 2018).

Following previous research emphasizing the importance of gratification in social media use (Gao and Feng, 2016) and hedonic value (Ashraf *et al.*, 2019), social media addiction, body esteem, price sensitivity, actual purchase of AI color cosmetics and e-WOM intention are relevant concepts to investigate. Social media addiction has been chosen as addicted users crave positive social media feedback (Fabris *et al.*, 2020) and they may willingly use AI color cosmetics to receive stronger gratification in the virtual world. Body esteem was chosen

Table 1. Extant literature on facial enhancement technology (FET) in the marketing context

Author(s)	Key concepts	Methodology	Selected key findings	Contributions
Baek*et al.*(2018)	Augmented Reality (AR) viewing Narcissism Self-Brand Connections (SBCs) Purchase intention	Experimental design Study 1 one-factor between-subjects design (N = 174, US) Study 2 a 2 × 2 between-subjects design (N = 209, US)	(1) Consumers are more likely to have stronger self-brand connections and purchase intentions when viewing themselves trying products through virtual mirrors (2) Narcissism moderates the relationship between the self-viewing (vs. other viewing) AR effects on SBCs and purchase intentions	(1) Explain how consumers react to different perspectives in the AR environment (2) Provide a better understanding on the AR self-viewing effects by explaining when consumers prefer to view themselves trying on a product in a virtual mirror (3) Provide evidence of narcissism's self-referencing effects in the AR environment
Scholz and Duffy (2018)	AR try-on Virtual makeup Consumer-brand relationship	Ethnographic study, mini-interviews, video diaries and in-depth interviews (Phase 1: N = 31 female millennials plus application reviews; Phase 2: N = 16; various ethnicities)	(1) Virtual (or AR) makeup application is a part of users' "personal space" (2) Virtual makeup application facilitates social interactions among users (3) The brand that a virtual makeup application represented is unaffected by the application's inability to live up to user expectations	Explaining the role of virtual makeup application on the consumer-brand relationship
Cowan *et al.* (2021)	Privacy policy disclosure Privacy concerns Face filter Perceived usefulness Flow Behavioral intentions Word-of-Mouth	Study 1 online survey (N = 251, UK) Study 2 experimental design (N = 165, UK)	(1) Privacy concerns with AR face filters decrease users' behavioral intentions and word-of-mouth (2) Users report decreases use intentions and word-of-mouth when providing a concrete privacy policy	(1) Distinguish between augmented reality face filters and other types of augmented reality in social media contexts (2) Extend the theory of the privacy paradox and the construal level by explaining when and why privacy concerns affect consumer responses

(*continued*)

Table 1.

Author(s)	Key concepts	Methodology	Selected key findings	Contributions
Javornik *et al.* (2021)	Appearance self-esteem AR mirror Ideal self-congruence Ideal-actual attractiveness gap Variety seeking	Lab-based experiment with AR mirror vs regular mirror Study 1 (N = 111, UK) Study 2 (N = 76, Norway) Study 3 (N = 123, UK) Study 4 (N = 239, UK)	(1) High (vs. low) self-esteem increases the ideal-actual gap (2) Variety-seeking increases low self-esteem in the AR mirror, especially when more options are provided	(1) Contribute to the self-concept literature by investigating it in the context of immersive technologies (2) Contribute to the body of knowledge on how self-esteem moderates the effects of AR-try-on on the self
Ibáñez-Sánchez *et al.* (2022)	Uses and gratification (perceived entertainment, perceived convenience, perceived interactivity) Playability (satisfaction and e-WOM recommendation)	Online questionnaire Smart PLS Study 1 (N = 765, Europe) Study 2 (N = 251, Europe) Two online focus groups (N = 15, Europe)	Users' satisfaction with AR filters and electronic word-of-mouth (e-WOM) recommendations are primarily driven by perceived entertainment	(1) This research emphasizes the importance of playability (i.e. satisfaction and e-WOM recommendation) in evaluating the effectiveness of social network-based AR filters (2) Confirm that the theory of uses and gratifications (U&G) is a good fit for understanding user experiences with social network-based AR filters
Wang *et al.* (2022)	Consumers perception of mobile AR service (interactivity, vividness, augmentation, aesthetics) Organism (spatial presence, flow experience, decision comfort) Response (purchase intention) Individualism	Online survey (N = 202, South Korea)	(1) In the field of fashion and beauty makeup, consumers place more value on interactivity, vividness, reality and aesthetics than on the ability to control or modify virtual content (2) Mobile AR services improve online consumers' purchase intentions by adding enjoyment and playfulness to the simulated shopping experiences	(1) Extend the literature on the application of technologies such as virtual reality (VR) and artificial intelligence (AI) (2) Investigate the Stimuli Organism Response (SOR) model in the advancement of beauty product technologies

(*continued*)

Table 1.

Author(s)	Key concepts	Methodology	Selected key findings	Contributions
Javornik *et al.* (2022)	Motivation to use AR face filters Well-being AR face filters' use	Sequential mixed method approach (interviews $N = 10$, UK and online survey $N = 536$, UK)	(1) Identify nine motivations that may drive AR face filters usage on Instagram (2) When there is an underlying motivation, the use of filters can have both positive and negative well-being effects	(1) Discover seven different types of gratification that motivate the use of AR face filters (2) Contribute to the body of knowledge by evaluating self-presentation motivation as a single dimension related to self-enhancement in uses and gratifications (U&G) theory (3) Contribute to the existing body of knowledge on social media and well-being
This research	Body esteem Price sensitivity Social media addiction AI color cosmetics usage Actual purchase E-WOM intention	Online questionnaire, quantitative, SEM ($N = 221$, social media influencers from China)	(1) Social media addiction is a positive predictor of AI color cosmetics usage (2) AI color cosmetics usage is a positive predictor of actual purchase (3) Actual purchase is a positive predictor of e-WOM intention (4) Actual purchase fully mediates the relationship between AI color cosmetics usage and e-WOM intention	(1) Draw on the uses and gratification (U&G) theory to explain the predictors (e.g. social media addiction) of AI color cosmetics usage (2) Provide empirical evidence on the role of AI color cosmetics applications on actual purchase and e-WOM intention of branded color cosmetics among influencers (3) Contribute to a better understanding of Chinese social media influencers and their interactions with AI color cosmetics applications

because previous studies have shown individuals with low self-esteem willingly use augmented reality (Javornik *et al.*, 2021) and, in general, are more positive toward AR technology (Yim and Park, 2019). Consequently, people with lower body esteem may want to use appearance-enhancement applications to achieve higher gratification. Eventually, although available research suggests that the use of AR solutions is hedonistic in nature (Scholz and Duffy, 2018), in this research we consider the influence of a utilitarian factor (i.e. price sensitivity). The first reason is that in the AR domain, utilitarian value influences perceived hedonic value (Yang, 2021) and that in the case of appearance-enhancing products, buyers are sensitive to ensuring that money spent leads to desired outcomes (Bloemer *et al.*, 2003).

2.3 Hypotheses development

2.3.1 Body esteem. Body esteem is the "*self-evaluations of one's body or appearance*" (Mendelson *et al.*, 2001, p. 90). Gattario *et al.* (2020) found a gender distinction in the notion of body esteem. For instance, the authors discovered that a female's body esteem was linked to sexual attractiveness (e.g. breast, body scent), body weight and other physical conditions (e.g. stamina and agility). Meanwhile, a male's body esteem was linked to physical attractiveness (e.g. good-looking face), upper body strength and other physical conditions (e.g. stamina and strength). Body esteem is also linked to a person's sense of self-worth (Yim and Park, 2019). Mendelson *et al.* (2002) argued that body esteem was one important domain of self-esteem. While girls with high self-esteem are generally satisfied with the way they look, girls with low self-esteem, on the other hand, are frequently dissatisfied with their physical appearance and even lack confidence in it (Cribb and Haase, 2016). AI color cosmetics could help people with low body esteem, particularly those who are dissatisfied with their physical appearance.

According to U&G theory, enhancing one's appearance with new technologies is associated with the pursuit of both hedonic (Li *et al.*, 2015) and utilitarian (Gan and Li, 2018) values. Hedonic value is associated with the enjoyment and pleasure (Ryan and Deci, 2000) evoked by an improved self-image obtained in AR beauty applications (Mihăilă and Branişte, 2021). Individuals use AR beauty applications to create one desired image and to change how others perceive them, which is a source of utilitarian gratification (Javornik *et al.*, 2022). The available research on self and body esteem supports these assumptions. Individuals with low body esteem are more tempted by direct self-improvement cues, such as wearing branded color cosmetics than those with high body esteem (Robertson *et al.*, 2008). Individuals with low body esteem were also reported to have lower levels of confidence and clarity in the self-domain and a greater desire to achieve body ideals (Story, 2004; Betz *et al.*, 2019). AI color cosmetics can assist such individuals by virtually changing their facial appearance through a range of interactions (Hsu *et al.*, 2021). Virtual enhancements can change a person's appearance, which may have an impact on their esteem (Etcoff *et al.*, 2011). Finally, a previous study by Fastoso *et al.* (2021) demonstrated that low self-esteem increased selfie-editing behavior. We argue that body esteem may be a stronger inducement for utilizing AI color cosmetics, particularly for those with low body esteem. Furthermore, thus, we formulated the first hypothesis as follows:

H1. Body esteem has a negative relationship with AI color cosmetics usage.

2.3.2 Price sensitivity. Price sensitivity is the consumers' reaction due to price levels and price changes (Goldsmith *et al.*, 2005). According to Meißner *et al.* (2020), psychological ownership is one of the important factors that influences consumers' willingness to pay, particularly due to the triggered feelings of loss. The findings indicate that cutting-edge technologies (e.g. AR, VR) can increase consumers' feelings of psychological ownership while decreasing price

sensitivity. Previous studies also indicate that economic background, advertising, special occasions, risk attitude and individual differences can influence consumers' price sensitivity levels (Goldsmith *et al.*, 2010; Baucells *et al.*, 2017; Chen *et al.*, 2021). In this research, price sensitivity refers to consumers' willingness to pay for branded color cosmetics.

From a U&G perspective, price sensitivity is a utilitarian gratification related to monetary savings (Huang and Zhou, 2018). Through new media usage, users can utilize various of their hedonic needs and they will be more satisfied the lower the price (Li *et al.*, 2015). In one of the studies that used U&G, Florenthal *et al.* (2020) demonstrated that satisfying needs related to entertainment translated into a willingness to donate money. Similarly, results obtained by Hamari *et al.* (2019) suggest that AR users utilize the money to derive entertaining gratifications. In the context of AI color cosmetics, users have the opportunity to test these types of products before making a final purchase. In other words, trying the products and seeing how they look on their face is extremely important. Consequently, AR helps users buy products that fit their needs and to save money as most AI color cosmetics applications are offered to the market with a "freemium" business model. Past studies indicate that freemium applications may appeal to price-sensitive market segments (Bhargava, 2014; Kübler *et al.*, 2018). In this research, we argue that AI color cosmetics are adopted because users are inherently price sensitive. It is also possible that AI color cosmetics are seen as a cheaper alternative to branded color cosmetics. Therefore, we formulated the second hypothesis as follows:

H2. Price sensitivity has a positive relationship with AI color cosmetics usage.

2.3.3 Social media addiction. Excessive social media usage may lead to addiction (Steenackers *et al.*, 2016). Social media addiction is defined as a maladaptive condition of social media dependency that includes unpleasant feelings, conflict and mood modification, among other things (Turel *et al.*, 2011). Addictive behavior in the context of social media is primarily concerned with measuring social media usage in an uncontrolled manner, resulting in negative consequences, such as limiting one's ability to socialize with another in a face-to-face setting, disturbing work and priorities and deteriorating physical as well as mental health (Dogan *et al.*, 2019). According to D'Arienzo *et al.* (2019), social media addiction is a form of compensatory mechanism against missing affection in real life and lack of interpersonal relationships.

Sharing photos or videos is one of the most prevalent online activities, resulting in the emergence of AI color cosmetics (beauty) applications (Henriques and Patnaik, 2020). AI color cosmetics applications enable users to enhance the aesthetic of their photos online (Barker, 2020), thereby attracting more likes (or loves) from fellow social media users. Previous studies suggest that social media addicts are preoccupied with the need to receive positive social feedbacks (e.g. like, love and share) for their online postings, which fuels their engagement and addiction to social media (Fabris *et al.*, 2020; Marengo *et al.*, 2020). From the U&G perspective, social media usage is a source of users' hedonic (e.g. enjoyment), social (e.g. social presence and interactions) and utilitarian (e.g. self-presentation) gratification (Li *et al.*, 2015). Thus, the more frequently individuals use social media, the more willing they will be to utilize AI color cosmetics to fulfill their needs. Available research demonstrates that social media users are concerned with their self-presentation and prefer to post a positive image of themselves (Huang and Liu, 2020). Moreover, there is a positive relationship between social media addiction and willingness to idealize oneself (Chen, 2019). For example, social media influencers want to be admired (Casale and Fioravanti, 2018; Javed *et al.*, 2022), which can be facilitated by AI color cosmetics. In this research, we argue that the more addicted consumers are to social media, the more they feel the need to use AI color cosmetics to enhance the photos they post online. Therefore, we formulated the third hypothesis as follows:

H3. Social media addiction has a positive relationship with AI color cosmetics usage.

2.3.4 Actual purchase. Although U&G theory is primarily concerned with the study of willingness to use media, examples of the interplay between purchases and gratifications can be found in the previous studies. For example, Kaur *et al.* (2020) found that entertaining gratifications enhance purchase intention while Menon (2022) showed that U&G relaxation positively influenced video streaming subscription purchase intentions. Most importantly, U&G theory provided evidence that the ability to gain additional information about a product (e.g. by testing it) is an important predictor of its further use and purchase (Hicks *et al.*, 2012; Kim, 2020).

From a marketing perspective, product trial has frequently become an essential marketing strategy, particularly when promoting perceived high risk and high involvement products such as cosmetics (Siu and Wong, 2002). The diffusion of innovation theory explains why, how and the rate at which new and innovative ideas or products spread and are eventually adopted by the majority (Rogers, 1995). One of the strategies to accelerate the adoption of new and innovative products is through product trial because it provides potential customers with a critical product experience before committing to a purchase. In this regard, AI color cosmetics applications serve an important function as a virtual trial of branded color cosmetics, particularly during the COVID-19 pandemic, when real product trial is limited or prohibited and many consumers prioritize safety. Furthermore, AI color cosmetics applications may function as e-commerce platforms that link product trials to product purchases, either through in-app purchases or by connecting the applications to the official stores of branded color cosmetics. In this research, we argue that social media influencers, whose work is virtual, will use AI color cosmetics applications to experiment with various virtual branded color cosmetics before deciding which ones to purchase and endorse. Therefore, the fourth hypothesis is as follows:

H4. AI color cosmetics usage has a positive relationship with actual purchase.

2.3.5 Electronic word-of-mouth intention. Consumers can inform one another about specific products and services by leaving online reviews, a practice known as electronic word-of-mouth or e-WOM (Syahrivar and Ichlas, 2018). Moreover, e-WOM also can be considered as any positive or negative statements made by former consumers about a product via the Internet (Jeong and Koo, 2015; Azer and Ranaweera, 2022). According to Wu *et al.* (2017), electronic word-of-mouth (e-WOM) intention is the willingness of online shoppers to share their positive thoughts or experiences with others. In this research, e-WOM intention refers to users' willingness to recommend and encourage others to buy branded color cosmetics online.

Prior experience related to a product or service is fundamental to positive word-of-mouth (Yoon and Park, 2018; Zhang *et al.*, 2021). In other words, consumers who purchase and use a product regularly (continuous usage) may evaluate and promote it more positively. However, it is still unclear whether AI color cosmetics usage may represent purchase or usage intention. A previous study by Jamal *et al.* (2012) suggests that information cues (e.g. packaging evaluation) are enough to trigger positive WOM. As a result, we contend that AI color cosmetics applications at the very least convey information cues of actual cosmetics, potentially triggering e-WOM intention among users. Therefore, the fifth hypothesis is as follows:

H5. AI color cosmetics usage has a positive relationship with e-WOM intention.

As previously mentioned, the e-WOM intention generally occurs after consumption activities (Yoon, 2012; Yoo *et al.*, 2013; Zhang *et al.*, 2021). Before providing any online feedback, consumers must have first-hand experience with a product or service (San-Martín *et al.*, 2015; Yoon and Park, 2018). It stands to reason that those who purchase cosmetics have more

tendency to communicate their experiences with others. Meanwhile, because AI color cosmetics applications are still in their early stages (Smink *et al.*, 2019; Tan *et al.*, 2022), we contend that the association between AI color cosmetics usage and e-WOM intention is mediated through branded color cosmetics purchase. Therefore, we formulated the sixth hypothesis as follows:

H6a. Actual purchase has a positive relationship with e-WOM intention.

H6b. Actual purchase mediates the relationship between AI color cosmetics usage and e-WOM intention.

Based on the above mentioned hypotheses, we propose the following theoretical framework (see Figure 1):

3. Research methodology

3.1 Measurements

We used several measurement scales in this research: The 5-item body esteem scale was adapted from Mendelson *et al.* (2001), the 3-item price sensitivity scale was adopted from Lichtenstein *et al.* (1988), the 4-item social media addiction scale was adopted from Naranjo-Zolotov *et al.* (2021), the AI color cosmetics usage scale was adapted from Mafra *et al.* (2020), the 3-item actual purchase scale was adapted from Millan and Reynolds (2014) and the 5-item electronic word-of-mouth (e-WOM) intention was adapted from Goyette *et al.* (2010). To evaluate the constructs, an English online questionnaire was developed. The construct was measured using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). Because our target respondents were Chinese social media influencers, each item on the questionnaire was accompanied by its Standard Chinese (Mandarin) translation to obtain more accurate responses (Brislin, 1970). Before finalizing our questionnaire, we conducted a pre-research with 30 respondents to assess the reliability of our measurement scales. The reliability of each measurement scale proposed in this research can be found in Table 4.

3.2 Sampling and data collection

Once we ascertained the reliability of our measurement scales, we spread an online questionnaire via social media platforms, such as WeChat and TikTok. The data was collected

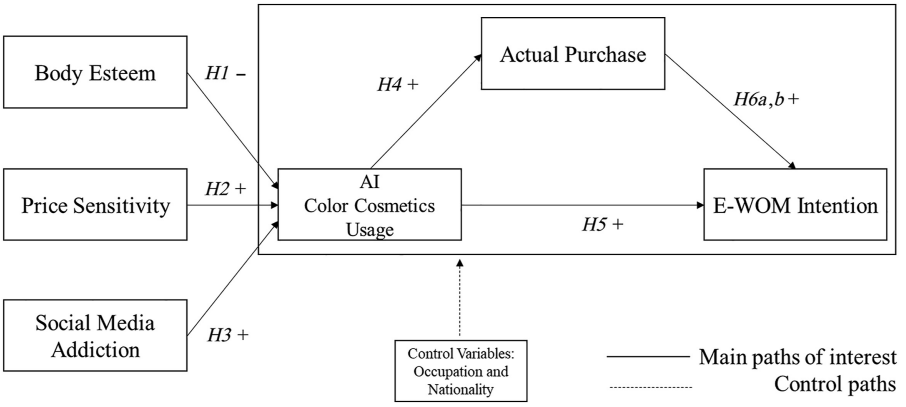

Figure 1.
Theoretical framework

between July and August 2021, during the COVID-19 pandemic, which is still ongoing in China. The questionnaire was primarily spread in Shanghai, China. "Shanghai" is one of China's largest cities and it is home to nearly all types of social media influencers. As a result, we argue that Shanghai is representative of the behavior of Chinese influencers. To gather relevant respondents, this research employed a combination of purposive and snowball sampling. According to Hair *et al.* (2014), 5 to 10 times the number of items on the scale are appropriate for an unknown population. In total, our questionnaire contained 25 items. As a result, 125 to 250 respondents are required for our research. In addition to this rule of thumb, we used the G*Power statistical test to determine the minimum sample size (Kang, 2021). Assuming medium effect size f^2 of 0.15, α (Alpha) error probability of 0.05, power (1–β (Beta) error probability) of 0.8 and 5 predictors, the minimum sample size would be 92 respondents. In the end, we managed to obtain 221 valid respondents. A post hoc test with 221 samples yields a power value of 0.998. We chose nano influencers with 1,000–10,000 followers as our respondents for the type of social media influencers. To be eligible, all of our respondents had to meet several criteria: first, they had to state that they were users of AI color cosmetics applications; second, they also had to state that they were social media influencers. To find the right respondents, we started by looking for people in our networks who were social media influencers and fit our criteria and then we used snowball sampling to gather the remaining respondents.

3.3 Respondent profile

As indicated in Table 2, the majority of respondents (67.4%) were female influencers between the ages of 17 and 30 who had earned a bachelor's degree.

3.4 Ethical clearance

Before completing the questionnaire, the invited respondents were informed that their participation in this research would be anonymous or confidential, meaning they would not be required to provide their names or email addresses. Furthermore, their participation was entirely voluntary; no money or gifts were given in exchange for completing the questionnaire.

3.5 Data analysis

To analyze the data and develop the Structural Equation Modelling (SEM) model, we conducted a two-step process: Exploratory Factor Analysis (EFA) and then Confirmatory

		N (221)	Percent (%)
Gender	Male	72	32.6
	Female	149	67.4
Age	<17	9	4.02
	17–30	195	88.3
	31–45	13	5.88
	>45	4	1.8
Education level	No college degree	33	14.9
	Bachelor's degree	129	58.4
	Master's degree	49	22.2
	PhD degree	10	4.5
Total		221	100

Table 2. Respondent profile

Note(s): *N* = Number of respondents

Factor Analysis (CFA). We used the previous works by Hu and Bentler (1999), Schreiber *et al.* (2006), Gefen *et al.* (2011) and Henseler *et al.* (2016) as our primary guidelines, especially to determine the fitness of our SEM model. Several indicators of model fitness reported in this research are Root Mean Squared Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), Normed Fit Index (NFI) and Tucker Lewis Index (TLI) and Comparative Fit Index (CFI).

3.6 Non-response bias

When late responders in a sample differ significantly from early responders, errors in estimating population characteristics occur. For this reason, we used extrapolation methods to conduct a non-response bias test by comparing the first (early) and last (late) quarterly responses (Armstrong and Overton, 1977). Table 3 shows that the mean scores of the two groups were not significantly different ($p > 0.05$). Therefore, it can be concluded that non-response bias is not a problem in this research.

3.7 Common method variance

Podsakoff *et al.* (2003) proposed Harman's one-factor analysis to determine whether the bias generated through Common Method Variance (CMV), also known as Common Method Bias (CMB), occurred. Based on the analysis, the proposed constructs do not converge into a single factor and the highest variance explained by one factor is only 27.41%, indicating that CMV is unlikely to contaminate our data, or at the very least, is not a critical issue in this research.

4. Results

4.1 Reliability and validity test

To assess the reliability and validity of our construct, we conducted a two-step approach: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) in SEM analysis (Farooq, 2016). EFA can be used to identify problematic items earlier and eliminate those with low factor loadings (Yang and Xia, 2015). To improve our scales, we removed items with low factor loadings, such as BES1, BES2, BES5, PRS1 and ACU1. According to Henseler *et al.* (2016), if the Average Variance Extracted (AVE) is higher than 0.5, the Composite Reliability (C.R.) and the Cronbach Alpha are higher than 0.7 and each factor loading is higher than 0.6, the applied constructs are considered reliable and valid. As shown in Table 4, our scales met the aforementioned criteria. We also conducted discriminant validity test or the degree to which the proposed constructs differ from each other (Anderson and Gerbing, 1988); we applied the Fornell-Larcker criterion, which states that each construct's square root of

	Early responders ($N = 55$)		Late responders ($N = 55$)			
Variables	Mean	SD	Mean	SD	t	p
BES	3.113	0.6936	3.036	0.6897	0.579	0.564
PRS	2.830	0.8262	2.727	0.6912	0.709	0.480
SMA	2.8091	0.8525	2.550	0.8679	1.579	0.117
ACU	2.178	0.9449	2.389	1.0431	−1.111	0.269
ACP	2.970	0.7294	3.206	0.7384	−1.689	0.094
EWM	3.204	0.9510	3.273	0.8653	−0.399	0.691

Note(s): Body Esteem = BES, Price Sensitivity = PRS, Social Media Addiction = SMA, AI Color Cosmetics Usage = ACU, Actual Purchase = ACP, Electronic Word-of-Mouth Intention = EWMI, SD = Standard Deviation, N= Number of Respondents, t = Computed Test Statistic, p = Significance Level

Table 3. Non-response bias test (Independent t-test)

Table 4.
Construct and discriminant validity

Items	Factor loading	Variables	Mean	SD	Fornell-Larcker criterion 1	2	3	4	5	6	α	C.R.	AVE
I wish I looked better. (BES3)	0.834	BES	3.075	0.69	0.821						0.878	0.805	0.674
I worry about the way I look. (BES4)	0.808												
I buy the lowest priced branded color cosmetics that will suit my needs. (PRS2)	0.788	PRS	2.779	0.76	0.266**	0.813					0.836	0.796	0.661
When it comes to choosing branded color cosmetics for me, I rely heavily on price. (PRS3)	0.837												
My social life has suffered because of my interaction on social media. (SMA1)	0.73	SMA	2.68	0.866	0.632**	0.157	0.748				0.843	0.835	0.559
Using social media interfered with other activities. (SMA2)	0.707												
When I did not use social media, I often felt agitated. (SMA3)	0.798												
I have made unsuccessful attempts to reduce the time I interact with social media. (SMA4)	0.752												
How often do you use AI mascara? (ACU2)	0.861	ACU	2.284	0.996	0.446**	0.252**	0.549**	0.883			0.973	0.934	0.779
How often do you use AI eyeliner or eye pencil? (ACU3)	0.912												
How often do you use AI shade? (ACU4)	0.904												
How often do you use AI lipstick and/or gloss? (ACU5)	0.851												

(*continued*)

Table 4.

Items	Factor loading	Variables	Mean	SD	Fornell-Larcker criterion 1	2	3	4	5	6	α	C.R.	AVE
How often do you visit cosmetic shops (including e-commerce)? (ACP1)	0.788	ACP	3.088	0.74	0.404**	−0.021	0.335**	0.505**	0.793		0.948	0.835	0.628
How often do you purchase branded color cosmetics online? (ACP2)	0.839												
How much do you spend your money on branded color cosmetics? (ACP3)	0.747												
I recommended this cosmetic brand online. (EWMI1)	0.65	EWMI	3.238	0.906	0.367**	−0.014	0.212*	0.242*	0.532**	0.778	0.958	0.883	0.605
I speak of this cosmetic brand's good sides online. (EWMI2)	0.740												
I am proud to say to other social media users that I am this cosmetic brand's customer. (EWMI3)	0.749												
I strongly recommend people buy cosmetics online from this brand. (EWMI4)	0.871												
I have spoken favorably of this cosmetic's brand to other social media users. (EWMI5)	0.856												

Note(s): 1 = Body Esteem (BES), 2 = Price Sensitivity (PRS), 3 = Social Media Addiction (SMA), 4 = AI Color Cosmetics Usage (ACU), 5 = Actual Purchase (ACP), 6 = Electronic Word-of-Mouth Intention (EWMI), SD = Standard Deviation, * = Sig. < 0.05, ** = Sig. < 0.01, α = Cronbach's Alpha, C.R. = Composite Reliability, AVE = Average Variance Extracted

average variance extracted (AVE) should be greater than its correlations with other constructs in the research (Fornell and Larcker, 1981). Table 4 demonstrates that the discriminant validity of the proposed constructs can be established.

4.2 Factor analysis

To assess the sampling adequacy, we conducted KMO and Bartlett's Tests. As can be seen from Table 5, the value is 0.845 (Sig. < 0.05) which means that the sample (N = 221) is adequate for further processing.

The appropriate number of factors is determined by the eigenvalue, which must be greater than 1 and have a cumulative percentage of at least 60% (Hair *et al.*, 2014). Based on Table 6, the number of factors proposed in this research meets the two requirements.

4.3 SEM model

We then conducted a Confirmatory Factor Analysis (CFA) via SPSS and AMOS software. Based on Figure 2, the three exogenous variables are Body Esteem (BES), Price Sensitivity (PRS) and Social Media Addiction (SMA); the two endogenous variables are AI Color

Table 5. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.845
Bartlett's test of sphericity	Approx. Chi-square	2409.375
	df	190
	Sig	0.000

Note(s): *df* = Degree of Freedom, Sig. = Significance level

Table 6. Total variance explained

	Initial eigenvalues			Rotation sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	6.008	30.039	30.039	3.460	17.299	17.299
2	3.113	15.564	45.603	3.342	16.712	34.011
3	1.939	9.696	55.299	2.498	12.492	46.504
4	1.540	7.701	63.000	2.427	12.136	58.640
5	1.190	5.952	68.952	1.492	7.462	66.102
6	0.905	4.525	73.477	1.475	7.375	73.477

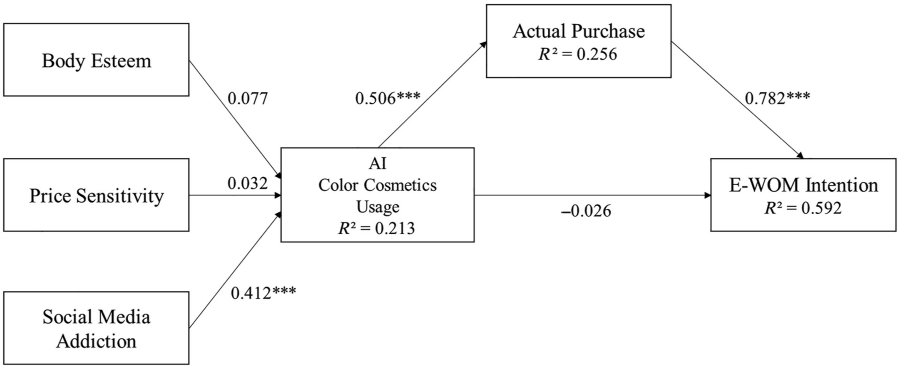

Figure 2. Final SEM model

Cosmetics Usage (ACU) and Electronic Word-of-Mouth Intention (EWMI); finally, one mediating variable that is Actual Purchase (ACP).

The Squared Multiple Correlations (R^2) value of the model suggests that 21.3% of the variance of ACU can be explained by SMA. As many as 25.6% of the variance of ACP can be explained by ACU. Moreover, as many as 59.2% of the variance of EWMI can be explained by ACP.

4.4 Hypotheses testing

Table 7 presents the regressions analysis between the exogenous and endogenous variables incorporated in this research. The results confirm H3, H4 and H5 ($p < 0.001$).

To test H6b, we performed the Sobel test. As shown in Table 8, Actual Purchase (ACP) is proven to fully mediate the relationship between AI Color Cosmetics Usage (ACU) and Electronic Word-of-Mouth Intention (EWMI).

4.5 Model fitness

We assessed the fitness of the above SEM model through several indicators (fit indices) proposed by several authors, such as Hu and Bentler (1999) and Gefen *et al.* (2011). The results are presented in Table 9. In general, our model fitness is considered good and acceptable.

	Estimate	S.E.	C.R.	*P*
ACU ← BES	0.121	0.127	0.951	0.342
ACU ← PRS	0.040	0.111	0.363	0.716
ACU ← SMA	0.567	0.135	4.203	***
ACP ← ACU	0.501	0.066	7.573	***
EWMI ← ACU	−0.028	0.063	−0.443	0.658
EWMI ← ACP	0.854	0.082	10.464	***

Note(s): ACU = AI Color Cosmetics Usage; BES = Body Esteem; PRS = Price Sensitivity; SMA = Social Media Addiction; ACP = Actual Purchase; EWMI = Electronic Word-of-Mouth Intention; S.E. = Standard Error; C.R. = Critical Ratio; *P* = Significance Level; *** = $p < 0.001$

Table 7. Regression weights

	Test statistics	S.E.	*P*
EWMI ← ACP ← ACU	5.975	0.066	***

Note(s): ACU = AI Color Cosmetics Usage; ACP = Actual Purchase; EWMI = Electronic Word-of-Mouth Intention; S.E. = Standard Error; *P* = Significance Level; *** = $p < 0.001$

Table 8. Sobel test (mediation test)

Fit index	Recommended thresholds	Results	Notes
RMSEA	<0.08	0.07	Acceptable Fit
GFI	>0.90	0.84	Good Fit
NFI	>0.90	0.89	Good Fit
TLI	>0.90	0.92	Satisfactory Fit
CFI	>0.90	0.93	Satisfactory Fit

Note(s): RMSEA = Root Mean Squared Error of Approximation; GFI = Goodness of Fit Index; NFI = Normed Fit Index; TLI = Tucker Lewis Index; CFI = Comparative Fit Index

Table 9. Fit indices

4.6 Evaluation of the structural model

The structural model is evaluated using the Variance Inflation Factor (VIF) and effect size. The VIF values less than 5 indicating that there is no multicollinearity problem (Hair *et al.*, 2014). Whereas the values of Cohen's f^2 (effect size) is obtained with the following formula: $f^2 = [R^2 \text{ (included)} - R^2 \text{ (excluded)}]/[1-R^2 \text{ (included)}]$ (Cohen, 1988). The results are shown in Table 10.

In addition to R-square (R^2) values, we also wish to report the predictive relevance (Q-square/Q^2) of our structural model with the Stone Geiser Q-Square test formula:

$$Q^2 = 1 - \left(1 - R_1^2\right)\left(1 - R_2^2\right)\left(1 - R_3^2\right)$$
$$Q^2 = 1 - \left(1 - 0.213^2\right)\left(1 - 0.256^2\right)\left(1 - 0.592^2\right)$$
$$= 1 - (0.955)(0.935)(0.650)$$
$$= 1 - 0.580$$
$$= 0.42$$

The calculation result shows that the predictive-relevance (Q^2) value is 0.42 or 42%, which is greater than zero, indicating that the research model has predictive relevance. This result implies that 42% of the variance can be explained by the variables in the research model, while the remaining 58% can be explained by variables outside the research model.

5. Discussion

Our research focuses on the effects of AI color cosmetics usage on actual purchases. To explore the effects, our research examines six hypotheses: the relationship between body esteem and AI color cosmetics usage (H1), the relationship between price sensitivity and AI color cosmetics usage (H2), the relationship between social media addiction and AI color cosmetics usage (H3), the relationship between AI color cosmetics usage and actual purchase (H4), the relationship between AI color cosmetics usage and e-WOM intention (H5), the relationship between actual purchase and e-WOM intention (H6a) and the mediation effect of actual purchase in the relationship between AI color cosmetics usage and e-WOM intention (H6b). To better show our findings, we present the summary of our research in Table 11.

Our research is unable to prove that body esteem is a significant predictor of AI color cosmetics usage (H1; $p > 0.05$). A previous study by Tran *et al.* (2020) among YouTube influencers suggests that there are inconsistent findings between body esteem and color cosmetics usage. Various factors, such as internal (e.g. sense of creativity) and external (e.g. peer-pressure) motivations, may shape influencers' self-esteem. We argue that in the context of influencers, (low) body esteem is not a strong enough inducer of AI color cosmetics usage due to its 'trial' nature (Bonetti *et al.*, 2018; Smink *et al.*, 2019). Moreover, compared to

Table 10. Multicollinearity test and effect size

Variables	Collinearity statistics		f^2	Notes
	Tolerance	VIF		
BES	0.905	1.105	−0.001	Not Significant, Weak
PRS	0.897	1.114	−0.000	Not Significant, Weak
SMA	0.817	1.225	0.023	Significant, Weak
ACU	0.772	1.296	0.006	Significant, Weak
ACP	0.772	1.296	0.504	Significant, Strong

Note(s): ACU = AI Color Cosmetics Usage; BES = Body Esteem; PRS = Price Sensitivity; SMA = Social Media Addiction; ACP = Actual Purchase; VIF = Variance Inflation Factor; f^2 = effect size

actual color cosmetics, faking their beauty through AI color cosmetics may harm influencers' overall image in the eyes of their followers.

Our research is unable to prove that price sensitivity has a positive relationship with AI color cosmetics usage (H2; $p > 0.05$). Since our respondents were social media influencers who got paid for promoting products online, this segment may be less price-sensitive hence the insignificant result. The alternative explanation is that being highly immersed in the AI color cosmetics virtual environment might lower users' price sensitivity levels (Meißner *et al.*, 2020). Future research could include a different population of AI color cosmetics applications, such as regular housewives and test the relationship again.

Our research can prove that social media addiction has a positive relationship with AI color cosmetics usage (H3; $p < 0.001$). People who are addicted to social media, especially in the case of influencers, need to look attractive online. The use of AI color cosmetics may improve their profiles and likability online.

Our research can prove that AI color cosmetics usage has a positive relationship with actual purchases (H4; $p < 0.001$). Using augmented reality (AR) and magic mirrors, consumers may digitally "try-out" cosmetics on their faces, which could help create a "try before you buy" experience when shopping online (Scholz and Duffy, 2018; Smink *et al.*, 2019). Our finding gives weight to a previous study by Smink *et al.* (2019) demonstrating that the use of AR in the context of cosmetics improved purchase intention.

Our research is unable to prove that AI color cosmetics usage has a positive and direct relationship with e-WOM intention (H5; $p > 0.05$). This means that the use of AI color cosmetics alone is not sufficient to generate e-WOM intention. We argue that Chinese social media influencers may need to protect their credibility and reputation by testing (and showing) the actual cosmetics before offering their opinions online to their followers. In a way, influencers are paid to promote tangible products, whereas their "virtual" alternatives serve as a trial.

Our research can prove that actual purchase has a positive relationship with e-WOM intention (H6a; $p < 0.001$). Our finding gives a weight of evidence to the previous studies suggesting that WOM occurs as a result of user experiences, such as shopping and product usage (Yoon, 2012; Yoo *et al.*, 2013; San-Martín *et al.*, 2015; Yoon and Park, 2018; Zhang *et al.*, 2021). In other words, the more experience consumers have with a product, the more likely they will express or share their opinions about the product via online platforms. Our research is also able to prove that actual purchase mediates the relationship between AI color cosmetic usage and e-WOM intention (H6b; $p < 0.001$). This means that there is a full mediation of cosmetics actual purchase and that the relationship between AI color cosmetic usage and e-WOM intention is indirect. Future research may retest the relationship by investigating a different segment, such as housewives and office women.

Hypotheses	Results
H1	Not supported
H2	Not supported
H3	Supported***
H4	Supported***
H5	Not supported
H6a	Supported***
H6b	Supported***

Note(s): ***$p < 0.001$

Table 11. Summary of hypotheses

6. Conclusion

This research employs the uses and gratification (U&G) theory to examine how specific user characteristics affect Chinese social media influencers' adoption of AI color cosmetics, as well as how this may influence their decision to buy branded color cosmetics and their e-WOM. The popularity of the aforementioned technology, especially among influencers, has partly increased as a result of recent developments in smartphone and social media platforms. However, companies may only profit from AI color cosmetics applications, which are inherently a form of trial, when they can turn users into actual buyers. Our findings suggest that social media addiction plays a role in AI color cosmetics applications usage. In turn, frequent usage of AI color cosmetics applications leads to the actual purchase of branded color cosmetics. Finally, a combination of AI color cosmetics applications usage and actual purchase leads to positive e-WOM intention.

6.1 Theoretical contributions

There are several theoretical contributions of this research: First, in influencer marketing, the e-WOM intention is necessary to develop and investigate the individual characteristics among social media influencers on online shopping platforms (Dwidienawati *et al.*, 2020). According to Haenlein *et al.* (2020), social media influencer marketing is also a significant business strategy for influencing consumers' online purchasing behavior. Many previous studies on influencer marketing have focused on how to generate e-WOM intention based on influencers' marketing reviews on an e-commerce platform (Dwidienawati *et al.*, 2020; Wandoko and Panggati, 2022). However, little attention has been paid to how new technologies (e.g. AR and AI) are generating e-WOM intention among social media influencers, as well as what factors influence the willingness to use AI color cosmetics. Second, our research draws on the uses and gratification (U&G) theory to examine and explain how social media addiction affects the adoption of AI color cosmetics. Previous research has shown that people utilize social media to satisfy needs associated with self-presentation (Huang and Liu, 2020) and that social media addiction corresponds with increased willingness to idealize self-image (Chen, 2019). Our research confirms that social media addiction has a positive effect on the intention to use AI color cosmetics application. In other words, our research extends the existing literature by demonstrating that social media addiction is a key construct in determining the use of AI color cosmetics, which is commonly found in mobile phones. Third, our research provides empirical evidence on the relationship between AI color cosmetics usage and actual purchase. As a result, our research contributes to the literature on product trial experiences and their impact on consumer purchasing decisions (De Groot *et al.*, 2009; Lu and Chen, 2021). Unlike previous research on AI cosmetics usage showing that user experience influences purchase decisions (Wang *et al.*, 2022), our research demonstrates that application usage itself can influence branded color cosmetics purchase decisions. Fourth, while previous research has highlighted the importance of positive e-WOM on purchase intentions (e.g. Kudeshia and Kumar, 2017), only a few studies in this context have examined the effect of actual purchase on e-WOM intention. In most cases (e.g. Wu *et al.*, 2017; Guping *et al.*, 2021), the e-WOM intention and the intention to purchase were treated as two unconnected outcomes of consumer attitudes. Meanwhile, our research took a different approach and demonstrated that the e-WOM intention could be driven by the actual purchase of branded color cosmetics. Fifth, our research is also significant in that it is the first to provide empirical evidence on the role of actual purchase as a full mediator in the relationship between AI color cosmetics usage and e-WOM intention; As a result, we have a better understanding of the mechanism by which the use of specific brand-related technology can result in brand e-WOM. Finally, our research contributes to a deeper knowledge of Chinese social media influencers and their interactions with AI color cosmetics applications,

a relatively new type of facial enhancement technology. We believe that Chinese beauty influencers are still underrepresented in comparison to their Asian counterparts (e.g. Chen and Dermawan, 2020; Wang and Lee, 2021).

6.2 Managerial implications

The managerial implications of this research are intended for branded color cosmetics manufacturers and retailers, as well as AI color cosmetics developers. First, our research has shown that social media addiction predicts the use of AI color cosmetics applications. AI color cosmetics developers must devise marketing strategies to capture this market segment (e.g. social media users and addicts), such as connecting their applications to popular social media platforms. Social media users can be rewarded for connecting their social media accounts to AI color cosmetics applications and sharing their AI-enhanced photos with other social media users. Second, our research has shown that using AI color cosmetics applications is a positive predictor of purchasing branded color cosmetics. Branded color cosmetics manufacturers and retailers can work with AI color cosmetics developers to capture previously untapped segments. Branded color cosmetics manufacturers can ensure that their products' virtual versions are correctly represented in the applications (e.g. hue, value, chroma). The more cosmetics featured in the applications, the higher their value should be. Developers can then connect their applications to the official online stores of branded color cosmetics that support them. In this regard, both parties' marketing promotional materials should demonstrate an apparent strategic alliance, allowing the AI color cosmetics applications to serve as both a trial and an e-commerce platform. Third, our research has shown that purchasing branded color cosmetics positively predicts e-WOM among social media influencers. Thus, there is a clear link between owning a branded color cosmetic and sharing information about it on social media platforms. The message to branded color cosmetics manufacturers and retailers is clear: they must allow product trials and giveaways to induce online word-of-mouth. Whereas AI color cosmetics developers must instill a sense of ownership in their users. This makes it possible to combine real branded color cosmetics and their virtual counterparts at a discounted price (product bundling). Meanwhile, users who just want to look appealing in a virtual environment can use AI color cosmetics, a less expensive alternative to branded color cosmetics. Finally, a strategic alliance and coordinated marketing efforts between the cosmetic industry and AI color cosmetics developers are expected to improve business performance and market share as the branded color cosmetics market shifts online at a rapid pace, in part due to the COVID-19 pandemic, which is still present in some countries, such as China.

6.3 Limitations

We wish to note some limitations of our research. First, the results of this research are limited to social media influencers based in China. Different segments of cosmetics consumers may behave differently toward AI color cosmetics applications. Second, some of our hypotheses were unproven which could be a result of the specific segment under investigation (i.e. social media influencers). For instance, body esteem and price sensitivity can be a sensitive issue among influencers. Therefore, future research may retest the relationships with different segments, such as housewives and office women. Finally, this research was conducted during the COVID-19 pandemic, which is still ongoing in China. During this period, social media influencers might behave in ways they would not normally. Future research could look into the behavioral intentions of social media influencers toward AI color cosmetics applications in the aftermath of the pandemic.

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Appendix
Measurement scales

Variables	Items
Body Esteem (BES)	(1) I wish I looked like someone else. (BES1)
	(2) There are lots of things I would change about my looks if I could. (BES2)
	(3) I wish I looked better. (BES3) *
	(4) I worry about the way I look. (BES4) *
	(5) My looks upset me. (BES5)
Price Sensitivity (PRS)	(1) I usually buy branded color cosmetics when they are on sale. (PRS1)
	(2) I buy the lowest priced branded color cosmetics that will suit my needs. (PRS2) *
	(3) When it comes to choosing branded color cosmetics for me, I rely heavily on price. (PRS3) *
Social Media Addiction (SMA)	(1) My social life has suffered because of my interaction on social media. (SMA1) *
	(2) Using social media interferes with other activities. (SMA2) *
	(3) When I did not use social media, I often felt agitated. (SMA3) *
	(4) I have made unsuccessful attempts to reduce the time I interact with social media. (SMA4) *
AI Color Cosmetics Usage (ACU)	(1) How often do you use AI facial cosmetics (base, concealer, BB cream and/or powder)? (ACU1)
	(2) How often do you use AI mascara? (ACU2) *
	(3) How often do you use AI eyeliner or eye pencil? (ACU3) *
	(4) How often do you use AI shade? (ACU4) *
	(5) How often do you use AI lipstick and/or gloss? (ACU5) *
Actual Purchase (ACP)	(1) How often do you visit cosmetic shops (including e-commerce)? (ACP1) *
	(2) How often do you purchase branded color cosmetics online? (ACP2) *
	(3) How much do you spend your money on branded color cosmetics? (ACP3) *
Electronic Word-of-Mouth Intention (EWMI)	(1) I recommended this cosmetic brand online. (EWMI1) *
	(2) I speak of this cosmetic brand's good sides online. (EWMI2) *
	(3) I am proud to say to other social media users that I am this cosmetic brand's customer. (EWMI3) *
	(4) I strongly recommend people buy cosmetics online from this brand. (EWMI4) *
	(5) I have spoken favorably of this cosmetic's brand to other social media users. (EWMI5) *

Note(s): * = Retained items

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