Dissertation

The Role of Facial Enhancement Technology in Online Sales of Branded Color Cosmetics

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This is an article-based dissertation. The author conducted three published studies to support this dissertation during her PhD studies. It includes three quantitative studies. The following are the abstracts of these three studies:

Study 1. The e-WOM intention of artificial intelligence (AI) color cosmetics among Chinese social media influencers

Abstract: 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 apps 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. 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. The results suggest that: 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. 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.

Further reading: Simay, A. E., Wei, Y., Gyulavári, T., Syahrivar, J., Gaczek, P., & Hofmeister-Tóth, Á. (2023). The e-WOM intention of artificial intelligence (AI) color cosmetics among Chinese social media influencers. *Asia Pacific Journal of Marketing and Logistics*, 35(7), 1569-1598. https://doi.org/10.1108/APJML-04-2022-0352

Study 2. Using Artificial Intelligence to Promote Branded Color Cosmetics: Evidence from Indonesia

Abstract: Artificial Intelligence (AI) color cosmetics apps emerged as an innovative solution to promote branded color cosmetics and enhance consumer decision making, primarily as a trial function. This research aims to investigate factors influencing AI color cosmetics apps adoption in the lens of social comparison theory. The data was analyzed using Structural Equation Modelling (SEM) via SPSS and AMOS software. The results suggest that 1) the positive-view (versus negative-view) of body esteem increases price consciousness to a larger extent 2) the negative-view (versus positive-view) of body esteem increases AI color cosmetics apps adoption to a larger extent 3) price consciousness mediates the effect of body esteem on AI color cosmetics apps adoption 4) price consciousness moderates the effect of body esteem on AI color cosmetics apps adoption. Managerial implications of this research are provided for promotion managers of cosmetic retailers and AI color cosmetics app developers seeking to promote and reach a larger segment.

Further reading: Wei, Y., Simay, A. E., Agárdi, I., Syahrivar, J., & Hofmeister-Tóth, Á. (2023). Using Artificial Intelligence to Promote Branded Color Cosmetics: Evidence from Indonesia. *Journal of Promotion Management*, 29(5), 644-675. https://doi.org/10.1080/10496491.2022.2163036

Study 3. Using Facial Enhancement Technology (FET) in online sales of branded color cosmetics

Abstract: As one of the most cutting-edge technologies in the digital age, facial enhancement technology (FET) has greatly enhanced consumer online shopping experience and brought new e-commerce opportunities for cosmetics retailers. The purpose of this paper is to extend the unified theory of acceptance and use of technology (UTAUT) model in the context of FET. In addition to the concepts from the original model, the new FET-UTAUT model features (low) body esteem, social media addiction and FET adoption. A purposive sampling of FET users in China via an online questionnaire yields 473 respondents. To analyze the data, this

research uses the structural equation modeling method via statistical package for the social sciences and analysis of a moment structures software. A two-step approach, exploratory factor analysis and confirmatory factor analysis, was used to test the hypotheses and generate the findings. Performance expectancy, effort expectancy, social influence, facilitating conditions and (low) body esteem have positive relationships with FET adoption. FET adoption has a positive relationship with online purchase intention of branded color cosmetics, and the empirical evidence for the moderating role of social media addiction in the relationship between FET adoption and online purchase intention is inconclusive. This research extends the traditional UTAUT model by proposing a novel FET-UTAUT model that incorporates additional key concepts such as body esteem, FET adoption and social media addiction. Managerial implications of this research are provided for FET designers and branded color cosmetic retailers.

Further reading: Wei, Y., Syahrivar, J., & Widyanto, H. A. (2023). Using facial enhancement technology (FET) in online sales of branded color cosmetics. *Journal of Systems and Information Technology*, 25(4), 502-530. https://doi.org/10.1108/JSIT-12-2022-0282

1. Introduction

Technology innovation has become an important knowledge resource for firms seeking to be competitive and aiming to maximize profits, particularly in the Industry 4.0 era (Yun *et al*., 2011; Zahera & Bansal, 2019). Facial enhancement technology (FET) as one of the most recent innovative digital technologies, has significantly influenced today's retail (Song *et al*., 2022) and consumer shopping experience (Cachero-Martínez & Vázquez-Casielles, 2021). FET is an umbrella term that includes, among other things, artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) technologies in the beauty industry (Simay *et al*., 2023). The popularity of FET in recent years is partly made possible due to the rise of smartphone technology (i.e., camera, facial recognition technology, and touch screen) and social media platforms such as Instagram and TikTok, that promote the physical attractiveness of their users to garner likes and followers (Lee *et al*., 2014; Faqih & Jaradat, 2021; Khan & Khusro, 2021; Jorge *et al*., 2022; Simay *et al*., 2023).

FET works by superimposing virtual elements (Javornik, 2016) or applying digital masks (i.e., face lenses) to users' faces in a virtual environment, often in real-time (Rios *et al*., 2018). Users can access the FET apps by holding their faces up to the camera, and the app will automatically scan their faces while also providing a variety of face filters, stickers, and other virtual elements at the bottom of the screen. Then, users can select their favorite from the available options by scrolling down the screen horizontally, applying it to their faces simultaneously, and taking selfies. The concept of FET was inspired by traditional cosmetics, where their use cannot be separated from the users' self-ideals and the prevalent social norms (Baghel & Parthasarathy, 2019). According to previous literature, there are primarily five types of FET on the market: face filters (Cowan *et al*., 2021; Yang *et al*., 2021), virtual makeup and try-on (Jaswal, 2021; Wang *et al*., 2022), facial distortion (Hawker & Carah, 2021; Javornik *et al*., 2022), age manipulation (Antipov *et al*., 2017; Sharma & Kumar, 2022), and gender bender (Gusev, 2021; Monteiro, 2023).

Previous studies have shown that when it comes to purchasing color cosmetics, female consumers prefer to shop at various cosmetic retail channels (Liu *et al*., 2013; Ngarmwongnoi *et al*., 2020). Since the COVID-19 pandemic began at the end of 2019, many cosmetic stores

have been forced to close. Social distancing, as well as other government-stimulated regulations, has encouraged consumers to shop online (Chen *et al*., 2021). Due to the temporary closure and social distancing, local cosmetic retailers had to find and adopt innovative ways to promote and sell their products, such as through FET apps. FET apps have emerged as a novel way to improve consumer decision making, primarily as a trial function. By using FET apps, especially for virtual makeup and try-on apps, consumers can visualize how they look when color cosmetics are applied to their faces and then decide whether they want to buy them or not. FET may incorporate features that allow users to edit their facial features (selfie-editing) and try various color cosmetic brands. Furthermore, for those who are only interested in entertainment, FET can assist users in taking beautiful selfies by applying virtual makeup.

The purpose of this dissertation is multifold: First, to explore the factors that may contribute to FET adoption. Second, to investigate the extent to which FET adoption contributes to subsequent online purchases (i.e., color cosmetics). Despite its strategic importance, the existing body of literature specifically discussing the essential role of AR-based FET on consumers' behavioral intentions is still scarce (Javornik, 2016; Wang *et al*., 2022). Additionally, the customers' adoption rate of FET is still relatively low with an unproven conversion rate on a mass scale (Monteros, 2021). The mechanisms by which users adopt FET and whether FET contributes to the online purchase intention of branded color cosmetics are still less explored.

The unified theory of acceptance and use of technology (UTAUT) developed by Venkatesh *et al*. (2003) is one of the most popular theories for explaining behavioral intentions to adopt new technology. The primary contribution of this dissertation is to extend the traditional UTAUT model (Venkatesh *et al*., 2003) and apply it in the context of FET. More specifically, UTAUT is used as a baseline model in this dissertation since it can be leveraged to examine determinants of AI adoption (Venkatesh, 2022) such as FET. While the UTAUT model captures the general technology acceptance factors well, in this dissertation, the author adds factors (i.e., body esteem, price sensitivity, and social media addiction) that may be important in understanding consumer acceptance of the technology in focus. Building

on self-presentation theory, the author considers it important to examine users' self-image (Fastoso *et al*., 2021) and include the variable body esteem in the adoption model. Moreover, Yim and Park (2019) found that people who held unfavorable body images had more favorable evaluations toward AR-based products, though larger utilitarian and social motives and how they were connected to online purchases remained unexplored. As a result, the author considers body esteem to be a valuable concept to include within the UTAUT-FET framework.

Another important concept introduced in this dissertation is social media addiction. According to previous studies, social media addiction was crucial in explaining how people interacted with various digital technologies (Fortes *et al*., 2021; Simay *et al*., 2023; Syahrivar *et al*., 2022). In Study 1, the author draws on uses and gratifications theory (U&G; Ibáñez-Sánchez *et al*., 2022) to understand the influence of Chinese user characteristics on app usage, product purchase and electronic word-of-mouth (e-WOM). U&G theory 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 FET 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 & Fioravanti, 2018), the need to improve their appearance is critical. As a result, the author assumes that the willingness to use FET 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 FET users. In recent years, China has witnessed the rising of cosmetics social media influencers who also use FET 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 & 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).

Previous studies have also linked the price sensitivity of users in the digital environment,

including virtual or augmented reality (Grewal *et al*., 2017; Grewal *et al*., 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. FET apps 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 FET apps are free. Thus, users can utilize the money to derive entertaining gratifications (Hamari *et al*. 2019). According to Zhang *et al*. (2019), FET apps may also serve as an e-commerce platform. After users have finished editing their selfies by applying FET, the apps may direct them to the official online shops of color cosmetics. Nonetheless, cosmetics are high-involvement products that necessitate not only quality but also careful price comparisons (Chiou & Droge, 2006; Whelan & Davies, 2006). To get the best deals or discounts, smart shoppers are usually willing to spend their time and energy looking for the best prices on different online shopping platforms. Therefore, apart from body esteem, and social media addiction, price sensitivity is a highly relevant concept to discuss and investigate in the context of FET.

The structure of this dissertation is as follows: The second section comprises the theoretical foundations, where the author discusses the main theories utilized to develop the hypotheses. Following this, the third section outlines the hypotheses development. In the fourth section, the research methodology is detailed, encompassing the sampling technique, measurement scales, rationale for employing this research method, as well as its relevance and significance. Moving forward, the fifth section presents the selected findings from the three studies. Subsequently, the sixth section delves into the discussion. The seventh section explores contributions, encompassing theoretical, managerial, and social implications. Finally, the author examines the variances and connections among the three selected studies.

2. Theoretical foundations

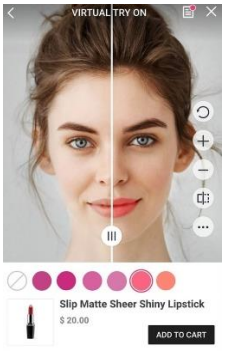
2.1 Facial enhancement technology (FET)

FET is an umbrella term used to describe Artificial Intelligence (AI)-based technologies that

allow users to alter their facial features. FET includes face filter, virtual makeup, facial distortion, age manipulation and gender bender (see **Figure 1**). FET immerses users in a human-machine converged reality through an integrated cyber and physical environment utilizing computers and wearables (Kwok & Koh, 2021). FET works by superimposing virtual elements (Javornik, 2016) or applying digital masks (i.e., face lenses) to users' faces in a virtual environment, often in real-time (Rios *et al*., 2018). Users can access the FET apps by holding their faces up to the camera, and the app will automatically scan their faces while also providing a variety of face filters, stickers, and other virtual elements at the bottom of the screen. Following that, users can select their favorite from the available options by horizontally scrolling down the screen, apply it to their faces simultaneously, and take selfies. Going back in history, the concept of FET was inspired by traditional cosmetics, where their use cannot be separated from the users' self-ideals and the prevalent social norms (Baghel & Parthasarathy, 2019). According to previous literature, there are primarily five types of FET on the market: face filters (Cowan, Javornik, & Jiang, 2021; Yang *et al*., 2021), virtual makeup and try-on (Jaswal, 2021; Wang, Ko, & Wang, 2022), facial distortion (Hawker & Carah, 2021; Javornik *et al*., 2022), age manipulation (Antipov *et al*., 2017; Sharma & Kumar, 2022), and gender bender (Gusev, 2021; Monteiro, 2023). In this dissertation, the author summarizes these five types of FET and focus on virtual makeup and try-on.

Figure 1. Mapping Facial Enhancement Technology (FET)

Functions	Capabilities	Non-exhaustive Examples	Representative pictures	Previous Studies
Face filters	This FET technology enables users to change their skin tone (e.g., whiter, tanner), beautify their face features (e.g., enlarge eyes, thin faces), remove skin imperfections (e.g., moles, acne, scars, blemishes), and apply	Facetun2, Photo Filter & Effects, Pola, Prisma photo, Facelab, Xingtu, Tianyan Camera, Faceu, B612, QingYan Camera, Meitu, Wuta Camera, Paofu Camera, Selfiecity, BeautyCam, FaceApp, FaceMap, FaceAI App, Snapchat, Sweet Face:	 (B612)	Cowan *et al*., 2021; Hawker and Carah, 2021; Yang *et al*., 2021; Ibáñez-Sánchez *et al*., 2022; Javornik *et al*., 2022…

	various "cool, cute, and funny" face lenses (i.e., digital masks) to their faces.	beauty face camera, …	Source: figure courtesy of Juegostudio 2019	
Virtual makeup and try-on	This FET technology enables users to apply virtual color cosmetics (e.g., skin foundations, lipsticks, mascaras, eyeshadows, hair color, etc.) and other try-on virtual elements (e.g., virtual glasses, hats, apparels, necklaces, and rings).	YouCam makeup, Loox Camera, Tianyan Camera, Faceu, Meichuang Camera, DIOR Makeup, Color cosmetics Camera, Best Makeup Ideas, Oriflame color cosmetics, Mirror, Kiss & Makeup Virtual Try On, SuperTouch: Virtual Makeup App, GlamKit-Virtual Makeup Bag, Hijab and makeup montage maker, B612, Meitu, Wuta Camera, Paofu Camera, BeautyCam, Sephora visual artist app, FaceMap, Arture, …	 (YouCam makeup) Source: figure courtesy of Fashion Network 2020	Kim and Forsythe, 2008; Huang and Liao, 2017; Baek *et al.*, 2018; Wiwatwattana *et al.*, 2018; Smink *et al.*, 2019; Zhang *et al.*, 2019; Hsu *et al.*, 2021; Jaswal, 2021; Wang *et al.*, 2022; Javornik *et al.*, 2022; Simay *et al.*, 2023; Wei *et al.*, 2023…
Facial distortion (selfie dysmorphia)	This FET technology enables users to distort, switch, and change their face and facial expressions (e.g., wider eyes, comical face, switch one's face with celebrities').	Xingtu Camera, Loox Camera, Reface, Faceu, B612, Individual Face, Face Wrap-Funny Photo Editor, Face distortion – Screw Up Your Face, Doodle Mirror (Kingdom of Fun), Funny Face Changer Camera Video Effect, Comics Face, Glitch Face AI Filter, Magic mirror booth, Pepper Spray – Photo Frame,	 (Face Warp - Funny Photo Editor) Source: figure courtesy of Face Warp - Funny Photo Editor 2022	Hawker and Carah, 2021; Javornik *et al.*, 2022…

		Sensory CineFx, Real Warper, Funny funhouse mirror, Doodle Mirror, Time Warp Camera, BendyBooth, Oh Hai, PrankTV for Shoot funny and Scary, FaceMap, Face Story, NewFace, Funveo, Woo Filters, Mancai Camera, …		
Age manipulation (face aging)	This FET technology enables users to change their ages to appear younger or older.	Beautiful time machine (Become old camera and comic photos), SeekMe, Changed camera, FaceMagic, Face changing time machine, Special effects magic camera, My old age world, Face time camera, FaceMap, Face Story, NewFace, FaceAI App, Arture, Mancai Camera, FaceLab, Face Play App: FunLook, …	 (FaceLab) Source: figure courtesy of Team YouCam 2023	Antipov *et al.*, 2017; Sharma and Kumar, 2022; Monteiro, 2023…
Gender bender (gender swap)	This FET technology enables users to virtually change their gender.	Gender Bender, FaceMap, Face Story, NewFace, FaceAI App, Arture, Mancai Camera, Face Play App: FunLook, FaceApp, X Photo Editor, …	 (X Photo Editor) Source: figure courtesy of X Pic Studio 2020	Gusev, 2021; Monteiro, 2023…

Source: Created by author

Several FET-related terminologies that have been used in the previous studies are Augmented Reality (AR) cosmetics (Wiwatwattana *et al.*, 2018; Smink *et al.*, 2019; Dehghani, Lee, &

Mashatan, 2020; Hsu, Tsou, & Chen 2021; Jaswal, 2021; Wang, Ko, & Wang, 2022; Javornik *et al*., 2022), virtual try-on (Kim & Forsythe, 2008; Zhang *et al*., 2019), magic mirror (Baek, Yoo, & Yoon, 2018).

2.2 FET-UTAUT

One of the highly preferred theories to explain the behavioral intention to adopt new technology is the unified theory of acceptance and use of technology (UTAUT) developed by Venkatesh *et al*. (2003). The UTAUT is an extension of at least two early theories that linked intention and behavior in consumer decision making, namely the theory of reasoned action (TRA) by Ajzen and Fishbein (1980) and the technology acceptance model (TAM) by Davis (1989). The UTAUT model is made up of six concepts: performance expectancy, effort expectation, social influence, facilitating conditions, behavioral intention, and user behavior. Various researchers have since adopted, adapted, and extended the model, including the addition of new moderators (Thongsri *et al*., 2018; Al-Adwan *et al*., 2022; Xiao *et al*., 2022). In the context of FET, the UTAUT model is relevant. Nonetheless, the author believes that some changes are required to fully capture the purpose of this dissertation. Therefore, the author introduces and integrates new concepts presented in this section. The newly proposed model serves two purposes: Firstly, to explain the factors influencing the use of FET apps. Secondly, to explain its connection with users' subsequent intentions to purchase branded color cosmetics.

2.3 Current progress in FET research

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. The author focused on virtual makeup and try-on in this dissertation. 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. This dissertation

contributed to the discussion by examining the relationship between body esteem and FET adoption. Baek *et al*. (2018) investigated the role of virtual mirror or try-on, another form of FET, on consumers' purchase intentions. 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 the author believes is a relevant concept, was not investigated. This dissertation contributed to the discussion by investigating the moderation effect of social media addiction between FET adoption and online purchase intention. Furthermore, the author 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 author 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. Finally, this dissertation, especially Study 1, identified the role of individual social media influencer characteristics in the adoption of FET apps. **Table 1** summarizes relevant literature on FET in the marketing context. This section is mainly derived from Study 1, wherein social media influencers serve as the primary subjects of research.

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.	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

			other viewing) AR effects on SBCs and purchase intentions.	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.

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.
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.
Wang *et al*. (2021)	Consumers perception of mobile AR service (interactivity, vividness,	Online survey (N=202, South Korea)	1) In the field of fashion and beauty makeup, consumers place more value on interactivity,	1) Extend the literature on the application of technologies such as virtual reality (VR)

	augmentation, aesthetics) Organism (spatial presence, flow experience, decision comfort) Response (purchase intention) Individualism		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.	and artificial intelligence (AI). 2) Investigate the Stimuli Organism Response (SOR) model in the advancement of beauty product technologies.
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 (Study 1)	Body esteem Price sensitivity Social media addiction	Online questionnaire, quantitative, SEM (N=221, social	1) Social media addiction is a positive predictor of AI color cosmetics	1) Draw on the uses and gratification (U&G) theory to explain the

AI color cosmetics usage Actual purchase E-WOM intention	media influencers from China)	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.	predictors (e.g., social media addiction) of AI color cosmetics usage. 2) Provide empirical evidence on the role of AI color cosmetics apps 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 apps.

Source: Created by author

2.4 Determinants of the FET adoption: Uses and gratifications theory

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 apps) or virtual reality (VR) (Ruggiero, 2000; Lee & 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 & Williams, 2013). Most recently, U&G theory contributes to capturing the intention to use AI (Lee & Cho, 2020) and AR (Rauschnabel *et al*., 2018) among individual users.

Given this theory's focus on gratification, satisfaction (Ibáñez-Sánchez *et al*., 2022) and enjoyment (Sharma & 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 in Study 1, where the author considers that social media influencers are motivated to use AI or AR tools to fulfill their unsatisfied needs for admiration and to obtain related gratifications (Rauschnabel *et al*., 2018).

2.5 Social comparison theory

According to social comparison theory, individuals are tending to evaluate their beliefs, opinions, capacities and appearances by comparing themselves with others (Festinger, 1954; Wood, 1996; Fardouly, Pinkus, & Vartanian, 2017; Lee, Suh, & Sierra, 2020). Public perception of ideal body image may inspire a desire to artificially enhance one's beauty, such as through cosmetic surgery in extreme cases (Sood, Quintal, & Phau, 2017). The other mechanism to improve their social standing and minimize social exclusion is by obtaining material objects that improve their attractiveness and make them more desirable, such as fashion products, jewelry, and cosmetics. With the rise of various social media platforms and mobile phones, FET apps have gained popularity as an alternative mode to project attractive self-images and compare one's attractiveness with others in virtual settings. According to Yao, Niu, and Sun (2021), self-images posted on social media platforms serve as the foundation for upward social comparison (for example, comparing one's appearance to public figures). As a result, social media users may be more selective in what they share with the public. To keep up with beauty ideals, they may, for example, post self-edited photos via FET apps.

2.6 The relationship between AI and AR with online purchase intention

Artificial intelligence (AI) is defined as a machine that mimics cognitive functions associated with the human mind, such as learning, problem-solving, decision making, face and speech recognition (Del Campo *et al*., 2020; Lee *et al*., 2021). According to Puntoni *et al*. (2021), AI is conceptualized as an ecosystem that includes data collection and storage, statistical and computational techniques, and output systems; it enables products and services to perform tasks that require intelligence and autonomous decision making in the same way that humans

do. In the beauty industry, AI is mainly about machine algorithms adopted in various platforms, such as Face App, Faceu, YouCam Makeup, and B621. FET are primarily used in the form of Augmented Reality (AR) apps and Magic Mirrors (Faust *et al*., 2012; Simay *et al*., 2023). AR is a technology that superimposes virtual data onto the user's field of view, enhancing the physical environment with virtual data (Ghazali, Mutum, & Woon, 2019). Virtualization quality is mostly determined by visual rendering, tracking, and image recognition (Lungu *et al*., 2021). Users can use AR apps to try on different color cosmetics, read color cosmetics reviews, learn about their loyalty points, make payments, and contact customer service (Smink *et al*., 2019). The other apps of AR technology are a magic mirror that reflects the image of the user's body in a three-dimensional (3D) environment (Kurul *et al*., 2020). Magic mirrors are mostly found in physical cosmetics stores, where they allow customers to try on different types of cosmetics without having to touch them (Scholz & Duffy, 2018). Consumers only need to touch the screen to select the color cosmetics they want to try, and it will appear virtually and vividly on their faces. The enhanced selfies can be shared online, where users can compare their attractiveness to one another. Lee *et al*. (2020) discussed online social comparison (upward vs. downward) and how it relates to their self-esteem. In this dissertation, the author argues that FET can be considered as a marketing strategy for simulating sensorial experiences in an online retail environment, thereby contributing to a better service experience and generating consumer purchase intention in the beauty industry.

2.7 Performance expectancy

Performance expectancy is defined as the degree to which individuals believe that adopting new technology or systems will affect their job performance (Venkatesh *et al*., 2003). Moreover, Ratten (2015) defines performance expectancy as an individual's understanding of the benefits of technological innovation, such as a better performance outcome. According to Zhou *et al*. (2010), individuals will adopt a new technology based on the characteristics of the technology and the task requirements. The author argued that if technology was appropriate for the task at hand, potential users would be more likely to adopt it. For instance, AI color cosmetics apps allow users to virtually try on various color cosmetics, greatly satisfying the

needs of those who want to try them before making any purchases when shopping online. Furthermore, some well-known cosmetics companies, such as L'Oreal, Sephora, Estee Lauder, and Rimmel, have utilized AR/AI technology to enhance customers' shopping experience through virtual makeup (Jaswal, 2021).

2.8 Effort expectancy

Effort expectancy is one of the key concepts featured in the UTAUT model and is defined as the degree of ease connected with the use of an information system (Venkatesh *et al*., 2003). The concept reflects users' perceptions of the number of hours and energy required to be proficient in a particular technology. The central idea is that before deciding to use new technology, potential users will assess their capabilities and required resources. When potential users believe that a new technology requires less effort to master, their motivation or willingness to use the technology increases. In this dissertation, the author defines effort expectancy as users' perceived ease of use of FET apps.

2.9 Social influence

Social influence refers to the perception of opinions from important others (e.g., family members, relatives, friends, and colleagues) to perform or not perform a certain behavior (Venkatesh *et al*., 2003). According to Zhuang *et al*. (2021), social influence can also be defined as subjective norms, which are the social pressures that individuals perceive when they exhibit certain behaviors, or whether important reference objects believe they should perform the behavior. Coeurderoy *et al*. (2014) argued that social influence includes peer influence and supervisor influence. The author has also suggested that interaction, frequency, and richness with peers can enhance the speed of new technology adoption. In this dissertation, the author defines social influence as the extent to which users believe people important to them believe they should use FET apps.

2.10 Facilitating conditions

Facilitating conditions are defined as the extent to which a person believes the technical supports and the infrastructures required to use new technology are accessible (Venkatesh *et al*., 2003). Kang *et al*. (2015) argued that facilitating conditions are primarily about

organizational and technological supports, such as supplying infrastructures, desk help services, training courses, and providing guidelines in order to perform the behavior. Facilitating conditions can also be considered as an external control in an environment (Lu *et al*., 2008). Many physical cosmetics stores were forced to close during the COVID pandemic, so retailers must find new ways to reach their customers and allow them to try out their products, such as by using AI color cosmetics apps. According to Brug *et al*. (2005), customers' specific behavior occurs only when the environment is changed.

2.11 Body esteem

Body esteem is defined as an individual's evaluation of his or her own body and appearance (Mendelson, Mendelson, & White, 2001). Body esteem is a multidimensional construct that includes physical attractiveness, size, shape, and overall appearance (Lipowska *et al*., 2016). Body esteem is one of the specific domains of self-esteem that is related to one's concerns about one's physical appearance (Mendelson, White, & Mendelson, 1996). Body esteem is divided into three categories: overall feelings about one's appearance, one's perception of other people's opinions about one's body and appearance, and satisfaction with one's weight (Wang, 2019). To a large extent, one's body evaluation is usually based on feedback from one's social online and offline environments (Lipowska *et al*., 2016). Kaminski and Hayslip Jr (2006) found that there is a gender difference in body esteem, women have a lower level of body esteem than men. Previous studies have argued that there is a need for body esteem because people always want to look good about themselves in front of others, and they try to maintain or increase their body esteem by wearing cosmetics or doing physical exercises (Franzoi, 2001; Lereya *et al.*, 2014; Lipowska *et al.*, 2016).

2.12 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 dissertation, price sensitivity refers to consumers' willingness to pay for branded color cosmetics.

2.13 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.

2.14 Online purchase intention

Online purchase intention is defined as a construct that gives the strength of a consumer's intention to purchase products via the internet (Salisbury *et al*., 2001). According to Buhalis, López, and Martinez-Gonzalez (2020), online purchase intention also can be considered as consumers are willing to purchase products on various websites. Cosmetics are high-involvement purchases, and purchasing is closely associated with some psychological motivators, such as social image, social desirability, and self-esteem (Korai, 2017). A previous study by Javornik *et al*. (2021) suggested that wearing cosmetics can increase an individual's self-esteem and increase the likelihood of social acceptance. Because of these tangible benefits of wearing cosmetics, consumers' willingness to purchase color cosmetics has increased significantly. Students and white collars are the two largest social groups who prefer to purchase color cosmetics online due to cost efficiency and comfort that online shopping may provide (Liu *et al*., 2013).

3. Hypotheses development

3.1 The Relationship between performance expectancy and FET adoption

According to Wiwatwattana *et al*. (2018), one of the most important steps for consumers purchasing color cosmetics is the selection process. Since color cosmetics are high-involvement products, consumers' desire to purchase may be improved through trial and virtual try-on performance (Korai, 2017). Color cosmetics can also be viewed as a form of "investment" (Hopkins, 2007) in which women weigh their expected performance and benefits (e.g., social acceptance, career advancement, improved romance) and costs (e.g., price, effort), and thus, like any other form of investment, they may be subject to behavioral biases (see Zahera & Bansal, 2018). The best way to choose the right color cosmetics for most ladies is to match the skin color and feel of the cosmetics. Consumers rarely apply color cosmetics samples commonly provided in cosmetics stores on their faces due to hygienic concerns. FET enables users to try out various color cosmetics (e.g., lipsticks, eye shadow, mascara, and liquid foundations) without touching them (Smink *et al*., 2019). Moreover, a previous study by Kim and Forsythe (2008) suggests that virtual try-on color cosmetics can produce comparable results to regular color cosmetics. Therefore, the author formulated the first hypothesis as follows:

H1: Performance expectancy has a positive relationship with FET adoption.

3.2 The Relationship between effort expectancy and FET adoption

According to rational choice theory, people seek to maximize their utilities by ensuring that the benefits outweigh the costs (or efforts) of purchasing and owning a product, which is especially true for AR/VR technologies (Santos & Gonçalves, 2021). The perceived ease of mastering a new technology is frequently linked to the motivation to adopt it. For instance, Workman (2014) found a significant relationship between effort expectancy and smart app usage; a lower effort expectancy would result in greater smart app use. Meanwhile, Smink *et al*. (2021) argued that the majority of AR app users were young, highly educated, technologically innovative individuals who believed AR apps were less difficult to master. When users believe that new technology requires less effort, their attitude toward that

technology improves, and their intention to use increases (Chung *et al*., 2015). In this dissertation, the author argues that the popularity of FET apps such as B612, FaceApp, and YouCam Makeup is due to the AI that powers these apps being relatively user-friendly and effortless. Therefore, the author formulated the second hypothesis as follows:

H2: Effort expectancy has a positive relationship with FET adoption.

3.3 The Relationship between social influence and FET adoption

Customers' willingness to use new technology is heavily influenced by the importance of social influence (Ozturk *et al*., 2021). For instance, Altay and Okumuş (2022) examined the relationship between social influence and consumers' intention to adopt a new app. According to their findings, social influence has a direct effect on behavioral intention to use a new app. Gu *et al*. (2019) found that a friend's recommendation was an important factor that influenced people's decision to use a new app. According to Talukder and Quazi (2011), peer influence is the most important motivating factor for adopting new technologies or systems. In this dissertation, the author argues that users are motivated to use and keep using FET because of the encouragement and positive feedback they receive from their significant others, including friends and (online) followers. Therefore, the author formulated the third hypothesis as follows:

H3: Social influence has a positive relationship with FET adoption.

3.4 The Relationship between facilitating conditions and FET adoption

For cutting-edge technology to gain wider acceptance, some facilitating conditions must occur (Ameen *et al*., 2021). In the context of FET, facilitating conditions may include electronic devices (e.g., smartphones and laptops), some knowledge of the FET apps, a stable internet connection, and customer service support when users encounter technical problems. As previously stated, a form of FET is AI color cosmetics apps where users can manipulate their faces in real-time. In the context of augmented reality (AR), previous researchers found that facilitating conditions improved the intention to use the technology (Abed, 2021; Faqih & Jaradat, 2021). The author contends that the advancements in smartphone technology and faster internet access, such as 5G, have made FET more accessible to a broad range of users.

Therefore, the author formulated the fourth hypothesis as follows:

H4: Facilitating conditions has a positive relationship with FET adoption.

3.5 The Relationship between body esteem and FET adoption

Individuals with low body esteem are tempted by direct self-improvement cues, such as wearing branded color cosmetics than those with high esteem (Robertson, Fieldman, & Hussey, 2008). According to sociometer theory, self-esteem is significantly influenced by others' evaluations, and self-esteem systems are designed to monitor and adapt to others' reactions, especially in terms of social inclusion and exclusion (Leary & Baumeister, 2000). AI color cosmetics (AR apps or magic mirrors) could improve individuals' physical appearance, self-image and increase their social interaction by virtual makeup (Yim & Park, 2019). Moreover, a study proposed by Fastoso *et al*. (2021) individuals with low self-esteem are more likely to engage in selfie-editing behavior. The author argues that body esteem may be a stronger inducement for utilizing AI color cosmetics, particularly for those with low body esteem. Therefore, the author formulated the fifth hypothesis as follows:

H5: Body esteem has a negative relationship with FET adoption.

3.6 The relationship between price sensitivity and FET adoption

From a U&G perspective, price sensitivity is a utilitarian gratification related to monetary savings (Huang & 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 FET, 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 FET apps are offered to the market with a “freemium” business model. Past studies indicate that freemium apps may appeal to price-sensitive market

segments (Bhargava, 2014; Kübler *et al*., 2018). In this dissertation, the author argues that FET are adopted because users are inherently price sensitive. It is also possible that FET are seen as a cheaper alternative to branded color cosmetics. Therefore, the author formulated the sixth hypothesis as follows:

H6: Price sensitivity has a positive relationship with FET adoption.

3.7 The Relationship between FET adoption and online purchase intention

As has been discussed at length in the previous section, FET apps are one of the most popular e-commerce platforms for branded color cosmetics as they greatly enhance the online shopping experience (Simay *et al*., 2023). As e-commerce platforms, FET apps are powered by AI and may incorporate AR and VR features (Faust *et al*., 2012) which allow users to fully immersive in a virtual try-on experience (Vo *et al*., 2022), examine products with vivid details (Erdmann *et al*., 2021), and find useful and relevant product information such as product descriptions, price comparisons, and product reviews (Rese *et al*., 2017). FET apps provide various advantages for online purchasing, such as being incredibly convenient and accessible, offering a diverse selection of branded color cosmetics, and giving fun shopping experiences (Javornik *et al*., 2016). In one of the studies about AR apps, Vo *et al*. (2022) found that immersive experience could lead to a positive consumer attitude toward the AR apps' adoption intention. Similarly, Erdmann e*t al*. (2021) demonstrated that perceived value (e.g., immersive marketing technologies and emotional values) influenced consumers' intention to engage in online purchases positively. The aforementioned studies suggest that users are more likely to boost their purchasing efforts if they get more immersed in the online retail ecosystem and more involved in product selection due to better shopping experiences and product alternatives. In this dissertation, the author contends that FET apps, a recent development in online retail technology, offer brand-conscious consumers immersive, smart, and enjoyable online shopping experiences, which improves their online purchase intentions. Thus, the author formulated the seventh hypothesis as follows:

H7: FET adoption has a positive relationship with online purchase intention.

3.8 The moderation effect of social media addiction

As previously stated, individuals who are addicted to social media spend a significant amount of time online (Savci *et al*., 2018; Rajesh & Rangaiah, 2020). Their social interactions and friendships take place mostly online. Boursier *et al*. (2020) found that loneliness was a positive predictor of excessive social media usage. In other words, people who are lonely or lack meaningful relationships in real life may compensate via social media platforms. Spending a significant amount of time on social media thus can be interpreted as a form of escapism and detachment from reality as well as significant others (Van den Eijnden *et al*., 2016). A study by Fortes *et al*. (2021) suggested that people who are addicted to social media feel less of a need to interact with people in real life and even less of a need to impress them. Nevertheless, to maintain their online popularity and virtual engagement, they must appear attractive online, which FET can help with. In some ways, FET is a less expensive alternative to branded color cosmetics. Therefore, the author contends that, while social media addicts may desire to appear attractive online, they are under less pressure to invest in genuine branded color cosmetics due to a lack of social interactions in real life. Therefore, the eighth hypothesis is formulated as follows:

> **H8**: Social media addiction moderates the relationship between FET adoption and online purchase intention, such that high (vs low) social media addiction weakens the relationship between the two variables.

Based on the abovementioned hypotheses, the author proposes the following theoretical framework (see **Figure 2**):

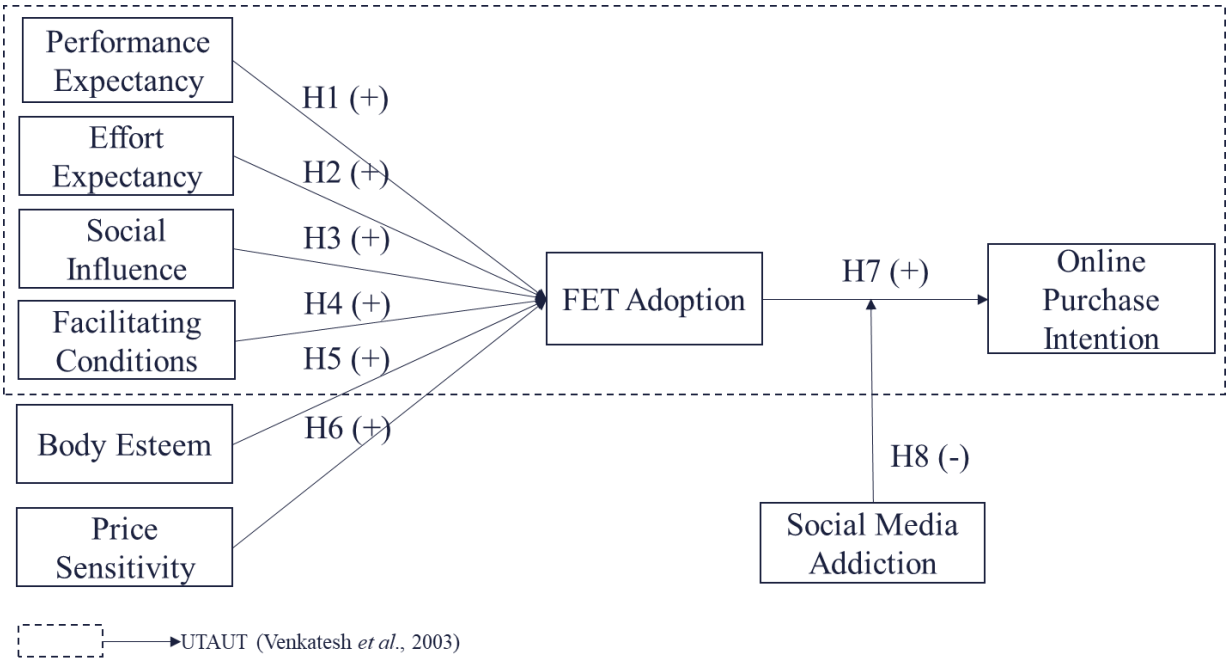


Figure 2. Theoretical framework

Source: Created by author

4. Research methodology

4.1 Quantitative research method

In this dissertation, the author primarily employed a quantitative online survey as the core research methodology, employing Structural Equation Modelling (SEM) via SPSS and AMOS software to test the hypotheses and generate the results. SEM is a statistical method that is commonly used in scientific studies in the field of Social Science (Civelek, 2018). According to Ullman and Bentler (2012; p. 661), SEM is "*a collection of statistical techniques that allow a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete, to be examined*." Both independent variables and dependent variables can be either factors or measured variables. Furthermore, the author argued that SEM can also be considered as causal modelling, causal analysis, simultaneous equation modelling, analysis of covariance structures, path analysis, or confirmatory factor analysis. The last two are the special type of SEM.

There are several advantages of using SEM method. According to Mitchell (1992), the

main advantage of SEM is the descriptive ability to test different models, allowing them to be compared. SEM can directly incorporate unmeasured variables if they are required. The goal is to avoid problems with multi-collinearity, estimate measurement errors, and represent general "factors" like size. Furthermore, Schermelleh-Engel, Moosbrugger, and Müller (2003) stated that SEM can provide "modification indices" that indicate areas where the fit of a given model is particularly poor, pointing to additional observations or models that may adequately describe the data. SEM can also provide all of the information provided by standard path analysis, such as path coefficients, explained variance measures, and total effect (Grapentine, 2000). In the marketing research, Sulphey (2020) argued that SEM is the only analysis that allows complete and simultaneous test of all the relationships when the phenomena of interest are complex and multidimensional. Additionally, SEM can test construct-level hypotheses at the construct level (Ullman & Bentler, 2012). The advantages of SEM mentioned above make it a powerful tool for applying path analysis to observational data sets in marketing research.

The purpose of this dissertation is twofold: First, to explore the factors that may contribute to FET adoption. Second, to investigate the extent to which FET adoption contributes to subsequent online purchases (i.e., color cosmetics). There are six independent variables (performance expectancy, effort expectancy, social influence, facilitating conditions, body esteem, and price sensitivity), one dependent variable (online purchase intention), one mediator (facial enhancement technology adoption), and one moderator (social media addiction). This dissertation tested eight construct-level hypotheses in total. Since the nature of SEM is to examine a set of relationships between one or two independent and dependent variables, either continuous or discrete, the author contends that SEM would be an appropriate method for testing the construct-level hypotheses in this dissertation.

4.2 Sample and procedure

The sample populations varied across the studies: Study 1 focused on Chinese social media influencers (N=221), Study 2 on Indonesian FET users (N=262), and Study 3 on Chinese FET users (N=473). This dissertation primarily employed purposive and snowball sampling techniques for data collection. For instance, in Study 3, the author employed purposive sampling. Because the bulk of FET apps were geared toward female users, the author focused

on female users who routinely used FET apps (e.g., AI color cosmetics apps). They were approached through the most popular social media platforms in China, such as WeChat, where they posted their self-editing photos. The author selected mainland China as the primary data collection hub primarily due to two factors:

(1) first, the vast and lucrative nature of its market, particularly among the younger demographic; and

(2) second, the strong cultural affinity and beauty standards in Asia that make FET highly coveted in the region.

A selfie with AI color cosmetics apps watermarks (e.g., B612, BeautyCam, & FaceApp) was a good indication that the respondents were suitable for Study 3. Before sending out the online questionnaire link, the author established prior communication with the potential respondents. For example, the author asked them through text messages on the WeChat platform if they had ever used one of the FET apps. Only those who responded affirmatively (i.e., yes) received the link to the questionnaire. Before filling out the online questionnaire, all respondents were informed that their participation would be anonymous and confidential, and everyone who participated was completely voluntary. The rule of thumb for determining the minimum sample size is 5 to 10 observations multiplied by the number of items or indicators in the questionnaire (Bentler & Chou, 1987). The questionnaire contains 35 items in total, hence the minimum sample size ranges from 175 to 350 respondents. Additionally, the author utilized the G*Power statistical test to establish the minimum size of our sample (see Faul *et al*., 2007). Given a 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 up to 6 predictors, the minimal sample size would be 98 respondents. The first online questionnaire was distributed from September to October 2021, and the second was distributed in December 2022. Both questionnaires were distributed through the Wenjuanxing platform (i.e., a professional online questionnaire survey platform in China). The author received 272 respondents in the first wave of data collection. Within 14 months difference, the author received 201 respondents in the second wave. Altogether, the author obtained and processed 473 valid respondents. A post hoc G*Power statistical test with

473 samples yields a power value of 0.99.

The respondent profile is shown in **Table 2**.

Table 2. Respondent profile

Category	Item	N	%
Education Background	University degrees	343	73
	No university degrees	130	27
Occupation	Full-time students	280	59
	Employees	79	17
	Professionals (e.g., doctors, lawyers, university professors, etc.)	34	7
	Housewives	42	9
	Others	38	8
Age	18 – 29	388	82
	30 – 40	35	7
	> 40	50	11

Note(s): N = Number of respondents, % = Percentage.

Source: Created by author

4.3 Measures

Several measurement scales were employed throughout the dissertation. In Study 3, the UTAUT scales, including performance expectancy, effort expectancy, social influence, and facilitating conditions, were adapted from Venkatesh *et al*. (2003). Additionally, the 5-item body esteem scale was adapted from Mendelson *et al*. (2001), the 5-item facial enhancement technology adoption scale from Venkatesh and Bala (2008), Abbad (2021), and Sprenger and Schwaninger (2021), and the 3-item online purchase intention scale from Suparno (2020). In Study 1, the 3-item price sensitivity scale was adopted from Lichtenstein *et al*. (1988). The construct was measured using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5).

As the primary findings of this dissertation stem from Study 3, the author exclusively showcased the reliability of the measurements for Study 3. To evaluate the reliability of the measurement scales in Study 3, the author conducted preliminary research involving 30 respondents. The reliability of each measurement scale proposed in Study 3 is detailed in **Table 3**.

Table 3. Measurement scales

Variables	Items	Measurements	Cronbach's Alpha (N = 30)
Performance Expectancy (PE)	1. Facial enhancement technology is useful in my social life. (PE1) 2. Facial enhancement technology improves my online image. (PE2) 3. Facial enhancement technology increases my online networks (followers). (PE3) 4. When connected to branded color cosmetics, facial enhancement technology enables me to choose the most suitable products for me. (PE4) 5. When connected to branded color cosmetics, facial enhancement technology helps me to make purchase decision quicker. (PE5)	5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree)	0.894
Effort Expectancy (EE)	1. Learning how to use facial enhancement technology is easy. (EE1) 2. My interaction with facial enhancement technology is clear and understandable. (EE2) 3. I find facial enhancement technology is easy to use. (EE3) 4. It is easy for me to become skillful at using this facial enhancement technology. (EE4)	5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree)	0.928
Social Influence (SI)	1. People who are important to me think that I should use facial enhancement technology. (SI1) 2. People who influence my behavior think that I should use facial enhancement technology. (SI2) 3. People whose opinion that I value prefer that I use facial enhancement technology. (SI3)	5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree)	0.929

	4. People who know me are supportive of the use of facial enhancement technology. (SI4)		
Facilitating Conditions (FC)	1. I have technology devices (e.g., smartphone and laptop) where I can use facial enhancement technology. (FC1) 2. I have the knowledge necessary to download and use facial enhancement technology. (FC2) 3. I have a good internet connection to download and use various features in facial enhancement technology. (FC3) 4. I can get supports from a fellow user or customer service when I encounter some problems when using facial enhancement technology. (FC4)	5-point Likert Scale (1 = Never; 5 = Always)	0.913
Body Esteem (BE)	1. I am preoccupied with trying to change my body weight. (BE1) 2. Weighing myself depresses me. (BE2) 3. My weight makes me unhappy. (BE3) 4. There are lots of things I'd change about my looks if I could. (BE4) 5. I wish I looked better. (BE5)	5-point Likert Scale (1 = Never; 5 = Always)	0.837
Facial Enhancement Technology Adoption (FETA)	1. If possible, I would use facial enhancement technology to enhance my selfies. (FETA1) 2. I would recommend the use of facial enhancement technology to enhance selfies to my friends. (FETA2) 3. If I had facial enhancement technology, I would use it often to enhance my selfies. (FETA3) 4. If facial enhancement technology was made my available in the online store, I would download it to try. (FETA4) 5. I would recommend to my peers that they incorporate facial enhancement technology to enhance their	5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree)	0.938

	photographs online. (FETA5)		
Online Purchase Intention (OPI)	1. I have the intention to purchase cosmetic products online. (OPI1) 2. I intend to use online shopping websites to purchase color cosmetics. (OPI2) 3. It is likely that I will purchase cosmetic products from cosmetic online stores soon (i.e., next three months). (OPI3)	5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree)	0.904

Source: Created by author

4.4 Analytical strategy

All three selected studies used Structural Equation Modeling (SEM) via SPSS and AMOS software to analyze the data. A 2-step approach, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), is implemented to prove the hypotheses and generate the results. For example, Study 3 employed a two-stage structural equation modeling (SEM) procedure: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Farooq, 2016). During the EFA stage, the author examined various key indicators of sampling adequacy and measurement validity, including Total Variance Explained, Rotated Component Matrix, Average Variance Extracted (AVE), and Composite Reliability (C.R.). To evaluate the fitness of the proposed model, several important indices were considered, such as Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Incremental Fit Index (IFI), Normal Fit Index (NFI), and Goodness-of-Fit Index (GFI). The author referenced several methodological works in SEM as guidelines, such as Schreiber (2006) and Gefen *et al*. (2011).

4.5 Equality of variances

Equality of variances was only assessed in Study 3. In Study 3, the author collected samples from two different time periods separated by 14 months. The first sample group, collected in 2021, consisted of 272 samples, while the second sample group, collected in 2022, comprised 201 samples. Respondents from both sample groups were recruited via the WeChat platform

on the Chinese online questionnaire website Wenjuanxing. Consequently, the author obtained a total of 473 samples.

Levene's test (**Table 4**) was used in Study 3 to test if the samples we collected in 2021 and 2022 have equal variances. Except for the variable facilitating conditions (FC), the results show that there was no significant difference in sample variances (Sig. > 0.05) between the first batch (2021) and the second batch (2022). In other words, both sample groups are homogenous. Therefore, the author concludes that she can combine both sample groups and analyze them as a whole. Meanwhile, with the exception of social influence (SI) in the sample group gathered in 2021, all variables' means are greater than 3, showing a propensity to agree with the measurement items for each construct. The fact that SI's mean value in the sample group taken in 2021 is less than 3 simply denotes a propensity to disagree with the measurement items or a weaker social influence. The author does not consider this an adequate justification to eliminate the variable. On the other hand, the sample group taken in 2022 shows a propensity toward agreeing with the SI measurement items, indicating a higher social influence. This result could be attributed to the COVID-19 pandemic, which was still at its peak in 2021 and where social distancing (and exclusion) were encouraged, which may have an impact on how people perceive the SI variable. Additionally, both sample groups' low standard deviation (S.D.) values (less than 1) indicate that the data are centered around the mean values.

Table 4. Levene's test

Variables	2021 Samples (N = 272)		2022 Samples (N = 201)		Levene's Test	
	Mean	S.D.	Mean	S.D.	F	P
PE	3.546	0.837	3.711	0.794	0.005	0.945
EE	3.159	0.925	3.594	0.845	0.582	0.446
SI	2.931	0.933	3.136	0.957	0.648	0.421
FC	3.727	0.819	3.936	0.666	8.019	0.005
BE	3.664	0.784	3.776	0.831	3.383	0.067
FETA	3.555	0.927	3.855	0.830	3.379	0.067
SMA	3.577	0.836	3.677	0.936	3.106	0.079
OPI	3.843	0.929	3.930	0.805	3.791	0.052

Note(s): PE = Performance Expectancy, EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Conditions, BE = Body Esteem, FETA = Facial Enhancement Technology Adoption, SMA = Social Media Addiction, OPI = Online Purchase Intention, P = Significance Level.
Source: Created by author

4.6 Common method bias

Common method bias (CMB), which is most common in behavioral research, is defined as "*the extent to which method biases affect research results*" (Podsakoff *et al*., 2003; p. 879). All three selected studies employed Harman's single-factor test to assess the common method bias issue. For instance, in Study 3, the author utilized Harman's single-factor test to determine whether responses from two samples collected in 2021 and 2022 exhibited any common variance issues. The findings revealed that the largest factor accounted for 38.30% of the variance, which is lower than 50% of the variance, suggesting that CMB is unlikely to impact the subsequent results (Fuller *et al*., 2016).

5. Findings

This is an article-based dissertation. The author conducted three published studies to support this dissertation, comprising three quantitative studies. However, since this dissertation adapted UTAUT as the theoretical foundation, the main findings primarily stem from Study 3. Some relevant findings from Studies 1 and 2 are also presented in this section, helping to shape the research model for the dissertation. For instance, body esteem was tested in the relationship with FET adoption in Study 1 and Study 2. In Study 1, body esteem was not found to be a significant predictor of FET adoption, whereas in Study 2, both positive and negative views of body esteem exhibited a positive relationship with FET adoption. These results inspired the author to include both positive and negative body esteem in the final dissertation model.

5.1 Findings in Study 3

5.11 Exploratory Factor Analysis (EFA)

In empirical research, purifying measurement scales to enhance their psychometric properties is a common procedure. The author did this by employing a statistical and judgmental

approach and following a scale-purification paradigm proposed by Wieland *et al*. (2017). From a statistical perspective, EFA is a useful method to identify problematic items and eliminate those with low factor loadings (Gerbing & Hamilton, 1996; Yang & Xia, 2015; Farooq, 2016). To determine construct reliability and validity, Dash and Paul (2021) suggested that factor loading should be greater than 0.6, average variance extracted (AVE) should be greater than 0.5, and composite reliability (C.R.) should be greater than 0.6. Consequently, The author removed measurement items with low factor loading (less than 0.6) from their respective constructs, such as PE4, PE5, FC4, BE1, and BE5, and retest the AVE and CR of each latent construct. As shown in **Table 5**, the author can conclude that her measurement items are valid and reliable. Meanwhile, from a judgmental perspective, and since very few poor-performing items were dropped during the scale purification, the author argues that the retained measurement items accurately reflect the latent constructs they are meant to represent. Additionally, the author contends that the retained items in each construct indicate the scale's parsimony, which is the bare minimum number of items and text per item to accurately portray a concept (Wieland *et al*., 2017).

Table 5. Rotated component matrix

	Component								AVE	C.R.
	1	2	3	4	5	6	7	8		
PE1					0.808					
PE2					0.793				0.600	0.818
PE3					0.719					
EE1				0.785						
EE2				0.760					0.631	0.872
EE3				0.821						
EE4				0.810						
SI1			0.822							
SI2			0.843						0.661	0.886
SI3			0.877							
SI4			0.698							
FC1							0.830			
FC2							0.819		0.685	0.867
FC3							0.834			
BE2						0.848				

BE3				0.872		0.651	0.847
BE4				0.688			
FETA1		0.687					
FETA2		0.738					
FETA3		0.770				0.551	0.860
FETA4		0.727					
FETA5		0.786					
SMA1	0.683						
SMA2	0.692						
SMA3	0.839					0.608	0.885
SMA4	0.845						
SMA5	0.824						
OPI1					0.857		
OPI2					0.875	0.727	0.890
OPI3					0.826		

Note(s): PE = Performance Expectancy, EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Conditions, BE = Body Esteem, FETA = Facial Enhancement Technology Adoption, SMA = Social Media Addiction, OPI = Online Purchase Intention, AVE = Average Variance Extracted, C.R. = Composite Reliability.

Source: Created by author

5.12 Confirmatory Factor Analysis (CFA)

The author then conducted a Confirmatory Factor Analysis (CFA) via SPSS and AMOS software. Based on **Figure 3**, the five exogenous variables are performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC) and body esteem (BE); the two endogenous variables are facial enhancement technology adoption (FETA) and online purchase intention (OPI); finally, one moderating variable that is social media addiction (SMA).

The Squared Multiple Correlations (R^2) value of the model suggested that 57.9% of the variance of facial enhancement technology adoption (FETA) can be explained by performance expectancy (PE), effort expectancy (EF), social influence (SI), facilitating conditions (FC), and body esteem (BE). Meanwhile, as many as 35.3% of the variance of online purchase intention (OPI) can be explained by facial enhancement technology adoption (FETA).

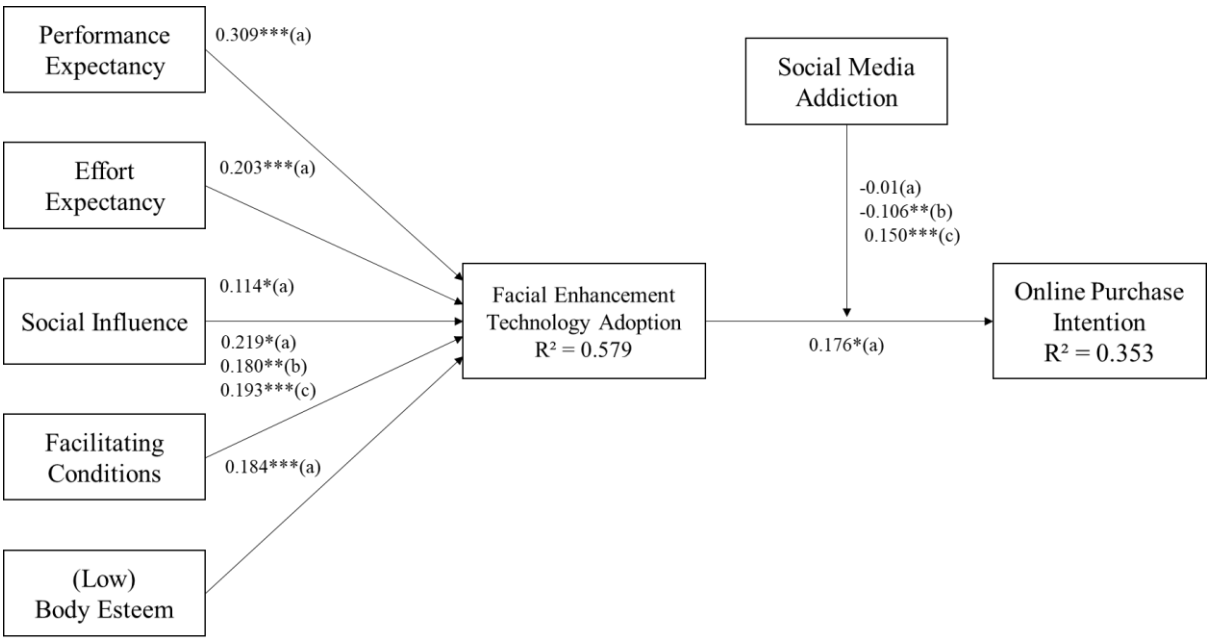


Figure 3. Final SEM model

(notes: * = p < 0.05, ** = p < 0.01, *** = p < 0.001, a = combined samples, b = 2021 sample group, c = 2022 sample group)

Source: Created by author

To assess the predictive relevance of the structural model, the author also wishes to report the predictive relevance (Q-square / Q^2) with the Stone Geiser Q-Square test formula:

$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2)$

$Q^2 = 1 - (1 - 0.579^2)(1 - 0.353^2)$

$= 1 - (0.665)(0.875)$

$= 1 - 0.582$

$= 0.418$

The calculation showed that the predictive relevance (Q^2) value is 41.8%, which is greater than zero, indicating that the model has predictive relevance (Hair *et al*., 2019).

The author conducted a multicollinearity test to determine whether the proposed independent variables are highly correlated with one another and could thus produce false results regarding their effects. Tolerance and variance inflation factor (VIF) are two important indexes that are commonly used for multicollinearity checking. Multicollinearity occurs when

the tolerance values are less than 0.1 (Menard, 1995) and the VIF values are greater than 5 (Hair *et al*., 2019). Based on **Table 6**, the author can conclude that there is no collinearity issue because the tolerance values are greater than 0.1 and the VIF values are less than 3.

Table 6. The multicollinearity diagnosis indexes for variables

Independent variables	Tolerance	VIF
PE	0.512	1.953
EE	0.527	1.897
SI	0.547	1.829
FC	0.594	1.683
BE	0.667	1.499

Note(s): PE = Performance Expectancy, EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Conditions, BE = Body Esteem, VIF = Variance Inflation Factor.

Source: Created by author

The results of the model fitness analysis of the proposed SEM model are shown in **Table 7**. The author followed the works of Hu and Bentler (1999) and Gefen *et al*. (2011) to assess the fitness of the SEM model. Based on the results, the author is inclined to conclude that the SEM model has a satisfactory fit.

Table 7. Model fit

Indices	Recommended Thresholds	Results	Notes
SRMR	< 0.06	0.059	Satisfactory Fit
RMSEA	< 0.08	0.060	Satisfactory Fit
CFI	> 0.90	0.952	Satisfactory Fit
TLI	> 0.90	0.943	Good Fit
IFI	> 0.90	0.952	Satisfactory Fit
NFI	> 0.90	0.926	Good Fit
GFI	> 0.90	0.890	Acceptable Fit

Note(s): SRMR = Standardized Root Mean Square Residual, RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index, TLI = Tucker–Lewis Index, IFI = Incremental Fit Index, NFI = Normal Fit Index, GFI = Goodness-of-Fit Index.

Source: Created by author

The relationships among variables incorporated in the SEM model are shown in **Table 8**.

The results support H1, H2, H3, H4, H5 and H7 (Sig. < 0.05). The arguments are given in the next section.

Table 8. Regression weights

			Estimate	S.E.	C.R.	P	Results
FETA	<---	PE	0.312	0.059	5.311	***	H1 is supported
FETA	<---	EE	0.181	0.048	3.811	***	H2 is supported
FETA	<---	SI	0.132	0.061	2.183	0.029	H3 is supported
FETA	<---	FC	0.322	0.087	3.713	***	H4 is supported
FETA	<---	BE	0.290	0.079	3.662	***	H5 is supported
OPI	<---	FETA	0.172	0.070	2.468	0.014	H7 is supported

Note(s): PE = Performance Expectancy, EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Conditions, BE = Body Esteem, FETA = Facial Enhancement Technology Adoption, SMA = Social Media Addiction, OPI = Online Purchase Intention, S.E. = Standard Error; C.R. = Critical Ratio; P = Significance Level; *** = P < 0.001.

Source: Created by author

5.13 Moderation effect of Social Media Addiction

The author also investigated the moderating role of social media addiction (SMA). The author discovered an insignificant negative moderating effect of SMA (Sig. > 0.05) using combined samples; however, further multi-group SEM analysis utilizing the 2021 and 2022 sample groups reveals differing yet significant effects (Sig. < 0.05). **Table 9** shows the statistical results, which show that social media addiction (SMA) has a significant negative moderating effect in the sample of 2021, but a significant positive moderating effect in the sample of 2022.

Table 9. The moderating role of social media addiction

			Estimate	S.E.	C.R.	P
OPI	<---	IntSMAxFETA (Combined samples)	-0.010	0.029	-0.336	0.737
OPI	<---	IntSMAxFETA	-0.106	0.040	-2.666	0.008

		(2021 sample group)				
OPI	<---	IntSMAxFETA	0.150	0.042	3.563	***
		(2022 sample group)				

Note(s): FETA = Facial Enhancement Technology Adoption, SMA = Social Media Addiction, OPI = Online Purchase Intention, IntSMAxFETA = Interaction between SMA and FETA, OPI = Online Purchase Intention, S.E. = Standard Error, C.R. = Critical Ratio, P = Significance Level, *** = P < 0.001.

Source: Created by author

Figure 4 illustrates the moderation role of social media addiction in combined samples (a), 2021 sample group (b), and 2022 sample group (c). In the 2021 sample group, the author could observe that high social media addiction (SMA) weakens the effect of facial enhancement technology adoption (FETA) on online purchase intention (OPI) of branded color cosmetics, somewhat proving H8.

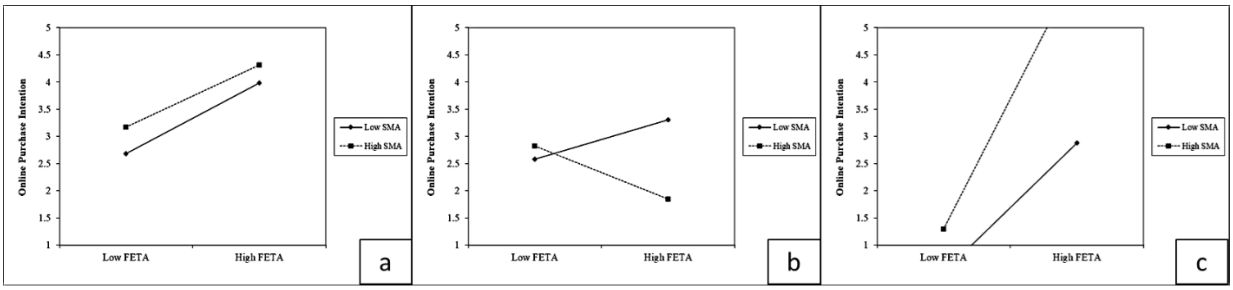


Figure 4. Moderation effect of social media addiction

Source: Created by author

5.2 Findings in Study 1

5.21 SEM model

In Study 1, the author conducted a Confirmatory Factor Analysis (CFA) via SPSS and AMOS software. Based on **Figure 5**, the three exogenous variables are Body Esteem (BES), Price Sensitivity (PRS) and Social Media Addiction (SMA); the two endogenous variables are AI Color Cosmetics Usage (ACU) (one of the FET types) 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 percent of the variance of ACU can be explained by SMA. As many as 25.6 percent of the variance of

ACP can be explained by ACU. Moreover, as many as 59.2 percent of the variance of EWMI can be explained by ACP.

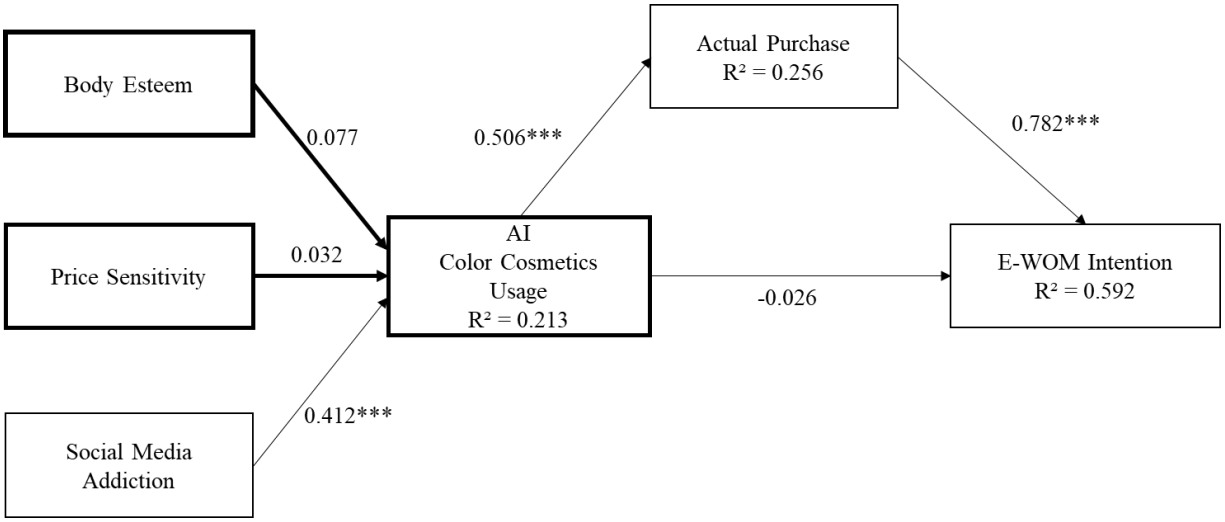


Figure 5. Final SEM Model

Source: Created by author

5.22 Hypotheses testing

Table 10 presents the regression analysis between the exogenous and endogenous variables incorporated in Study 1. The results confirm H3, H4, and H5 ($p < 0.001$).

Table 10. Regression weights

				Estimate	S.E.	C.R.	P
ACU	**<---**	**BES**	**H1**	**0.121**	**0.127**	**0.951**	**0.342**
ACU	**<---**	**PRS**	**H2**	**0.040**	**0.111**	**0.363**	**0.716**
ACU	<---	SMA	H3	0.567	0.135	4.203	***
ACP	<---	ACU	H4	0.501	0.066	7.573	***
EWMI	<---	ACU	H5	-0.028	0.063	-0.443	0.658
EWMI	<---	ACP	H6a	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.

5.23 Model fitness

The author 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 11**. In general, the model fit in Study 1 is considered good and acceptable.

Table 11. Fit indices

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.

Source: Created by author

5.24 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 12**.

Table 12. Multicollinearity test and effect size

Variables	Collinearity Statistics			
	Tolerance	VIF	f^2	Notes
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.

Source: Created by author

In addition to R-square (R^2) values, the author also wishes to report the predictive

relevance (Q-square / Q^2) of the structural model using the Stone Geiser Q-Square test formula:

$Q^2 = 1 - (1 - R_1^2) (1 - R_2^2) (1- R_3^2)$

$Q^2 = 1 - (1- 0.213^2) (1 - 0.256^2) (1 - 0.592^2)$

$= 1 - (0.955) (0.935) (0.650)$

$= 1 - 0.580$

$= 0.42$

The calculation results show that the predictive relevance (Q^2) value is 0.42 or 42 percent, which is greater than zero, indicating that the research model has predictive relevance. This result implies that 42 percent of the variance can be explained by the variables in the research model of Study 1, while the remaining 58 percent can be explained by variables outside the research model of Study 1.

5.3 Findings in Study 2

The parsimonious SEM model in Study 2 is presented in **Figure 6**. In general, the author can conclude that body esteem has a significant relationship with price consciousness and AI color cosmetics adoption. The squared multiple correlation coefficients (R^2) of price consciousness indicate that PBES and NBES explain 11.9 percent of its variance. Meanwhile, the squared multiple correlation coefficients (R^2) of AI color cosmetics adoption indicate that its predictors account for 29.9 percent of its variance.

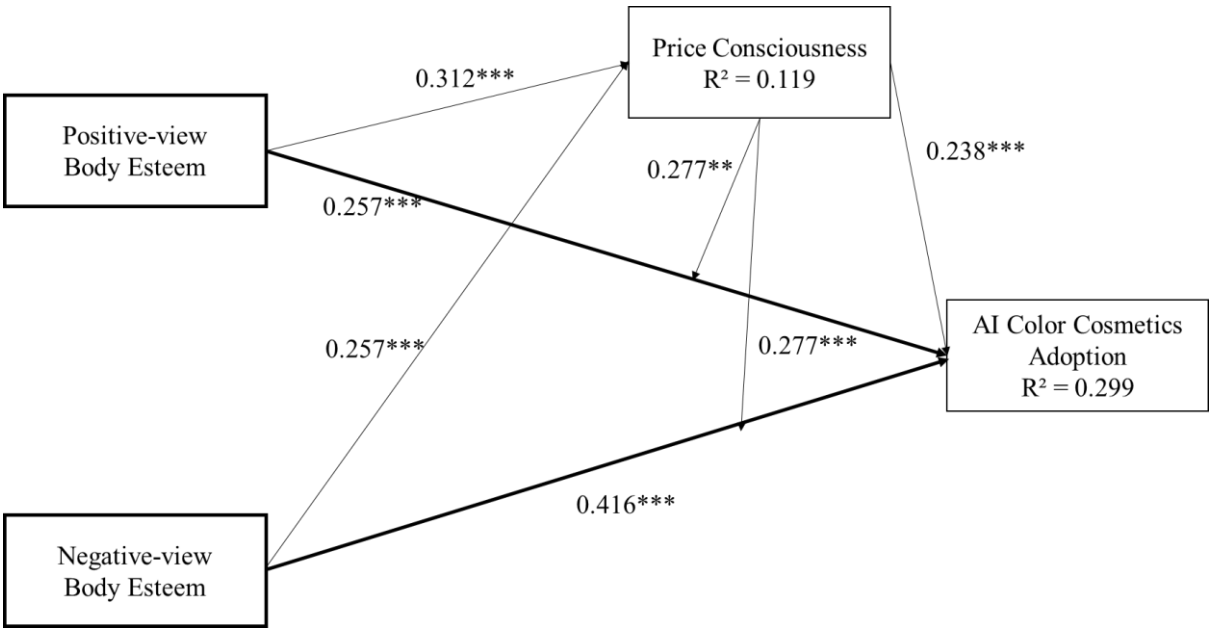


Figure 6. Parsimonious SEM model

(notes: ** < 0.01, *** < 0.001)

Source: Created by author

The results of model fitness analysis of the proposed SEM model are shown in **Table 13**. Based on the results, the author concludes that the SEM model for Study 2 has a satisfactory fit.

Table 13. Model fit

Indices	Recommended Thresholds	Results	Notes
SRMR	< 0.07	0.059	Satisfactory Fit
RMSEA	< 0.08	0.050	Satisfactory Fit
CFI	> 0.95	0.959	Satisfactory Fit
TLI	> 0.95	0.950	Satisfactory Fit
IFI	> 0.95	0.960	Satisfactory Fit
NFI	> 0.95	0.906	Good Fit
GFI	> 0.95	0.895	Acceptable Fit

Note(s): SRMR = Standardized Root Mean Square Residual, RMSEA = Root Mean Square Error of Approximation, CFI = Comparative Fit Index, TLI = Tucker–Lewis Index, IFI = Incremental Fit Index, NFI = Normal Fit Index, GFI = Goodness-of-Fit Index.

Source: Created by author

The relationships among variables incorporated in the SEM model for Study 2 are shown in

Table 14.

Table 14. Regression weight

			Estimate	S.E.	C.R.	P
PRC	<---	PBES	0.296	0.076	3.907	***
PRC	<---	NBES	0.241	0.073	3.299	***
AIC	<---	PRC	0.277	0.081	3.446	***
AIC	**<---**	**PBES**	**0.284**	**0.076**	**3.732**	*******
AIC	**<---**	**NBES**	**0.453**	**0.082**	**5.520**	*******

Note(s): PBES = Positive-view of Body Esteem, NBES = Negative-view of Body Esteem, PRC = Price Consciousness, AIC = AI Color Cosmetics Adoption, S.E. = Standard Error, C.R. = Critical Ratio, P = Significance Level, *** = $P < 0.001$.

Source: Created by author

6. Discussion

The finding in this dissertation supports the positive relationship between performance expectancy and FET adoption (H1). In line with the UTAUT framework, the acceptance of a particular technology may be boosted by the conviction that adopting it will, in some manner, benefit the user or enhance their performance. Consumers rarely apply cosmetics samples commonly provided in cosmetics stores on their faces due to hygienic concerns, especially post-pandemic. FET enables users to try out various color cosmetics without touching them (Javornik, 2016; Scholz & Smith, 2016). Moreover, virtual try-on color cosmetics can produce comparable results to regular cosmetics.

The finding also supports the positive relationship between effort expectancy and FET adoption (H2). In line with rational choice theory and the UTAUT framework, consumers aim to maximize their utilities by ensuring that the advantages outweigh the costs (or efforts) of purchasing and possessing a product such as AR/VR technologies (Santos & Gonçalves, 2021). We believe that the popularity of FET apps like B612, FaceApp, and YouCam Makeup stems from the AI that powers these apps to be relatively user-friendly and effortless. This dissertation reveals that the positive association between effort expectancy and AR-related technology adoption (e.g., Abed, 2021; Faqih & Jaradat, 2021) also exists in the context of FET.

The positive relationship between social influence and FET adoption (H3) is also supported by the data. In line with the UTAUT framework, the desire to meet the expectations of significant others or social and work circles (i.e., to appear more beautiful or presentable in online settings) may increase the intention to adopt FET. The author believes users are more likely to continue using FET if they receive encouragement and positive feedback from their significant others. The finding complements previous studies in different contexts such as Lee *et al*. (2015), and Xiao *et al*. (2022).

Next, the current research also supports the positive relationship between facilitating conditions and FET adoption (H4). In line with the UTAUT framework, facilitating conditions improves the intention to adopt new technology, such as FET. Thanks to the improvements in smartphone technology and faster internet access, FET is now accessible to a wider number of users. In the context of education, Faqih and Jaradat (2021) confirmed a positive relationship between facilitating conditions and behavioral intention to adopt augmented reality. This dissertation builds on earlier research by exploring the relationship between facilitating conditions and FET adoption and confirming its positive relationship.

Another hypothesis suggesting a positive relationship between (low) body esteem and FET adoption is also supported by the data in the present research (H5). Social media has become another arena for peer comparisons (Mishra *et al*., 2023). In line with the self-presentation theory, self-improvement, selfie-editing, and selfie-uploading practices are more common in people who are highly concerned with their appearance and how others perceive them (Fastoso *et al*., 2021). In other words, concerns about one's physical attractiveness are a stronger motivator for using FET apps, particularly for those with low body esteem.

This dissertation is unable to prove that price sensitivity has a positive relationship with FET adoption (i.e., AI color cosmetics usage in Study 1) (H6; $p > 0.05$). 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 involve a different

population of AI color cosmetics apps users, such as regular housewives, and test the relationship again.

The positive relationship between FET adoption and online purchase intention (H7) can be supported in this dissertation. FET allows consumers to try out different branded color cosmetics virtually. On top of the information richness (i.e., product information), the FET e-commerce feature may improve consumers' online purchasing intentions.

The statistical evidence on the moderating role of social media addiction in the relationship between FET adoption and online purchase intention of color cosmetics (H8) is inconclusive. In 2021, the social distancing restriction was still strong. The author contends that during this time, women did not feel the need to use actual cosmetics and saw FET as a substitute for them in a virtual environment. Spending more time on social media while utilizing FET might reduce the urge to buy color cosmetics. However, the COVID-19 pandemic was largely contained by 2022, with fewer movement restrictions (Maurya *et al*., 2023). In the aftermath of the pandemic, women are very eager to socialize, which increases their propensity to buy color cosmetics. Contrary to the previous year, addiction to social media may facilitate purchasing decisions of color cosmetics and strengthen the association between FET and online purchase of color cosmetics.

7. Contributions

7.1 Theoretical contributions

This dissertation has several theoretical contributions: First, this dissertation introduces a new concept, namely facial enhancement technology (FET). FET was used as an umbrella term in this dissertation to refer to artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) technologies capable of altering users' facial features in a virtual environment. Research on FET, such as AI-powered face-related apps, in digital marketing is still in its infancy. Previous studies have discussed the role of AR, and VR apps in online shopping (Javornik *et al*., 2016; Erdmann *et al*., 2021); however, more studies must be carried out to understand how FET, an umbrella term for AI, AR and VR face-related technologies, may improve consumers' online shopping experiences and facilitate retailers' capabilities to reach a

wider segment.

Second, this dissertation's primary theoretical contribution is to identify the antecedents of FET adoption and how it may lead to online purchases of branded color cosmetics. The theoretical framework proposed in this dissertation extends the traditional UTAUT framework (Venkatesh *et al*., 2003) by including additional key concepts such as body esteem, price sensitivity, FET adoption, and social media addiction. Based on the findings, this dissertation supports the effects of performance expectancy, effort expectancy, social influence, facilitating conditions, and body esteem toward FET adoption. Previous studies on AR and VR apps have investigated the role of self-esteem (Javornik *et al*., 2021; Lee *et al*., 2021). However, less attention has been paid to the role of body esteem in FET (Wei *et al*., 2023). This dissertation provides empirical evidence to support the relationship between body esteem and FET adoption.

Third, this dissertation adds to the body of knowledge in social comparison theory by elucidating the roles of body esteem and online purchase behavior in the context of FET adoption, a relatively new innovation in interactive technology. This dissertation also provides empirical evidence on the relationships between body esteem and FET adoption. Previous studies have discussed the apps of FET (e.g., AI color cosmetics apps) in the beauty industry (Scholz & Duffy, 2018; Smink *et al*., 2019; Hsu *et al*., 2021; Javornik *et al*., 2021). Previous studies have also discussed the role of FET in consumers' selfie-editing behavior, such as to garner likes from followers in social media platforms and, possibly, to attract the opposite gender (Wang, 2019; Barker, 2020; Fastoso *et al*., 2021). To the best of our knowledge, this is the first dissertation to elaborate the precise relationship between body esteem and FET adoption.

Lastly, this dissertation introduces social media addiction as a moderating variable. To the best of our knowledge, this is the first dissertation to propose and provide empirical evidence of the moderating role of social media addiction in the relationship between FET and online purchases. Additionally, this dissertation investigates Chinese female FET users, Chinese social media influencers, and Indonesian users, who are still underrepresented in the FET literature. This dissertation also contributes to a deeper understanding of Chinese female

FET users, social media influencers, and Indonesian users, exploring their interactions with AI color cosmetics apps, a relatively new type of FET. The author emphasizes that Chinese beauty influencers and Indonesian users remain underrepresented compared to their Asian counterparts (e.g., Chen & Dermawan, 2020; Wang & Lee, 2021).

7.2 Managerial implications

This dissertation has several managerial implications: First, since FET users are dynamic, FET designers may improve functions associated with virtual face enhancement, social networking, and e-commerce platforms. Second, the findings of this dissertation indicate that our respondents adopted FET apps to enhance their online image, improve their networks, and aid in purchasing decisions for branded cosmetics. The author strongly advises that FET app developers and branded color cosmetics companies enhance their collaborations to provide better and more immersive shopping experiences for branded cosmetics consumers. Third, the author advises that FET app developers pay more attention to the user-friendly aspect of their apps to improve user engagement. General guidelines or tutorials on how to use FET apps must be provided to improve users' experiences, especially for first-timers. Fourth, social networking apps can be linked and integrated with FET apps to allow users to share their usage and shopping experiences instantly. A dedicated online forum can be made available to enable fellow FET users to share their experiences and provide reviews and tips. Fifth, FET app developers should pay attention to the internet requirements and smartphone specifications when designing their apps to enable a broad range of users to use them. Sixth, the author advises that the whole spectrum of physical attractiveness, including body weight, should also be incorporated into the FET apps. FET app developers may keep abreast with the indicators of physical attractiveness in our society. In general, to improve FET adoption, the apps should be designed to be informative and functional (e.g., product descriptions, price comparisons, e-commerce features), user-friendly, efficient (e.g., low internet, storage requirement, and battery usage), and socially engaging (e.g., social network features). Seventh, since e-commerce has been integrated into various social media platforms, FET designers may collaborate with more color cosmetics retailers and mutual benefits where they can complement each other. For instance, FET designers may consult with color cosmetics

retailers to ensure the accuracy of the virtual representation of color cosmetics. Meanwhile, color cosmetics retailers can use FET platforms to promote their products. Lastly, FET apps can assist cosmetics companies in better understanding their consumers' online purchasing behavior, as big data and AI algorithms can remember their purchased cosmetics, frequency of purchasing cosmetics, and preferred brand.

7.3 Social contributions

This dissertation has several social contributions: First, by using FET apps, the brand can be closer to their consumers and provide more cosmetics information and fun for consumers who prefer to purchase online or social media platforms. Second, FET apps may become a new marketing strategy in the future cosmetics retails under the assistance of social distancing policies during the COVID 19 pandemic. Third, FET apps may generate a new sustainable model of consumption by shifting the trying function from physically (offline) to virtually (online). It can greatly reduce the waste of color cosmetics by leaving out the cosmetics for trial. Lastly, FET users only need a smartphone with Wi-Fi or internet, which greatly increases the level of convenience for consumers because there are no time or location constraints. In the near future, FET could become a new marketing tool that helps brands promote and sell cosmetics in a more cost-effective and integrated manner.

7.4 Limitation and future research

The author wishes to note two limitations in this dissertation. Firstly, the focus is solely on female users, while FET also encompasses male users, which falls outside the scope of this study. Exploring this smaller subset of male users could be an intriguing avenue for future research within the field of FET. Secondly, given that body esteem is a sensitive variable for women, it may be influenced by social biases. To address this, future research could incorporate more reliable body esteem scales and adopt a third-person perspective to mitigate bias. Furthermore, as technology continues to evolve over time, FET may introduce new types or enhanced versions in the future market. These changes could potentially impact consumer online behaviors towards branded color cosmetics in the context of online shopping. Therefore, from a methodological perspective, employing experimental design and qualitative

research methods could be suitable approaches to explore future consumers' online behavior in response to these advancements. Despite the aforementioned limitations, this dissertation has yielded some useful results. For instance, the author found that both high and low body esteem have a significant impact on FET app adoption.

8. Conclusion

This is an article-based dissertation comprising three quantitative studies on FET. To interconnect these three studies, the dissertation adopts the UTAUT theoretical model as the foundational framework, which was utilized in Study 3. Additionally, this dissertation utilizes the research purpose of Study 3 to enhance the connection among these three studies. The following presented the sample and procedure in each study.

In Study 1, 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 apps and their e-WOM intention. The author chose nano influencers with 1000 to 10000 followers as the respondents for the type of social media influencers in study 1. To be eligible, all of the respondents had to meet several criteria: first, they had to state that they were users of AI color cosmetics apps; second, they also had to state that they were social media influencers. To find the right respondents, the author started by looking for people in our networks who were social media influencers and fit the criteria. The author spread an online questionnaire via social media platforms, such as WeChat and TikTok. The data was collected 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, the author argues that Shanghai is representative of the behavior of Chinese influencers. To gather relevant respondents, this research employed a combination of purposive and snowball sampling. In the end, the author managed to obtain 221 valid respondents.

In Study 2, the purpose of this research was to investigate factors influencing the adoption of AI color cosmetics apps as promotional tools for branded color cosmetics. This

research employed purposive sampling. The author selected female users who used AI color cosmetics with varying degrees of usage frequency. They were approached via various social media platforms, such as Facebook and Instagram, where they posted their self-edited photos. A selfie with AI color cosmetics apps watermarks (e.g., B612, FaceApp) was a good indication that they were the right respondents for this research. After establishing prior communication with the potential respondents, the author sent them a link to the online questionnaire. To provide some context for our research, the data collection activity was carried out from March to June 2021, when the COVID-19 and social restrictions were still prevalent in Indonesia. The rise in computer-mediated social interaction during the COVID-19 pandemic has changed the way people interacted in their personal and professional lives (Lal, Dwivedi, & Haag, 2021; Tibbetts *et al*., 2021). Furthermore, the author contends that the decline in branded cosmetics due to hygiene concerns and financial constraints during the pandemic (Mościcka *et al*., 2020) has all contributed to the growing popularity of Artificial intelligence (AI) color cosmetics apps, particularly for those who want to appear attractive during online social interactions.

In Study 3, the purpose of this research is to extend the unified theory of acceptance and use of technology (UTAUT) model in the context of FET. In this quantitative research, the author employed purposive sampling. Because the bulk of FET apps were geared toward female users, the author focused on female users who routinely used FET apps (e.g., AI color cosmetics apps). They were approached through the most popular social media platforms in China, such as WeChat, where they posted their self-editing photos. The author selected mainland China as the primary data collection hub primarily due to two factors: first, the vast and lucrative nature of its market, particularly among the younger demographic, and second, the strong cultural affinity and beauty standards in Asia that make FET highly coveted in the region. A selfie with AI color cosmetics apps watermarks (e.g., B612, BeautyCam, and FaceApp) was a good indication that they were the right respondents for this research. Before sending out the online questionnaire link, the author established prior communication with the potential respondents. For example, the author asked them through text messages on the WeChat platform if they had ever used one of the FET apps. Only those who responded

affirmatively (i.e., yes) received the link to the questionnaire. The first online questionnaire was distributed from September to October 2021, and the second was distributed in December 2022. Both questionnaires were distributed through the Wenjuanxing platform (i.e., a professional online questionnaire survey platform in China). The author received 272 respondents in the first wave of data collection. Within 14 months difference, the author received 201 respondents in the second wave. Altogether, the author obtained and processed 473 valid respondents.

Since each study has a different research purpose, target group, data collection period, and approach to respondent platform, the results also differ. For instance, in Study 1, body esteem is not a significant predictor of AI color cosmetics usage, while in Study 2, both positive and negative views of body esteem have a positive relationship with AI color cosmetics adoption. The differing results might be due to the target respondents for Study 1 being Chinese social media influencers, while the target respondents for Study 2 were Indonesian female users. First, the research countries were different, as China and Indonesia have some cultural differences that may lead to varying results in the same variable. Second, social media influencers had a commercial interest, as they were paid to promote tangible products, whereas their "virtual" alternatives served as a trial. Regular users primarily used FET for selfie-editing, entertainment, and virtual makeup try-on purposes. Different usage purposes may lead to different results. However, these three studies all focused on branded color cosmetics and investigated the factors influencing the use of FET apps (e.g., AI color cosmetics usage and AI color cosmetics adoption).

This dissertation adopts all the variables in Study 3 but does not include some variables in Studies 1 and 2. For instance, the author did not adopt actual purchase (mediator) and e-WOM intention (dependent variable) in Study 1, nor price consciousness (mediator and moderator) in Study 2. The reason for not adopting actual purchase and e-WOM intention is because the purpose of this dissertation is to explore the factors that may contribute to FET adoption and investigate the extent to which FET adoption contributes to subsequent online purchases (i.e., color cosmetics). Actual purchase and e-WOM intention are not relevant to the purpose of this dissertation. Price consciousness, serving as both a mediator and moderator in

Study 2 for body esteem and AI color cosmetics, however, in this dissertation, the author adopted price sensitivity rather than price consciousness for two reasons. First, price sensitivity serves the same role in Study 1 as in this dissertation. Second, the relationship between price sensitivity and AI color cosmetics usage has been tested in Study 1. Therefore, the author considers price sensitivity to be more appropriate. In conclusion, this dissertation includes six independent variables (i.e., performance expectancy, effort expectancy, social influence, facilitating conditions, body esteem, and price sensitivity), one mediator (i.e., facial enhancement technology), one moderator (i.e., social media addiction), and one dependent variable (i.e., online purchase intention) drawn from three selected published quantitative studies.

References

Abbad, M. M. (2021). Using the UTAUT model to understand students' usage of e-learning systems in developing countries. *Education and Information Technologies*, 26, 1-20. https://doi.org/10.1007/s10639-021-10573-5

Abed, S. S. (2021). Examining augmented reality adoption by consumers with highlights on gender and educational-level differences. *Review of International Business and Strategy*, 31(3), 397-415. https://doi.org/10.1108/RIBS-08-2020-0100

Ajzen, I., & Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behavior. *Englewood Cliffs*, NJ: Prentice-Hall.

Al-Adwan, A. S., Yaseen, H., Alsoud, A., Abousweilem, F., & Al-Rahmi, W. M. (2022). Novel extension of the UTAUT model to understand continued usage intention of learning management systems: the role of learning tradition. *Education and Information Technologies*, 27(3), 3567-3593. https://doi.org/10.1007/s10639-021-10758-y

Altay, B. C., & Okumuş, A. (2022). User adoption of integrated mobility technologies: The case of multimodal trip-planning apps in Turkey. *Research in Transportation Business and Management*, 43, 100706. https://doi.org/10.1016/j.rtbm.2021.100706

Ameen, N., Hosany, S., & Tarhini, A. (2021). Consumer interaction with cutting-edge technologies: Implications for future research. *Computers in Human Behavior*, 120, 106761. https://doi.org/10.1016/j.chb.2021.106761

Antipov, G., Baccouche, M., & Dugelay, J. L. (2017, September). "Face aging with conditional generative adversarial networks", In *2017 IEEE International Conference on Image Processing (ICIP)*, pp. 2089-2093. https://doi.org/10.1109/ICIP.2017.8296650

Baek, T. H., Yoo, C. Y., & Yoon, S. (2018). Augment yourself through virtual mirror: the impact of self-viewing and narcissism on consumer responses. *International Journal of Advertising*, 37(3), 421-439. https://doi.org/10.1080/02650487.2016.1244887

Baghel, D., & Parthasarathy, D. (2019). Knowledge Generation for Innovation in Ayurvedic Cosmetics MSMEs: Investigating Entrepreneur's Cultural and Symbolic Capital. *Science, Technology and Society*, 24(1), 101-121.

https://doi.org/10.1177/0971721818821795

Barker, J. (2020). Making-up on mobile: The pretty filters and ugly implications of Snapchat. *Fashion, Style and Popular Culture*, 7(2-3), 207-221. https://doi.org/10.1386/fspc_00015_1

Baucells, M., Osadchiy, N., & Ovchinnikov, A. (2017). Behavioral anomalies in consumer wait-or-buy decisions and their implications for markdown management. *Operations Research*, 65(2), 357-378. https://doi.org/10.1287/opre.2016.1547

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modelling. *Sociological Methods & Research*, 16(1), 78-117. https://doi.org/10.1177/0049124187016001004

Bhargava, H. K. (2014). Platform technologies and network goods: insights on product launch and management. *Information Technology and Management*, 15(3), 199-209. https://doi.org/10.1007/s10799-014-0188-y

Boursier, V., Gioia, F., & Griffiths, M. D. (2020). Do selfie-expectancies and social appearance anxiety predict adolescents' problematic social media use?. *Computers in Human Behavior*, 110, 106395. https://doi.org/10.1016/j.chb.2020.106395

Brug, J., Oenema, A., & Ferreira, I. (2005). Theory, evidence and Intervention Mapping to improve behavior nutrition and physical activity interventions. *International Journal of Behavioral Nutrition and Physical Activity*, 2(1), 1-7. https://doi.org/10.1186/1479-5868-2-2

Buhalis, D., López, E. P., & Martinez-Gonzalez, J. A. (2020). Influence of young consumers' external and internal variables on their e-loyalty to tourism sites. *Journal of Destination Marketing & Management*, 15, 100409. https://doi.org/10.1016/j.jdmm.2020.100409

Cachero-Martínez, S., & Vázquez-Casielles, R. (2021). Building consumer loyalty through e-shopping experiences: The mediating role of emotions. *Journal of Retailing and Consumer Services*, 60, 102481. https://doi.org/10.1016/j.jretconser.2021.102481

Casale, S., & Fioravanti, G. (2018). Why narcissists are at risk for developing Facebook addiction: The need to be admired and the need to belong. *Addictive Behaviors*, 76, 312-318. https://doi.org/10.1016/j.addbeh.2017.08.038

Chen, J. L., & Dermawan, A. (2020). The Influence of YouTube Beauty Vloggers on

Indonesian Consumers' Purchase Intention of Local Cosmetic Products. *International Journal of Business and Management*, 15(5), 100-116. https://doi.org/10.5539/ijbm.v15n5p100

Chen, L., Rashidin, M. S., Song, F., Wang, Y., Javed, S., & Wang, J. (2021). Determinants of Consumer's Purchase Intention on Fresh E-Commerce Platform: Perspective of UTAUT Model. *SAGE Open*, 11(2), 1-17. https://doi.org/10.1177/21582440211027875

Chiou, J. S., & Droge, C. (2006). Service quality, trust, specific asset investment, and expertise: Direct and indirect effects in a satisfaction-loyalty framework. *Journal of the Academy of Marketing Science*, 34(4), 613-627. https://doi.org/10.1177/0092070306286934

Chung, N., Han, H., & Joun, Y. (2015). Tourists' intention to visit a destination: The role of augmented reality (AR) application for a heritage site. *Computers in Human Behavior*, 50, 588-599. https://doi.org/10.1016/j.chb.2015.02.068

Civelek, M. E. (2018). Essentials of structural equation modeling. *Essentials of Structural Equation Modeling* (2018). https://ssrn.com/abstract=3338325

Coeurderoy, R., Guilmot, N., & Vas, A. (2014). Explaining factors affecting technological change adoption: A survival analysis of an information system implementation. *Management Decision*, 52(6), 1082-1100. https://doi10.1108/MD-10-2013-0540

Cohen, J. E. (1988), *Statistical Power Analysis for the Behavioral Sciences*, Lawrence Erlbaum Associates, Hillsdale, NJ.

Cowan, K., Javornik, A., & Jiang, P. (2021). Privacy concerns when using augmented reality f ace filters? Explaining why and when use avoidance occurs. *Psychology and Marketing*, 38(10), 1799-1813. https://doi.org/10.1002/mar.21576

D'Arienzo, M. C., Boursier, V., & Griffiths, M. D. (2019). Addiction to social media and attachment styles: a systematic literature review. *International Journal of Mental Health and Addiction*, 17(4), 1094-1118. https://doi.org/10.1007/s11469-019-00082-5

Dash, G., & Paul, J. (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, 173, 121092. https://doi.org/10.1016/j.techfore.2021.121092

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. https://doi.org/10.2307/249008

Dehghani, M., Lee, S. H. M., & Mashatan, A. (2020). Touching holograms with windows mixed reality: Renovating the consumer retailing services. *Technology in Society*, 63, 101394. https://doi.org/10.1016/j.techsoc.2020.101394

Del Campo, M., Manninger, S., Wang, L. J., & Sanche, M. (2020). Sensibilities of Artificial Intelligence: An Examination of Architecture in a Post-human Design Ecology. In *Impact: Design With All Senses: Proceedings of the Design Modelling Symposium, Berlin 2019* (pp. 529-538). Springer International Publishing. https://doi.org/10.1007/978-3-030-29829-6_41

Dogan, H., Norman, H., Alrobai, A., Jiang, N., Nordin, N., & Adnan, A. (2019). A web-based intervention for social media addiction disorder management in higher education: Quantitative survey study. *Journal of Medical Internet Research*, 21(10), e14834. https://doi.org/10.2196/14834

Erdmann, A., Mas, J. M., & Arilla, R. (2021). Value-based adoption of augmented reality: A study on the influence on online purchase intention in retail. *Journal of Consumer Behaviour*, pp. 1-21. https://doi.org/10.1002/cb.1993

Faqih, K. M., & Jaradat, M. I. R. M. (2021). Integrating TTF and UTAUT2 theories to investigate the adoption of augmented reality technology in education: Perspective from a developing country. *Technology in Society*, 67, 101787. https://doi.org/10.1016/j.techsoc.2021.101787

Fardouly, J., Pinkus, R. T., & Vartanian, L. R. (2017). The impact of appearance comparisons made through social media, traditional media, and in person in women's everyday lives. *Body Image*, 20, 31-39. https://doi.org/10.1016/j.bodyim.2016.11.002

Farooq, R. (2016). Role of structural equation modeling in scale development. *Journal of Advances in Management Research*, 13(1), 75-91. https://doi.org/10.1108/JAMR-05-2015-0037

Fastoso, F., González-Jiménez, H., & Cometto, T. (2021). Mirror, mirror on my phone: Drivers and consequences of selfie editing. *Journal of Business Research*, 133(1), 365-

375. https://doi.org/10.1016/j.jbusres.2021.05.002

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39(2), 175-191. https://doi.org/10.3758/BF03193146

Faust, F., Roepke, G., Catecati, T., Araujo, F., Ferreira, M. G. G., & Albertazzi, D. (2012). Use of augmented reality in the usability evaluation of products. *Work*, 41(Supplement 1), 1164-1167. https://doi.org/10.3233/WOR-2012-0298-1164

Festinger, L. (1954). A theory of social communication processes. *Human Relations*, 7, 117-140. https://doi.org/10.1177/001872675400700202

Florenthal, B., Awad, M., & Godar, S. (2020). Nonprofits meet millennials: a hybrid approach of uses and gratifications and TAM to identify the drivers of monetary donation intention. *Young Consumers*, 21(4), 435-449. https://doi.org/10.1108/YC-03-2020-1106

Fortes, A. B., Broilo, P. L., & Lisboa, C. S. D. M. (2021). Smartphone Use and Psychological Well-being: the Moderating Role of Emotion Regulation. *Trends in Psychology*, 29(2), 189-203. https://doi10.1007/s43076-020-00051-1

Franzoi, S. L. (2001). Is female body esteem shaped by benevolent sexism? *Sex Roles*, 44(3), 177-188. https://doi.org/10.1023/A:1010903003521

Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, 69(8), 3192-3198. https://doi.org/10.1016/j.jbusres.2015.12.008

Gefen, D., Rigdon, E. E., & Straub, D. (2011). Editor's comments: an update and extension to SEM guidelines for administrative and social science research. *Mis Quarterly*, 35(2), iii-xiv. https://doi.org/10.2307/23044042

Gerbing, D. W., & Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling: A Multidisciplinary Journal*, 3(1), 62-72. https://doi.org/10.1080/10705519609540030

Ghazali, E. M., Mutum, D. S., & Woon, M. Y. (2019). Multiple sequential mediation in an extended uses and gratifications model of augmented reality game Pokémon Go. *Internet Research*, 29(3), 504-528. https://doi.org/10.1108/IntR-12-2017-0505

Goldsmith, R. E., Flynn, L. R., & Kim, D. (2010). Status consumption and price sensitivity. *Journal of Marketing Theory and Practice*, 18(4), 323-338. https://doi.org/10.2753/MTP1069-6679180402

Goldsmith, R. E., Kim, D., Flynn, L. R., & Kim, W. M. (2005). Price sensitivity and innovativeness for fashion among Korean consumers. *The Journal of social psychology*, 145(5), 501-508. https://doi.org/10.3200/SOCP.145.5.501-508

Grapentine, T. (2000). Path analysis vs. structural equation modeling. *Marketing Research*, 12(3). 13-20.

Grewal, D., Hulland, J., Kopalle, P. K., & Karahanna, E. (2020). The future of technology and marketing: A multidisciplinary perspective. *Journal of the Academy of Marketing Science*, 48, 1–8. https://doi.org/10.1007/s11747-019-00711-4

Grewal, D., Roggeveen, A. L., & Nordfält, J. (2017). The future of retailing. *Journal of Retailing*, 93(1), 1-6. https://doi.org/10.1016/j.jretai.2016.12.008

Gu, J., Wang, X., & Lu, T. (2019). I like my app but I wanna try yours: exploring user switching from a learning perspective. *Internet Research*, 30(2), 611-630. https://doi.org/10.1108/INTR-07-2018-0310

Gusev, D. A. (2021). Improved Identification of Portraiture of the Julio-Claudian Period with Mobile Apps. *Journal of Imaging Science and Technology*, 65(6), 060403-1 - 060403-36. https://doi.org/10.2352/J.ImagingSci.Technol.2021.65.6.060403

Haenlein, M., Anadol, E., Farnsworth, T., Hugo, H., Hunichen, J., & Welte, D. (2020). Navigating the New Era of Influencer Marketing: How to be Successful on Instagram, TikTok, and Co. *California Management Review*, 63(1), 5-25. https://doi.org/10.1177/0008125620958166

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis: Pearson New International Edition*, Essex: Pearson Education Limited, 1(2).

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hamari, J., Malik, A., Koski, J., & Johri, A. (2019). Uses and gratifications of pokémon go:

why do people play mobile location-based augmented reality games?. *International Journal of Human–Computer Interaction*, 35(9), 804-819. https://doi.org/10.1080/10447318.2018.1497115

Hawker, K., & Carah, N. (2021). Snapchat's augmented reality brand culture: sponsored filters and lenses as digital piecework. *Continuum*, 35(1), 12-29. https://doi.org/10.1080/10304312.2020.1827370

Hopkins, B. E. (2007). Western cosmetics in the gendered development of consumer culture in China. *Feminist Economics*, 13(3-4), 287-306. https://doi.org/10.1080/13545700701439416

Hsu, S. H. Y., Tsou, H. T., & Chen, J. S. (2021). "Yes, we do. Why not use augmented reality?" customer responses to experiential presentations of AR-based applications. *Journal of Retailing and Consumer Services*, 62(1), 102649. https://doi.org/10.1016/j.jretconser.2021.102649

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. https://doi.org/10.1080/10705519909540118

Huang, J., & Zhou, L. (2018). Timing of web personalization in mobile shopping: A perspective from Uses and Gratifications Theory. *Computers in Human Behavior*, 88, 103-113. https://doi.org/10.1016/j.chb.2018.06.035

Huang, T. L., & Liao, S. L. (2017). Creating e-shopping multisensory flow experience through augmented-reality interactive technology. *Internet Research*, 27(2), 449-475. https://doi.org/10.1108/IntR-11-2015-0321

Ibáñez-Sánchez, S., Orús, C., & Flavián, C. (2022). Augmented reality filters on social media. Analyzing the drivers of playability based on uses and gratifications theory. *Psychology and Marketing*, 39(3), 559-578. https://doi.org/10.1002/mar.21639

Jaswal, R. (2021). Augmented Reality's effect on online cosmetics consumer purchasing patterns: A study on virtual artists at Sephora. *Turkish Journal of Computer and Mathematics Education*, 12(12), 730-737. https://turcomat.org/index.php/turkbilmat/article/view/7458/5977

Javornik, A. (2016), Augmented reality: research agenda for studying the impact of its media characteristics on consumer behaviour. *Journal of Retailing and Consumer Services*, 30, 252-261. https://doi.org/10.1016/j.jretconser.2016.02.004

Javornik, A., Marder, B., Barhorst, J. B., McLean, G., Rogers, Y., Marshall, P., & Warlop, L. (2022). 'What lies behind the filter? 'Uncovering the motivations for using augmented reality (AR) face filters on social media and their effect on well-being. *Computers in Human Behavior*, 128, 107126. https://doi.org/10.1016/j.chb.2021.107126

Javornik, A., Marder, B., Pizzetti, M., & Warlop, L. (2021). Augmented self-the effects of virtual face augmentation on consumers' self-concept. *Journal of Business Research*, 130(1), 170-187. https://doi.org/10.1016/j.jbusres.2021.03.026

Jorge, L. F., Mosconi, E., & Santa-Eulalia, L. A. (2022). Enterprise social media platforms for coping with an accelerated digital transformation. *Journal of Systems and Information Technology*, 24(3), 221-245. https://doi.org/10.1108/JSIT-08-2021-0154

Kaminski, P. L., & Hayslip Jr, B. (2006). Gender differences in body esteem among older adults. *Journal of Women and Aging*, 18(3), 19-35. https://doi.org/10.1300/J074v18n03_03

Kang, M., Liew, B. Y. T., Lim, H., Jang, J., & Lee, S. (2015). Investigating the determinants of mobile learning acceptance in Korea using UTAUT2. In *Emerging Issues in Smart Learning*, pp. 209-216, Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-44188-6_29

Khan, A., & Khusro, S. (2021). An insight into smartphone-based assistive solutions for visually impaired and blind people: issues, challenges and opportunities. *Universal Access in the Information Society*, 20(2), 265-298. https://doi.org/10.1007/s10209-020-00733-8

Kim, J., & Forsythe, S. (2008). Adoption of virtual try-on technology for online apparel shopping. *Journal of Interactive Marketing*, 22(2), 45-59. https://doi.org/10.1002/dir.20113

Korai, B. (2017). Determinants of African women's brand sensitivity toward cosmetics. *Journal of International Consumer Marketing*, 29(4), 250-264.

https://doi.org/10.1080/08961530.2017.1311125

Kübler, R., Pauwels, K., Yildirim, G., & Fandrich, T. (2018). App popularity: Where in the world are consumers most sensitive to price and user ratings?. *Journal of Marketing*, 82(5), 20-44. https://doi.org/10.1509/jm.16.0140

Kurul, R., Ögün, M. N., Neriman Narin, A., Avci, Ş., & Yazgan, B. (2020). An alternative method for anatomy training: Immersive virtual reality. *Anatomical Sciences Education*, 13(5), 648-656. https://doi.org/10.1002/ase.1959

Kwok, A. O., & Koh, S. G. (2021). COVID-19 and extended reality (XR). *Current Issues in Tourism*, 24(14), 1935-1940. https://doi.org/10.1080/13683500.2020.1798896

Lal, B., Dwivedi, Y. K., & Haag, M. (2021). Working from home during covid-19: Doing and managing technology-enabled social interaction with colleagues at a distance. *Information Systems Frontiers*, 1–18. https://doi.org/10.1007/s10796-021-10182-0

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, 32, 1-62. https://doi.org/10.1016/S0065-2601(00)80003-9

Lee, B. K., Suh, T., & Sierra, J. J. (2020). Understanding the effects of physical images on viewers in social comparison contexts: a multi-study approach. *Journal of Promotion Management*, 26(1), 1-18. https://doi.org/10.1080/10496491.2019.1612496

Lee, H., & Cho, C. H. (2020). Uses and gratifications of smart speakers: Modelling the effectiveness of smart speaker advertising. *International Journal of Advertising*, 39(7), 1150-1171. https://doi.org/10.1080/02650487.2020.1765657

Lee, H., Chung, N., & Jung, T. (2015). Examining the cultural differences in acceptance of mobile augmented reality: Comparison of South Korea and Ireland. In *Information and communication technologies in tourism 2015* (pp. 477-491). Springer, Cham. https://doi.org/10.1007/978-3-319-14343-9_35

Lee, J., & Lee, J. N. (2015). How purchase intention consummates purchase behaviour: the stochastic nature of product valuation in electronic commerce. *Behaviour & Information Technology*, 34(1), 57-68. https://doi.org/10.1080/0144929X.2013.853837

Lee, K. Y., Sheehan, L., Lee, K., & Chang, Y. (2021). The continuation and recommendation

intention of artificial intelligence-based voice assistant systems (AIVAS): the influence of personal traits. *Internet Research*, 31(1), 1-10. https://doi.org/10.1108/INTR-11-2020-0668

Lee, Y. H., Ahn, H., Cho, H. J., & Lee, J. H. (2014). Advanced face recognition and verification in mobile platforms. *Journal of Systems and Information Technology*, 16(2), 126-137. https://doi.org/10.1108/JSIT-11-2013-0060

Lereya, S. T., Eryigit-Madzwamuse, S., Patra, C., Smith, J. H., & Wolke, D. (2014). Body-esteem of pupils who attended single-sex versus mixed-sex schools: A cross-sectional study of intrasexual competition and peer victimization. *Journal of Adolescence*, 37(7), 1109-1119. https://doi.org/10.1016/j.adolescence.2014.08.005

Li, H., Liu, Y., Xu, X., Heikkilä, J., & van der Heijden, H. (2015). Modeling hedonic is continuance through the uses and gratifications theory: An empirical study in online games. *Computers in Human Behavior*, 48, 261-272. https://doi.org/10.1016/j.chb.2015.01.053

Li, J. Q., & Wei, Y. (2020, October). *Double 11 presale transactions over two days of 9.1-billion-yuan, listed companies are preparing*. Xinhua News. Retrieved on 4 August 2021 from: http://www.xinhuanet.com/fortune/2020-10/24/c_1126651678.htm

Lichtenstein, D. R., Bloch, P. H. & Black, W. C. (1988). Correlates of price acceptability. *Journal of Consumer Research*, 15(2), 243-252. https://doi.org/10.1086/209161

Lipowska, M., Lipowski, M., Olszewski, H., & Dykalska-Bieck, D. (2016). Gender differences in body-esteem among seniors: Beauty and health considerations. *Archives of Gerontology and Geriatrics*, 67(2), 160-170. https://doi.org/10.1016/j.archger.2016.08.006

Liu, W. Y., Lin, C. C., Lee, Y. S., & Deng, D. J. (2013). On gender differences in consumer behavior for online financial transaction of cosmetics. *Mathematical and Computer Modelling*, 58(1-2), 238-253. https://doi.org/10.1016/j.mcm.2012.08.010

Lou, C. (2022). Social media influencers and followers: Theorization of a trans-parasocial relation and explication of its implications for influencer advertising. *Journal of Advertising*, 51(1), 4-21. https://doi.org/10.1080/00913367.2021.1880345

Lu, J., Liu, C., Yu, C. S., & Wang, K. (2008). Determinants of accepting wireless mobile data services in China. *Information and Management*, 45(1), 52-64. https://doi.org/10.1016/j.im.2007.11.002

Lungu, A. J., Swinkels, W., Claesen, L., Tu, P., Egger, J., & Chen, X. (2021). A review on the applications of virtual reality, augmented reality and mixed reality in surgical simulation: an extension to different kinds of surgery. *Expert Review of Medical Devices*, 18(1), 47-62. https://doi.org/10.1080/17434440.2021.1860750

Maurya, P. K., Bansal, R., & Mishra, A. K. (2023). Russia–Ukraine conflict and its impact on global inflation: an event study-based approach. *Journal of Economic Studies*, 50(8), 1824-1846. https://doi.org/10.1108/JES-01-2023-0003

Meißner, M., Pfeiffer, J., Peukert, C., Dietrich, H., & Pfeiffer, T. (2020). How virtual reality affects consumer choice. *Journal of Business Research*, 117(1), 219-231. https://doi.org/10.1016/j.jbusres.2020.06.004

Menard, S. W., (1995). *Applied Logistic Regression Analysis*, SAGE, Thousand Oaks, p. 128.

Mendelson, B. K., McLaren, L., Gauvin, L., & Steiger, H. (2002). The relationship of self-esteem and body esteem in women with and without eating disorders. *International Journal of Eating Disorders*, 31(3), 318-323. https://doi.org/10.1002/eat.10011

Mendelson, B. K., Mendelson, M. J., & White, D. R. (2001). Body-esteem scale for adolescents and adults. *Journal of Personality Assessment*, 76(1), 90-106. https://doi.org/10.1207/S15327752JPA7601_6

Mendelson, B. K., White, D. R., & Mendelson, M. J. (1996). Self-esteem and body esteem: Effects of gender, age, and weight. *Journal of Applied Developmental Psychology*, 17(3), 321-346. https://doi.org/10.1016/S0193-3973(96)90030-1

Mishra, A. K., Bansal, R., Maurya, P. K., Kar, S. K., & Bakshi, P. K. (2023). Predicting the antecedents of consumers' intention toward purchase of mutual funds: A hybrid PLS-SEM-neural network approach. *International Journal of Consumer Studies*, 47(2), 563-587. https://doi.org/10.1111/ijcs.12850

Mitchell, R. J. (1992). Testing evolutionary and ecological hypotheses using path analysis and structural equation modelling. *Functional Ecology*, 6(2), 123-129.

https://doi.org/10.2307/2389745

Monteiro, S. (2023). Gaming faces: diagnostic scanning in social media and the legacy of racist face analysis. *Information, Communication & Society*, 26(8), 1601-1617. https://doi.org/10.1080/1369118X.2021.2020867

Monteros, M. (2021). *Want a pandemic-friendly way to try on makeup? There's an AR solution for that*. Retail Dive. Retrieved July 25, 2022. https://www.retaildive.com/news/want-a-pandemic-friendly-way-to-try-on-makeup-theres-an-ar-solution-for-t/594966/

Mościcka, P., Chróst, N., Terlikowski, R., Przylipiak, M., Wołosik, K., & Przylipiak, A. (2020). Hygienic and cosmetic care habits in polish women during COVID-19 pandemic. *Journal of Cosmetic Dermatology*, 19(8), 1840-1845. https://doi.org/10.1111/jocd.13539

Ngarmwongnoi, C., Oliveira, J. S., AbedRabbo, M., & Mousavi, S. (2020). The implications of eWOM adoption on the customer journey. *Journal of Consumer Marketing*, 37(7), 749-759. https://doi.org/10.1108/JCM-10-2019-3450

Nguyen, T. N., McDonald, M., Nguyen, T. H. T., & McCauley, B. (2020). Gender relations and social media: a grounded theory inquiry of young Vietnamese women's self-presentations on Facebook. *Gender, Technology and Development*, 24(2), 174-193. https://doi.org/10.1080/09718524.2020.1719598

Ozturk, A. B., Wei, W., Hua, N., & Qi, R. (2021). Factors affecting attendees continued use of mobile event applications. *Journal of Hospitality and Tourism Technology*, 12(2), 307-323. https://doi.org/10.1108/JHTT-03-2020-0058

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective. *Journal of Marketing*, 85(1), 131-151. https://doi.org/10.1177/0022242920953847

Rajesh, T., & Rangaiah, B. (2020). Facebook addiction and personality. *Heliyon*, 6(1), e03184. https://doi.org/10.1016/j.heliyon.2020.e03184

Ratten, V. (2015). Factors influencing consumer purchase intention of cloud computing in the United States and Turkey: The role of performance expectancy, ethical awareness and consumer innovation. *EuroMed Journal of Business*, 10(1), 80-97. https://doi.org/10.1108/EMJB-02-2014-0007

Rauschnabel, P. A., He, J., & Ro, Y. K. (2018). Antecedents to the adoption of augmented reality smart glasses: A closer look at privacy risks. *Journal of Business Research*, 92, 374-384. https://doi.org/10.1016/j.jbusres.2018.08.008

Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. *Technological Forecasting and Social Change*, 124, 306-319. https://doi.org/10.1016/j.techfore.2016.10.010

Rios, J. S., Ketterer, D. J., & Wohn, D. Y. (2018, October). How users choose a face lens on Snapchat. In *Companion of the 2018 ACM Conference on Computer Supported Cooperative Work and Social Computing*, 321-324. https://doi.org/10.1145/3272973.3274087

Robertson, J., Fieldman, G., & Hussey, T. (2008). "Who wears Cosmetics?" Individual Differences and their Relationship with Cosmetic Usage. *Individual Differences Research*, 6(1), 38-56. https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=3b0a715e-d367-4dec-8af2-cae72990ecf1%40redis

Romano, B., Sands, S., & Pallant, J. I. (2022). Virtual shopping: segmenting consumer attitudes towards augmented reality as a shopping tool. *International Journal of Retail & Distribution Management*, 50(10), 1221-1237. https://doi.org/10.1108/IJRDM-10-2021-0493

Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication & Society*, 3(1), 3-37. https://doi.org/10.1207/S15327825MCS0301_02

Salisbury, W. D., Pearson, R. A., Pearson, A. W., & Miller, D. W. (2001). Perceived security

and World Wide Web purchase intention. *Industrial Management & Data Systems*, 101(4), 165-177. https://doi.org/10.1108/02635570110390071

Santos, S., & Gonçalves, H. M. (2021). The consumer decision journey: A literature review of the foundational models and theories and a future perspective. *Technological Forecasting and Social Change*, 173, 121117. https://doi.org/10.1016/j.techfore.2021.121117

Saridakis, C., Baltas, G., Oghazi, P., & Hultman, M. (2016). Motivation recipes for brand-related social media use: A Boolean—fsQCA approach. *Psychology & Marketing*, 33(12), 1062–1070. https://doi.org/10.1002/mar.20940

Savci, M., Ercengiz, M., & Aysan, F. (2018). Turkish adaptation of the Social Media Disorder Scale in adolescents. *Archives of Neuropsychiatry*, 55(3), 248-255. https://doi.org/10.5152/npa.2017.19285

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.

Scholz, J., & Duffy, K. (2018). We ARe at home: How augmented reality reshapes mobile marketing and consumer-brand relationships. *Journal of Retailing and Consumer Services*, 44 (1), 11-23. https://doi.org/10.1016/j.jretconser.2018.05.004

Scholz, J., & Smith, A. N. (2016), Augmented reality: designing immersive experiences that maximize consumer engagement. *Business Horizons*, 59(2), 149-161. https://doi.org/10.1016/j.bushor.2015.10.003

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, 99(6), 323-338. https://doi.org/10.3200/JOER.99.6.323-338

Sharma, S., & Crossler, R. E. (2014). Intention to engage in social commerce: Uses and gratifications approach. *Proceedings of the Twentieth Americas Conference on Information Systems*, pp. 1-12.

Sharma, S., & Kumar, V. (2022). 3D Face Reconstruction in Deep Learning Era: A Survey. *Archives of Computational Methods in Engineering*, 29, 3475–3507.

https://doi.org/10.1007/s11831-021-09705-4

Simay, A. E., Wei, Y., Gyulavári, T., Syahrivar, J., Gaczek, P. & Hofmeister-Tóth, Á. (2023). The e-WOM intention of artificial intelligence (AI) color cosmetics among Chinese social media influencers. *Asia Pacific Journal of Marketing and Logistics*, 35(7), 1569-1598. https://doi.org/10.1108/APJML-04-2022-0352

Smink, A. R., Frowijn, S., van Reijmersdal, E. A., van Noort, G., & Neijens, P. C. (2019). Try online before you buy: How does shopping with augmented reality affect brand responses and personal data disclosure. *Electronic Commerce Research and Applications*, 35(1), 100854. https://doi.org/10.1016/j.elerap.2019.100854

Smink, A. R., van Reijmersdal, E. A., & van Noort, G. (2021). Consumers' Use of Augmented Reality Apps: Prevalence, User Characteristics, and Gratifications. *Journal of Advertising*, 51(1), 85-94. https://doi.org/10.1080/00913367.2021.1973622

Song, M., Xing, X., Duan, Y., Cohen, J., & Mou, J. (2022). Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention. *Journal of Retailing and Consumer Services*, 66, 102900. https://doi.org/10.1016/j.jretconser.2021.102900

Sood, A., Quintal, V., & Phau, I. (2017). Keeping Up with the Kardashians: Consumers' Intention to Engage in Cosmetic Surgery. *Journal of Promotion Management*, 23(2), 185-206. https://doi.org/10.1080/10496491.2016.1267677

Sprenger, D. A., & Schwaninger, A. (2021). Technology acceptance of four digital learning technologies (classroom response system, classroom chat, e-lectures, and mobile virtual reality) after three months' usage. *International Journal of Educational Technology in Higher Education*, 18(1), 1-17. https://doi.org/10.1186/s41239-021-00243-4

Statista, (2022). *Retail sales value of cosmetics by wholesale and retail companies in China from 2011 to 2021*. Available from: https://www.statista.com/statistics/298177/china-cosmetics-retail-value/#:~:text=Retail%20sales%20value%20of%20cosmetics%20in%20China%202011%2D2021&text=In%202021%2C%20the%20retail%20sales,in%20cosmetics%20sales%20since%202010. (Accessed 8 March 2022).

Steenackers, K., Cassady, B., Brengman, M., & Willems, K. (2016). OR-100: measuring Facebook addiction among adults: Validating the Bergen Facebook addiction scale in a non-student sample. *Journal of Behavioral Addictions*, 5(S1), 41-42. https://eds.p.ebscohost.com/eds/pdfviewer/pdfviewer?vid=1&sid=9aa8601c-a7ad-4316-be28-9e155ebd974a%40redis

Sulphey, M. M. (2020). A study on the effect of long-term orientation and risk propensity on resilience. *International Journal of Sociology and Social Policy*, 40(11/12), 1585-1610. https://doi.org/10.1108/IJSSP-09-2019-0192

Suparno, C. (2020). Online purchase intention of halal cosmetics: S-O-R framework application. *Journal of Islamic Marketing*, 12(9), 1665-1681. https://doi.org/10.1108/JIMA-09-2019-0192

Syahrivar, J., Chairy, C., Juwono, I. D., & Gyulavári, T. (2022). Pay to play in freemium mobile games: a compensatory mechanism. *International Journal of Retail and Distribution Management*, 50(1), 117-134. https://doi.org/10.1108/IJRDM-09-2020-0358

Talukder, M., & Quazi, A. (2011). The impact of social influence on individuals' adoption of innovation. *Journal of Organizational Computing and Electronic Commerce*, 21(2), 111-135. https://doi.org/10.1080/10919392.2011.564483

Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2022). Augmented reality in retail and its impact on sales. *Journal of Marketing*, 86(1), 48-66. https://doi.org/10.1177/0022242921995449

Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2022). Augmented reality in retail and its impact on sales. *Journal of Marketing*, 86(1), 48-66. https://doi.org/10.1177/0022242921995449

Thongsri, N., Shen, L., Bao, Y., & Alharbi, I. M. (2018). Integrating UTAUT and UGT to explain behavioural intention to use M-learning: A developing country's perspective. *Journal of Systems and Information Technology*, 20(3), 278-297. https://doi.org/10.1108/JSIT-11-2017-0107

Tibbetts, M., Epstein-Shuman, A., Leitao, M., & Kushlev, K. (2021). A week during COVID-

19: Online social interactions are associated with greater connection and more stress. *Computers in Human Behavior Reports*, 4, 100133. https://doi.org/10.1016/j.chbr.2021.100133

Turel, O., Serenko, A., & Giles, P. (2011). Integrating technology addiction and use: An empirical investigation of online auction users. *MIS Quarterly: Management Information Systems*, 35(4), 1043–1061. https://doi.org/10.2307/41409972

Ullman, J. B., & Bentler, P. M. (2012). Structural equation modeling. *Handbook of Psychology, Second Edition, 2*.

Van den Eijnden, R. J., Lemmens, J. S., & Valkenburg, P. M. (2016). The social media disorder scale. *Computers in Human Behavior*, 61, 478-487. https://doi.org/10.1016/j.chb.2016.03.038

Venkatesh, V. (2022). Adoption and use of AI tools: a research agenda grounded in UTAUT. *Annals of Operations Research*, 308(1), 641-652. https://doi10.1007/s10479-020-03918-9

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. https://doi.org/10.2307/30036540

Vo, K. N., Le, A. N. H., Thanh Tam, L., & Ho Xuan, H. (2022). Immersive experience and customer responses towards mobile augmented reality applications: The moderating role of technology anxiety. *Cogent Business and Management*, 9(1), 2063778. https://doi.org/10.1080/23311975.2022.2063778

Wang, D. (2019). A study of the relationship between narcissism, extraversion, body-esteem, social comparison orientation and selfie-editing behavior on social networking sites. *Personality and Individual Differences*, 146(1), 127-129. https://doi.org/10.1016/j.paid.2019.04.012

Wang, L., & Lee, J. H. (2021). The impact of K-beauty social media influencers, sponsorship,

and product exposure on consumer acceptance of new products. *Fashion and Textiles*, 8(1), 1-29. https://doi.org/10.1186/s40691-020-00239-0

Wang, Y., Ko, E., & Wang, H. (2022). Augmented reality (AR) app use in the beauty product industry and consumer purchase intention. *Asia Pacific Journal of Marketing and Logistics*, 34(1), 110-131. https://doi.org/10.1108/APJML-11-2019-0684

Wang, Y., Xie, X., Fardouly, J., Vartanian, L. R., & Lei, L. (2021). The longitudinal and reciprocal relationships between selfie-related behaviors and self-objectification and appearance concerns among adolescents. *New Media & Society*, 23(1), 56-77. https://doi.org/10.1177/1461444819894346

Wei, Y., Simay, A. E., Agárdi, I., Syahrivar, J., & Hofmeister-Tóth, Á. (2023), Using Artificial Intelligence to Promote Branded Color Cosmetics: Evidence from Indonesia. *Journal of Promotion Management*, 29(5), 644-675. https://doi10.1080/10496491.2022.2163036

Whelan, S., & Davies, G. (2006). Profiling consumers of own brands and national brands using human personality. *Journal of Retailing and Consumer Services*, 13(6), 393-402. https://doi.org/10.1016/j.jretconser.2006.02.004

Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratifications approach. *Qualitative Market Journal*, 14(4), 362-369. https://doi.org/10.1108/QMR-06-2013-0041

Wieland, A., Durach, C. F., Kembro, J., & Treiblmaier, H. (2017), Statistical and judgmental criteria for scale purification. *Supply Chain Management: An International Journal*, 22(4), 321-328. https://doi.org/10.1108/SCM-07-2016-0230

Wiwatwattana, N., Chareonnivassakul, S., Maleerutmongkol, N., & Charoenvitvorakul, C. (2018). Enhancing Lipstick Try-On with Augmented Reality and Color Prediction Model. *In Information Technology-New Generations*, 738, 359-367. https://doi.org/10.1007/978-3-319-77028-4_48

Wood, J. V. (1996). What is social comparison and how should we study it? *Personality and Social Psychology Bulletin*, 22(5), 520-537. https://doi.org/10.1177/0146167296225009

Workman, M. (2014). New media and the changing face of information technology use: The importance of task pursuit, social influence, and experience. *Computers in Human*

Behavior, 31, 111-117. https://doi.org/10.1016/j.chb.2013.10.008

Xiao, W., Wang, X., Xia, S., & Jones, P. (2022). What Drives Creative Crowdsourcing? An Exploratory Study on the Persuasion of Digital Storytelling. *Science, Technology and Society*, 27(1), 23-45. https://doi.org/10.1177/09717218211025355

Yang, D., Wu, T. Y., Atkin, D. J., Ríos, D. I., & Liu, Y. (2021). Social media portrait-editing intentions: Comparisons between Chinese and American female college students. *Telematics and Informatics*, 65, 101714. https://doi.org/10.1016/j.tele.2021.101714

Yang, Y., & Xia, Y. (2015). On the number of factors to retain in exploratory factor analysis for ordered categorical data. *Behavior Research Methods*, 47(3), 756-772. https://doi.org/10.3758/s13428-014-0499-2

Yao, L., Niu, G., & Sun, X. (2021). Body image comparisons on social networking sites and Chinese female college students' restrained eating: The roles of body shame, body appreciation, and body mass index. *Sex Roles*, 84(7), 465-476. https://doi.org/10.1007/s11199-020-01179-1

Yim, M. Y. C., & Park, S. Y. (2019). "I am not satisfied with my body, so I like augmented reality (AR)": Consumer responses to AR-based product presentations. *Journal of Business Research*, 100 (1), 581-589. https://doi.org/10.1016/j.jbusres.2018.10.041

Yun, J. H. J., Park, S., & Avvari, M. V. (2011). Development and social diffusion of technological innovation: cases based on mobile telecommunications in national emergency management. *Science, Technology and Society*, 16(2), 215-234. https://doi.org/10.1177/097172181001600205

Zahera, S. A., & Bansal, R. (2019). A study of prominence for disposition effect: a systematic review. *Qualitative Research in Financial Markets*, 11(1), 2-21. https://doi10.1108/QRFM-07-2018-0081

Zhang, T., Wang, W. Y. C., Cao, L., & Wang, Y. (2019). The role of virtual try-on technology in online purchase decision from consumers' aspect. *Internet Research*, 29(3), 529-551. https://doi.org/10.1108/IntR-12-2017-0540

Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, 26(4), 760-767.

https://doi10.1016/j.chb.2010.01.013

Zhuang, X., Hou, X., Feng, Z., Lin, Z., & Li, J. (2021). Subjective norms, attitudes, and intentions of AR technology use in tourism experience: the moderating effect of millennials. *Leisure Studies*, 40(3), 392-406. https://doi.org/10.1080/02614367.2020.1843692

Appendix

Study 1 - Measurement scales (5-point Likert scale)

Variables	Items
Body Esteem (BES)	6. I wish I looked like someone else. (BES1)
	7. There are lots of things I would change about my looks if I could. (BES2)
	8. I wish I looked better. (BES3) *
	9. I worry about the way I look. (BES4) *
	10. My looks upset me. (BES5)
Price Sensitivity (PRS)	5. I usually buy branded color cosmetics when they are on sale. (PRS1)
	6. I buy the lowest priced branded color cosmetics that will suit my need. (PRS2) *
	7. When it comes to choosing branded color cosmetics for me, I rely heavily on price. (PRS3) *
Social Media Addiction (SMA)	5. My social life has suffered because of my interaction on social media. (SMA1) *
	6. Using social media interfered with other activities. (SMA2) *
	7. When I did not use social media, I often felt agitated. (SMA3) *
	8. 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)	6. How often do you visit cosmetic shops (including e-commerce)? (ACP1) *
	7. How often do you purchase branded color cosmetics online? (ACP2) *
	8. 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.

Table 4. Construct and discriminant validity (Study 1)

Items	Factor Loading	Variables	Mean	S.D.	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 need. (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	0.837												

heavily on price. (PRS3)												
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	0.861	ACU	2.2	0.9	0.446	0.252	0.549	0.883		0.9	0.9	0.7

often do you use AI mascara? (ACU2)			84	96	**	**	**			73	34	79
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											
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	0.839											

branded color cosmetics online? (ACP2)													
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.	0.749												

(EWMI3)	
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), S.D. = Standard Deviation, * = Sig. < 0.05, ** = Sig. < 0.01, α = Cronbach's Alpha, C.R. = Composite Reliability, AVE = Average Variance Extracted.

Study 2 - Measurement scales (5-point Likert scale)

No.	Variables	Items
1.	Body Esteem (BES)	1. I really like what I weigh.
		2. I am satisfied with my weight.
		3. I am preoccupied with trying to change my body weight. (R)
		4. Weighing myself depresses me. (R)
		5. My weight makes me unhappy. (R)
		6. I feel I weight the right amount for my height.
		7. I think I have a good body.
		8. I'm proud of my body.

		9.	People my own age like my looks.
		10.	Other people consider me good looking.
		11.	My looks help me to get dates.
		12.	I'm as nice looking like most people.
		13.	I think my appearance would help me get a job.
		14.	I like what I see when I look in the mirror.
		15.	I wish I looked like someone else. (R)
		16.	There are lots of things I'd change about my looks if I could. (R)
		17.	I wish I looked better. (R)
		18.	I worry about the way I look. (R)
		19.	I feel ashamed of how I look. (R)
		20.	I'm pretty happy about the way I look.
		21.	My looks upset me. (R)
		22.	I look as nice as I'd like to.
		23.	I like what I look like in pictures.
2.	Price Consciousness (PRC)	1.	I usually buy branded color cosmetics when they are on sale.
		2.	I buy the lowest priced branded color cosmetics that will suit my need.
		3.	When it comes to choosing branded color cosmetics for me, I rely heavily on price.
		4.	I am less willing to buy branded color cosmetics if I think they will be high in price.
		5.	In general, the price or cost of buying branded color cosmetics is important to me.
		6.	I compare prices of at least a few color cosmetics brands before I choose one.
		7.	I find myself checking the prices even for small items.
		8.	It is important to me to get the best price for the branded color cosmetics I buy.
3.	AI Color Cosmetics Adoption (AIC)	1.	If possible, I would use an AI color cosmetics app to enhance my selfies.
		2.	I would recommend the use of AI color cosmetics app to enhance selfies to my friends.
		3.	If I had an AI color cosmetics app, I would use it often to enhance my selfies.
		4.	If an AI color cosmetics app was made my available in the online store, I would download it to try.

	5.	I would recommend to my peers that they incorporate AI color cosmetics applications to enhance their photographs online.
	6.	If possible, I would enroll in makeup training courses that incorporate AI color cosmetics usage.

Note(s): R = Retained items.

Study 3 - Measurement scales (5-point Likert scale)

Variables	Items
Performance Expectancy (PE)	1. Facial enhancement technology is useful in my social life. (PE1)
	2. Facial enhancement technology improves my online image. (PE2)
	3. Facial enhancement technology increases my online networks (followers). (PE3)
	4. When connected to branded color cosmetics, facial enhancement technology enables me to choose the most suitable products for me. (PE4)
	5. When connected to branded color cosmetics, facial enhancement technology helps me to make purchase decision quicker. (PE5)
Effort Expectancy (EE)	1. Learning how to use facial enhancement technology is easy. 2. (EE1)
	3. My interaction with facial enhancement technology is clear and understandable. (EE2)
	4. I find facial enhancement technology is easy to use. (EE3)
	5. It is easy for me to become skillful at using this facial enhancement technology. (EE4)
Social Influence (SI)	1. People who are important to me think that I should use facial enhancement technology. (SI1)
	2. People who influence my behavior think that I should use facial enhancement technology. (SI2)
	3. People whose opinion that I value prefer that I use facial enhancement technology. (SI3)
	4. People who know me are supportive of the use of facial enhancement technology. (SI4)
Facilitating Conditions (FC)	1. I have technology devices (e.g., smartphone and laptop) where I can use facial enhancement technology. (FC1)
	2. I have the knowledge necessary to download and use facial enhancement technology. (FC2)
	3. I have a good internet connection to download and use various features in facial enhancement technology. (FC3)

Variables	Items
	4. I can get supports from a fellow user or customer service when I encounter some problems when using facial enhancement technology. (FC4)
Body Esteem (BE)	1. I am preoccupied with trying to change my body weight. (BE1)
	2. Weighing myself depresses me. (BE2)
	3. My weight makes me unhappy. (BE3)
	4. There are lots of things I'd change about my looks if I could. (BE4)
	5. I wish I looked better. (BE5)
Facial Enhancement Technology Adoption (FETA)	1. If possible, I would use facial enhancement technology to enhance my selfies. (FETA1)
	2. I would recommend the use of facial enhancement technology to enhance selfies to my friends. (FETA2)
	3. If I had facial enhancement technology, I would use it often to enhance my selfies. (FETA3)
	4. If facial enhancement technology was made my available in the online store, I would download it to try. (FETA4)
	5. I would recommend to my peers that they incorporate facial enhancement technology to enhance their photographs online. (FETA5)
Social Media Addiction (SMA)	1. If there is no time to use social media, I feel like I missed something. (SMA1)
	2. If I cannot use social media, I feel anxious. (SMA2)
	3. If I cannot use social media, I will feel lost. (SMA3)
	4. If there is a period I am without social media, I want to know what is happening on it. (SMA4)
	5. If I cannot use social media, I would miss it. (SMA5)
Online Purchase Intention (OPI)	1. I have the intention to purchase cosmetic products online. (OPI1)
	2. I intend to use online shopping websites to purchase color cosmetics. (OPI2)
	3. It is likely that I will purchase cosmetic products from cosmetic online stores soon (i.e., next three months). (OPI3)