The Effect of NFT Visual Quality on Consumer Evaluations of Luxury Goods in the Metaverse

Abstract

Luxury brands creating non-fungible tokens (NFTs) often face technical constraints that compromise visual aesthetics, potentially conflicting with their high-end image. This study investigates how the visual quality of NFTs and the presence of price information influence consumer perceptions of luxury goods in the metaverse across three experimental studies. Study 1 compared consumer evaluations across three conditions: good-quality NFT, poor-quality NFT, and no NFT. The findings revealed that poor NFT visual quality negatively influenced evaluations of the original product, with perceived authenticity identified as the key underlying mechanism. Study 2 examined whether this negative effect could be mitigated by the presence of price information. The results showed that a poor-quality NFT accompanied by price information resulted in more favorable evaluations of the original bag, regardless of style similarity. Study 3 replicated these findings using a three-condition design (low-price NFT, high-price NFT, and no NFT), demonstrating the mitigating role of price information. Together, these findings contribute to the emerging digital fashion literature by highlighting the importance of visual quality and price transparency in NFT-based luxury marketing strategies within the metaverse.

Keywords: Metaverse; NFT; Luxury goods; Visual quality; Perceived authenticity; Price information

The Effect of NFT Visual Quality on Consumer Evaluations of Luxury Goods in the Metaverse

The metaverse represents "a technology-mediated network of extended reality environments that merge physical and virtual realities" (Park and Lim, 2023, p. 2), enabling consumers to interact with others and engage with virtual objects in online spaces beyond the physical world (Profumo et al., 2024). With over 600 million active users globally—primarily Millennials, Generation Z, and Generation Alpha (Kumar, 2024)—the metaverse has become an increasingly critical platform for luxury brands. These younger generations, who account for nearly half of global consumer spending (Bowles and Fengler, 2024), are projected to account for one-third of the luxury market by 2030 (Frank, 2023).

Luxury brands have embraced the metaverse as a means of engaging these tech-savvy consumers through strategies such as virtual stores, immersive product experiences, and digital trials (Tam and Lung, 2025). Non-fungible tokens (NFTs) have emerged as a key tool in this space, enabling the creation of innovative and immersive experiences. For instance, Louis Vuitton introduced a branded virtual game offering NFT collectible, providing experiences that transcend physical limitations (Muret, 2023). Building on this momentum, the potential for NFTs in the luxury branding is substantial, with market values reaching $1 billion in 2023 and projected to grow to $15 billion by 2032 (Business Research Insights, 2024). A notable example is Dolce & Gabbana's successful sale of a nine-piece collection of digital NFTs paired with physical couture items, generating $6 million in revenue (Thomas, 2021). This milestone highlights not only the monetary value of digital assets but also the ongoing digitalization of traditional luxury goods.

In traditional physical retail settings, luxury brands utilize sensory and visual cues to create an atmosphere that evokes feelings of uniqueness and admiration, thereby enhancing product evaluations and reinforcing brand image (Dion and Arnould, 2011; Shahid et al.,

2022). While these environments enable tactile engagement, such as touch and feel, the shift from physical to virtual luxury goods presents new challenges. As luxury brands transition into the metaverse, these sensory cues have evolved into digital multisensory experiences and NFTs, offering exclusive and immersive interactions that enhance status signaling and individuality (Joy et al., 2022; Xie et al., 2024).

Emerging research on the metaverse has begun to examine how consumers engage with virtual products (Cho et al., 2024; Hamari and Keronen, 2017; Kaur et al., 2024; Kim et al., 2025). As the metaverse reshapes consumer–brand interactions (Barrera and Shah, 2023), it is important to explore how its unique features influence consumer responses to luxury goods. In virtual environments, luxury goods rely primarily on visual cues to signal value and status. This reliance raises critical questions about how visual presentation affects consumer perceptions and evaluations. When luxury brands create their virtual products as NFTs, they often encounter technical constraints that compromise visual aesthetics. The low visual quality of NFT luxury goods may conflict with the high-end brand image that luxury marketers strive to maintain.

While extant research has explored consumer interactions with either physical or digital luxury goods in isolation, our study bridges this divide by examining how salient cues in the emerging realm of NFT-based digital luxury transfer to consumer perceptions of the original physical products—a critical yet underexplored spillover effect. Specifically, we focus on the quality of visual cues in NFTs, a dimension that remains inconsistent due to the evolving nature of NFT technology. Common technical limitations, such as compression artifacts and low-resolution displays, may undermine the perceived authenticity of digital representations. By investigating this factor, we examine whether poor-quality digital representations assimilate with or contrast against perceptions of the original luxury goods.

In the following sections, we first review the literature on digitalization and NFTs in the luxury fashion market, highlighting how NFTs reshape consumer experiences and perceptions. We then develop hypotheses regarding how the visual quality of NFTs influences consumer perceptions of original luxury products. Finally, we present three experiments to test our predictions and conclude with a discussion of the theoretical contributions, managerial implications, and directions for future research in NFT-based luxury marketing.

Literature Review

Digitalization in Fashion

Digital fashion has emerged from the convergence of fashion and information and communication technology (ICT), redefining how brands design, produce, and engage with consumers. Luxury brands such as Dolce & Gabbana and Balenciaga have embraced this trend, with digital fashion now recognized as a transformative business model within the fashion industry (Särmäkari, 2023; Chan et al., 2024). The integration of virtual worlds into fashion enables consumers to engage in immersive experiences and express themselves through social interaction (Park et al., 2023).

The concept of digital fashion encompasses two main aspects: the digitalization of the value chain, including processes such as design, sampling, and fitting, and digitization as the end product (Chan et al., 2024). Digitalizing the value chain involves the use of 3D technologies and ICT to convert design, fitting, production, and distribution processes into digital formats (Särmäkari, 2023). This transformation can yield significant time and cost savings for companies while also facilitating the creation of more personalized and customized products for consumers (Chan et al., 2024).

Digitization as a product refers to digital fashion designed for consumers, often known as digital clothing (Khelladi et al., 2024). Innovations in this domain include virtual try-ons, augmented fashion enabled through mobile applications, and digital garments created for avatars in the metaverse. Although digital fashion differs from its physical counterparts, both function as vehicles for conveying and amplifying brand value (Lee et al., 2023; Park and Lim, 2023). A growing trend in the fashion industry is the digital transformation of established brands and products for commercialization in virtual environments (Kuzmichev and Yan, 2022; Profumo et al., 2024). The global physical fashion market is projected to grow significantly, from USD 1.80 trillion in 2025 to USD 2.97 trillion by 2033. In contrast, the metaverse fashion market is expected to reach USD 42.05 billion by 2032, with a CAGR of 35.5% from 2024 to 2032 (Vantage Market Research, 2024).

Consumers are drawn to digital fashion due to its perceived enjoyment, ease of use, and usefulness (Chan et al., 2024). Notably, digital fashion enhances brand engagement and fosters positive consumer attitudes by delivering immersive experiences tailored to virtual environments (Barrera and Shah, 2023). However, translating these experiences into actual purchasing behavior remains a challenge. This is largely attributable to lower levels of psychological ownership and perceived value compared to physical fashion items (Morewedge et al. 2021). Prior research suggests that virtual experiences can enhance the perceived value of digital fashion products (Park et al., 2023). While metaverse platforms may integrate these experiences into their business strategies, fashion brands may encounter greater challenges in implementation. In this context, NFTs have further elevated digital fashion by leveraging blockchain technology to enhance the value and scarcity of digital products and artworks (Bao et al., 2024; Khelladi et al., 2024).

What is an NFT?

NFTs represent a type of digital collectible authenticated through blockchain technology. According to Yang (2024, p. 130), blockchains are "distributed computer networks that securely process transactions and permanently store ownership information in linked data blocks." Leveraging these technologies, NFTs possess unique and verifiable identities derived from the ownership history of each digital asset.

Not surprisingly, NFTs have attracted significant attention in the luxury industry, where product uniqueness and exclusivity are highly valued (Chen et al., 2023; Joy et al., 2022; Zhang and Phang, 2025). They offer luxury brands a novel avenue to create and sell virtual products or provide digital consumer experiences (Cho et al., 2024; Lee et al., 2023). According to Bao et al. (2024), NFTs can influence consumer responses by enabling identity expression, creating social distinctions, and offering immersive experiences. NFTs further signal scarcity and authenticity, reinforcing their value in luxury branding. Recent research suggests that NFTs and metaverse technologies provide luxury brands with distinctive opportunities to reinforce perceptions of scarcity and convey brand heritage in innovative ways (Murtas et al., 2024). Empirical evidence indicates that NFT attributes, such as scarcity, resaleability, and trendiness, positively affect purchase intentions and customer lifetime value (Cho et al., 2024). These characteristics align closely with the core values of luxury brands, making NFTs attractive cues for digital luxury marketing (Sung et al., 2023; Xi et al., 2022).

NFT in the Luxury Market

NFT-powered virtual flagship stores are emerging as a new frontier in luxury retail. These digital spaces enable brands to showcase their products in immersive 3D environments, offer virtual try-ons, and create interactive experiences that blend physical and digital worlds (Hollebeek et al., 2024). By releasing digital artworks, virtual fashion items,

and exclusive digital collections as NFTs, brands provide new and engaging customer experiences (Cho et al., 2024; Lee et al., 2023).

The NFT strategies of luxury brands have evolved beyond simply selling digital assets; they now aim to strengthen offline brand connections and enhance customer engagement (Pangarkar et al., 2022). By ensuring the rarity and verifiable ownership of digital assets (Murtas et al., 2024), NFTs allow luxury brands to maintain their premium positioning in the virtual space. Leveraging this potential, some brands offer NFT buyers exclusive access to offline events or link NFTs to physical products, implementing strategies that bridge online and offline experiences (Durocher, 2022). This shift has created a new category of luxury consumption, where NFTs serve as status symbols, especially among younger consumers who value digital assets alongside traditional luxury goods (Taylor, 2023; Xie et al., 2024).

By introducing virtual versions of original luxury products, brands can provide detailed information and offer immersive experiences that bridge the gap between digital and physical products (Batat, 2024; Cheung et al., 2024). However, while the user-friendly interface of the metaverse encourages participation, it also presents marketing challenges for luxury brands. Technical limitations can degrade the visual aesthetics of NFTs during reformatting, potentially conflicting with the high-end image luxury brands aim to uphold. Thus, visual quality—the degree to which a digital representation appears realistic and detailed—can significantly impact consumer perceptions of luxury and authenticity.

Prior research on the metaverse has primarily focused on how immersive information cues (e.g., spatial presence, interactivity) drive consumer engagement and perceptions of realism in virtual environments (Kaur et al., 2024; Tam and Lung, 2025; Wongkitrungrueng and Suprawan, 2024). In contrast, NFT studies emphasize blockchain-driven authentication mechanisms that enhance the perceived uniqueness and authenticity of digital assets

(Hofstetter et al., 2022; Kim et al., 2025; Yilmaz et al., 2023). Unlike previous studies that focus solely on metaverse environments or NFT attributes, the present study examines how the visual quality of NFTs presented in the metaverse influences perceptions of original physical luxury products. As NFT technology continues to evolve, the quality of visual cues in NFTs remains technically constrained (He et al., 2023). Given these limitations, this study further explores a critical boundary condition that may mitigate the potential devaluation of original products resulting from poor NFT image quality in virtual environments.

Hypothesis Development

Effects of Visual Quality of NFTs

Media richness theory (Daft and Lengel, 1986; Daft et al., 1987) offers a conceptual framework for understanding how the visual quality of NFTs may shape consumer evaluations of luxury brands. This theory assesses communication media based on their ability to convey information effectively (Gajendran et al., 2022; Ishii et al., 2019), suggesting that media differ in their capacity to transmit rich information, as determined by factors such as the number and type of cues, transmission speed, and degree of interactivity (Cheung et al., 2024; Grewal et al., 2021; Tseng and Wei, 2020).

Well-executed product presentations capture consumer attention, facilitate information processing, and support decision-making (Kim, 2019; Fan et al., 2024). To reduce uncertainty and compensate for the lack of direct experience with virtual products, marketers should carefully design product presentations and effectively communicate product-related information (Sun et al., 2022; Pandey et al., 2024). Extensive research has examined how various formats of information presentation, such as pictorial versus verbal and concrete versus abstract, affect consumer processing (Cheng and Zhang, 2023; Liu et al., 2023; Yoo et al., 2024). Advertisements with detailed visual content help consumers

construct personal narratives and envision themselves in the consumption setting, as concrete pictures enhance the vividness of mental imagery (Yoo et al., 2024). Furthermore, aesthetic appeal in visuals leads to positive outcomes, including a desire to own a product and more favorable brand evaluations (Hagen, 2021). Studies have shown that more concrete and aesthetically pleasing visual cues can enhance product attractiveness and increase purchase intention (Clement et al., 2013; Pleyers, 2024).

In the context of NFTs, which rely heavily on digital imagery to convey their uniqueness and value, visual quality is paramount (Nadini et al., 2021). This consideration becomes even more important when NFTs are integrated with luxury products, as consumers seek high-quality, distinctive items that reflect their personal identity and status (Lee et al., 2018; Xi et al., 2022).

Extending the media richness framework to the NFT context, we posit that the visual quality of NFTs serves as a key component of media richness that affects consumer evaluations of luxury goods. Poor-quality NFTs, characterized by low resolution, inconsistent design elements, or visual incongruence with the original product, likely provide insufficient or conflicting cues that hinder effective information processing. This disruption may trigger skepticism, as the inadequate representation fails to convey the quality standards expected from luxury brands. Conversely, high-quality visual elements offer richer cues that facilitate understanding and positive evaluation of luxury brands.

In advertising and marketing campaigns, consumers increasingly seek authenticity, defined as the perceived genuineness and truthfulness of a product or brand (Beverland and Farrelly, 2010). Authenticity is crucial for building consumer trust and brand loyalty, thereby influencing consumer evaluations and purchase decisions (Chu et al., 2023). For instance, visual characteristics of a brand's social media images, such as snapshot photography

aesthetics, enhance perceived authenticity and trustworthiness, which in turn shape brand attitudes and increase purchase intentions (Yang et al., 2021).

Given their capacity to verify authenticity, NFTs can play an important role for luxury brands, where perceptions of authenticity are especially vital (Cho et al., 2024; Hofstetter et al., 2022). Recent empirical findings highlight how blockchain-enabled features — such as digital traceability and permanence — enhance perceived trust in NFT-based transactions (Yilmaz et al., 2023). Kim et al. (2025) found that consumers exhibit significantly higher trust in NFTs that are visually represented compared to those presented without them. These findings suggest that visual design plays a central role in establishing digital trust in NFT-based products. When NFTs are of poor visual quality, they may appear less credible and inconsistent with luxury brand standards, leading consumers to question the legitimacy of the brand and the authenticity of luxury items. As prior research has indicated, the perceived decrease in authenticity can diminish consumer trust and ultimately reduce their willingness to make a purchase (Chu et al., 2023; Newman and Dhar, 2014).

Building on this prior work, we argue that the quality of NFTs' visual representations will influence consumer evaluations of luxury products. Poor visual quality can detract from the perceived value and authenticity of a product, leading to lower evaluations. Conversely, good-quality visual representations of NFTs may enhance perceived authenticity and positively influence consumer evaluations, mitigating the potential negative influence of poor-quality NFTs. In this context, we hypothesize the following.

H1*: Poor-quality NFTs will decrease the evaluation of original luxury goods compared to the absence of an NFT or to NFTs with high quality.*

H2*: The negative impact of poor-quality NFTs on luxury goods evaluation will be mediated by a decrease in the perceived authenticity of those goods.*

The Role of Explicit Price Information in NFTs

In the previous section, we proposed that the lower-quality NFT images could exert carryover effects on consumer judgments of the original luxury product. This influence is characterized as an assimilation, in which negative perceptions of the NFTs adversely affect evaluations of the original product. However, we also predict the opposite effect: lower-quality NFTs may underscore the superior quality of the original luxury brands, resulting in a contrast effect. This contrast effect is particularly likely when contextual cues enable consumers to clearly distinguish between the two products (Zhu et al., 2023; Voichek and Novemsky, 2024).

Luxury products typically command premium prices, and consumers have been shown to associate exclusivity and superior craftsmanship with higher costs (Kapferer and Valette-Florence, 2021). Therefore, price is a significant cue for conveying the intrinsic value and quality of luxury products (Balabanis and Stathopoulou, 2021; Pillai and Nair, 2021). We thus propose that price information associated with NFTs may generate a contrast effect for three key reasons.

First, research on priming and social judgment suggests that when a context encourages explicit comparisons between two objects, a contrast effect is more likely to arise (Lu et al., 2024; Stapel and Koomen, 2000; Voichek and Novemsky, 2024). This effect is particularly salient when the objects share common attributes, facilitating a comparison that serves as a prerequisite for the contrast effect (Lee and Suk, 2010). Given that price is a critical indicator of product quality—especially in luxury markets (Balabanis and Stathopoulou, 2021; Pillai and Nair 2021)—we predict that price information itself serves as a significant trigger for such comparisons.

Second, as consumers generally expect high-quality digital representations to align with the exclusivity and prestige associated with luxury goods, lower-quality NFTs can create

an expectancy violation (Saeed et al., 2024). However, the clear distinction created by salient price information can paradoxically enhance the perceived value of the original luxury product by reinforcing its exclusivity and scarcity. That is, the lower-quality NFT serves as a digital "anchor" that contrasts with the high price and clear price differences, strengthening the luxury brand's image and perceived value.

Third, prior research suggests that contexts emphasizing similarity often induce assimilation effects, while those highlighting differentiation are more likely to evoke contrast effects (Stapel et al., 1997; Zhu et al., 2023). In our context, the absolute price disparity between NFTs and their original counterparts accentuates the distinction between the two categories, increasing the salience of this differentiation and fostering a contrast effect. When consumers perceive a clear price distinction, they are more likely to evaluate the original luxury brand positively, aligning with the notion that consumers often use price as a heuristic for quality, particularly in the luxury market (Balabanis and Stathopoulou, 2021; Pillai and Nair, 2021). Thus, lower-quality NFTs, when presented with salient price information, can enhance the perceived value of original luxury brands, leading to more favorable evaluations. This dynamic creates a carryover effect where the negative perceptions associated with NFTs are mitigated—or even reversed—through the lens of price information.

In summary, we expect that lower-quality NFTs, coupled with prominent price information, will positively influence perceptions of original luxury brands. Specifically, price information will help consumers distinguish between a hypothetical NFT bag and the original bag in real-world settings. Following this logic, we propose the following moderated hypothesis:

H3: *The negative impact of poor-quality NFTs will be reduced or even reversed by emphasizing the price information of NFTs.*

Our research framework (Figure 1) illustrates the hypotheses and proposed relationships among the key constructs.

**** Place Figure 1 about here ****

Overall Empirical Studies

To empirically test our predictions, we conducted three experimental studies. Specifically, Study 1 tested H1 and H2 by examining the negative effect of exposure to a poor-quality NFT on evaluations of the original luxury brand (H1) and identifying the underlying mechanism (H2). Study 2 tested H3 by investigating whether providing price information alongside a poor-quality NFT could lead to a more positive evaluation of the original luxury brand. Finally, Study 3 replicated the findings of Study 2 using more realistic stimuli and varying NFT price levels. Most stimuli were sourced from publicly available images and were either used directly or minimally edited to enhance realism and external validity.

We used G*Power software (Faul et al., 2007) to determine the required sample size for each experiment (i.e., effect size f = .25 [medium], $\alpha = .05$, and $1- \beta = .80$). To ensure at least 65 participants per condition, all participants were recruited from the United States, following Kim's (2024) recommendation to reduce potential country-specific variation. Participant demographics for each study are presented in Table 1, and all survey items are provided in Table 2.

**** Place Table 1 about here ****

**** Place Table 2 about here ****

Study 1: Testing H1-H2

The objective of Study 1 was to test whether a poor-quality NFT decreases evaluations of original luxury goods (H1) and whether this effect is mediated by perceived

authenticity (H2). We used the real-world example of a virtual Gucci bag. Specifically, we compared (i) two experimental conditions: poor-quality NFT and good-quality NFT, and (ii) a control condition with no NFT.

Participants, Design, and Procedure

Three hundred and fifty-five participants ($M_{\_age}$ = 41.96, SD = 12.46; 55.2% female) from U.S. MTurk were randomly assigned to one of the three conditions (NFT type: poor-quality NFT vs. good-quality NFT vs. no NFT). Participants were asked to perform multiple unrelated studies. Participants in the good- and poor-quality NFT conditions received a brief introduction to the metaverse and a virtual Gucci bag (i.e., 'Metaverse refers to an immersive and persistent three-dimensional virtual realm, shared with many users, that spans various digital platforms and merges with the physical world, where people can shop, work, play and hang out together in real time'). The quality of the bag varied between the two conditions, with a relatively high-quality product representation shown in the good-quality condition (Figure 2). Participants then evaluated the virtual bag on a 7-point scale (1 = not at all attractive, 7 = very attractive). Those in the no NFT condition skipped this stage and were not shown the virtual bag. Subsequently, all participants were asked to evaluate a real Gucci bag available in stores, following procedures similar to those used in previous studies (Kim et al., 2015). The same Gucci model, Dionysus, was featured, as shown in Figure 2. Participants rated the luxury bag on a 3-item scale (1= very bad / very unfavorable / very negative, 7 = very good / very favorable / very positive, Kim et al., 2021; Cronbach's α = .975). They also indicated the perceived authenticity of the luxury bag as a mediator using a 7-point scale (1 = not at all authentic, 7 = very authentic, Park et al., 2022).

**** Place Figure 2 about here ****

Results and Discussion

The manipulation of NFT visual quality was successful in terms of perceived attractiveness ($M_{\_good\ NFT}$ = 2.96, SD = 1.84 vs. $M_{\_poor\ NFT}$ = 2.35, SD = 1.67; F (1, 239) = 7.23, p = .008, η^2 = .029). A separate pre-test (n = 73, $M_{\_age}$ = 43.84, SD = 12.03, 53.4% female) confirmed this manipulation by measuring perceived NFT quality using a 2-item scale (1= very bad quality / very low quality, 7 = very good quality/ very high quality; Cronbach's α = .967). The results indicated that perceived quality was significantly higher for good-quality NFTs than for poor-quality NFTs ($M_{\_good\ NFT}$ = 4.46, SD = 1.54 vs. $M_{\_poor\ NFT}$ = 3.34, SD = 1.91; F (1, 71) = 7.67, p = .007, η^2 = .098).

An analysis of variance (ANOVA) revealed a significant main effect of NFT condition on evaluations of the original luxury bag (F (2, 352) = 5.95, p = .003, η^2 = .033; Figure 3). Supporting H1, participants in the poor-quality NFT condition ($M_{\_poor\ NFT}$ = 3.29, SD = 1.60) evaluated the luxury bag less favorably than those in the no NFT condition ($M_{\_no\ NFT}$ = 4.06, SD = 1.73; contrast F (1, 352) = 5.95, p = .003, η^2 = .033). Additionally, participants in the good-quality NFT condition ($M_{\_good\ NFT}$ = 3.71, SD = 1.77) evaluated the luxury bag similarly to those in the no NFT condition ($M_{\_no\ NFT}$ = 4.06, SD = 1.73; contrast F (1, 352) = 2.48, p = .116, η^2 = .007). This suggests that presenting a good-quality NFT representation may help mitigate the potential negative impact of using a poor-quality NFT when compared to not using any NFTs at all. Finally, evaluations were marginally higher in the good-quality NFT condition ($M_{\_good\ NFT}$ = 3.71, SD = 1.77), compared to the poor-quality NFT condition ($M_{\_poor\ NFT}$ = 3.29, SD = 1.60; contrast F (1, 352) = 3.60, p = .059, η^2 = .010), suggesting a potential benefit of good-quality NFT representations.

Similar results were observed for perceived authenticity (F (2, 352) = 5.09, p = .007, η^2 = .028). Participants in the poor-quality NFT condition ($M_{\_poor\ NFT}$ = 4.00, SD = 1.74) reported lower authenticity than those in the no NFT condition ($M_{\_no\ NFT}$ = 4.70, SD = 1.73; contrast F (1, 352) = 9.61, p = .002, η^2 = .027). In contrast, participants in the good-quality

NFT condition ($M_{\_good\ NFT}$ = 4.49, SD = 1.72) rated authenticity similarly to those in the no NFT condition ($M_{\_no\ NFT}$ = 4.70, SD = 1.74; contrast F (1, 352) = .90, p = .344, η^2 = .003). Participants in the good-quality NFT condition also rated the authenticity higher ($M_{\_good\ NFT}$ = 4.49, SD = 1.72) than those in the poor-quality NFT condition ($M_{\_poor\ NFT}$ = 4.00, SD = 1.74; contrast F (1, 352) = 4.78, p = .029, η^2 = .013), as shown in Figure 3.

**** Place Figure 3 about here ****

We tested the mediating role of perceived authenticity in the evaluation of luxury bags using Hayes's (2017) Process Model #4 with 5,000 bootstrap iterations (IV: NFT type [no NFT: 0 vs. poor-quality NFT: 1 vs. good-quality NFT: 2], Mediator: perceived authenticity, DV: evaluation of luxury bags). Results revealed a significant indirect effect of perceived authenticity between the no NFT and the poor-quality NFT conditions (a * b = -.387, 95% Confidence Interval [CI] = [-.643, -.150]), supporting H2. The indirect effect was not significant between the no NFT and the good-quality NFT conditions (a * b = -.118, 95% CI = [-.363, .121]), but was significant between the poor-quality NFT and the good-quality NFT conditions (a * b = .269, 95% CI = [.030, .505]). These results suggest that lower-quality NFTs (vs. higher-quality NFTs) can reduce perceived authenticity, thereby lowering consumer evaluations of luxury products.

In summary, this study provides empirical evidence supporting H1 and H2. One limitation is that the NFTs and the original bags were of the same style, which may have influenced the results. The next study addresses this limitation by varying the styles of the luxury bags and, more importantly, testing H3.

Study 2: Testing H3

We tested the impact of exposure to a hypothetical bag in an NFT, accompanied by price information, on the evaluation of the original bag. As proposed in the theoretical

section, we hypothesize that NFT price information will help consumers distinguish between the hypothetical bag in the NFT and the original bag in real-world settings. Therefore, we anticipate that even a poor-quality NFT, when accompanied by price information, will not diminish the evaluation of the original luxury item, as the two items will be explicitly distinguished by the NFT's price information (Lee and Suk 2010; Stapel and Koomen, 2000).

Participants, Design, and Procedure

The study employed a 2 (NFT exposure: poor-quality NFT vs. no NFT) x 2 (style of the original bag: same vs. different from the NFT) between-subjects design. Two hundred forty-four individuals (M_{age} = 32.13, SD = 7.56, 27.5% female) from U.S. MTurk participated in this study. The overall procedure was similar to that of Study 1, with a few modifications. First, participants in the NFT condition were exposed to a virtual Gucci bag with price information (Figure 2) and asked to evaluate the virtual bag using the same 3-item scale from Study 1. Participants in the no NFT condition proceeded directly to the next stage without viewing the virtual bag. Subsequently, all participants were randomly assigned to one of two conditions: same-style or different-style. In the same-style condition, participants were shown a real Gucci bag identical in style to the virtual bag. In the different-style condition, they were shown a real Gucci bag of a different style (Figure 2). All participants were then evaluated the real bag using the same criteria as in Study 1 (Cronbach's α = .824). Finally, they were asked to estimate the perceived retail price of the original bag using an 8-point scale (1 = less than $2,000, 2 = $2,000–$2,499, 3 = $2,500–$2,999, 4 = $3,000–$3,499, 5 = $3,500–$3,999, 6 = $4,000–$4,499, 7 = $4,500–$4,999, and 8 = $5,000 or higher).

Results and Discussion

A separate pre-test (n = 100, M_{age} = 42.28, SD = 11.64, 38.0% female) was conducted to measure the perceived price difference using a 2-item scale (1= not at all expensive / not at all high, 7 = very expensive / very high; Cronbach's α = .917) for a virtual

Gucci bag and two real luxury bags. The results indicated that the perceived price of the real bags was higher than that of the virtual bag ($M_{\_virtual\ bag}$ = 5.39, SD = 1.16; $M_{\_real\ bag\ same\ style}$ = 6.03, SD = 1.04 vs. $M_{\_real\ bag\ different\ style}$ = 6.13, SD = .97; F (2, 97) = 4.71, p = .011, η^2 = .088).

We conducted a 2 x 2 ANOVA to assess the impact of NFT exposure and the style of the original bag on participants' evaluations. The main effect of the style of the original bag was not significant (F (1, 240) = .95, p = .330, η^2 = .004). Similarly, the interaction effect was not significant (F (1, 240) = .06, p = .810, η^2 < .001). Importantly, the main effect of NFT exposure was significant (F (1, 240) = 5.15, p = .024, η^2 = .021), as shown in Figure 3. Specifically, evaluations of the original bag were more favorable when participants were shown the NFT than when the NFT was absent ($M_{\_poor\ NFT}$ = 5.59, SD = 1.02 vs. $M_{\_no\ NFT}$ = 5.27, SD = 1.17), supporting H3. This finding suggests that the negative impact of poor-quality NFTs can be mitigated by including price information.

Finally, the perceived retail price of the original bag showed no significant main effect of the bag's style (F (1, 240) = .94, p = .332, η^2 = .004) nor of the interaction effect (F (1, 240) = .01, p = .976, η^2 < .001). The main effect of NFT exposure was also not significant ($M_{\_poor\ NFT}$ = 3.48, SD = 1.76 vs. $M_{\_no\ NFT}$ = 3.59, SD = 1.77; F (1, 240) = .24, p = .628, η^2 = .001). These non-significant results suggest that NFT exposure did not significantly affect participants' price judgments of the original luxury bag. In other words, participants did not perceive the original product as more or less expensive based on the associated NFT's price. Therefore, the positive effect observed in the evaluation of the original bag cannot be attributed to changes in price perception. Instead, other psychological or perceptual mechanisms—such as enhanced brand perception, novelty, or digital engagement—may have contributed to the positive evaluations, independent of any pricing cues.

Study 3: Replicating Study 2 with Different Price Levels of NFT Products

Study 2 revealed a positive effect of NFT exposure on the evaluation of original luxury items when the prices of NFT products were presented. Specifically, the evaluation of the original luxury item was higher when participants were exposed to related NFT products than when they were not. We also found that this positive effect was not solely due to higher evaluation but was primarily influenced by the presence of price information, which helped participants distinguish the NFT from the original bag. The present study aims to replicate the findings of Study 2 by manipulating the price level of NFTs to provide more generalizable empirical evidence. Finally, a limitation of previous studies is that NFT products were not presented in realistic settings. To address this, we adopted NFT product stimuli from a commercial platform (i.e., Roblox).

Participants, Design, and Procedure

Three hundred ninety-five participants ($M_{\_age}$ = 43.01, SD = 13.02, 51.0% female) from U.S. MTurk were randomly assigned to one of three conditions (NFT type: NFT with a low price vs. NFT with a high price vs. no NFT). The overall procedure was similar to that used in previous studies, with a few modifications. Participants in the low-price NFT condition were shown a virtual Gucci bag valued at 35,000 Roblox currency [*Robux*], whereas participants in the high-price NFT condition were shown the same bag valued at 3,500,000 *Robux*. Figure 4 illustrates the NFT products used in the two experimental conditions. Participants in the two NFT conditions were asked to rate the perceived realism of the virtual bag on a 7-point scale (1 = not at all realistic, 7 = very realistic) and its perceived price on a 7-point scale (1 = not at all expensive, 7 = very expensive) as a manipulation check. Participants in the no NFT condition were not exposed to any NFT-related information. Subsequently, all participants were asked to evaluate a real Gucci bag (the same model as in Study 1) using the same scale as in Studies 1 and 2 (Cronbach's α = .972). Finally, participants were asked to provide demographic information.

**** Place Figure 4 about here ****

Results and Discussion

First, the manipulation of NFT price was successful, as participants in the high-price NFT condition rated the NFT significantly higher in perceived price than those in the low-price NFT condition ($M_{\_low\ price}$ = 5.50, SD = 1.75 vs. $M_{\_high\ price}$ = 6.57, SD = 1.00; F (1, 265) = 37.62, $p < .001$, $\eta^2 < .124$). However, perceived realism did not significantly differ between the two conditions ($M_{\_low\ price}$ = 3.30, SD = 1.89 vs. $M_{\_high\ price}$ = 3.21, SD = 1.84; F (1, 265) = .16, $p = .688$, $\eta^2 < .001$).

An ANOVA revealed a significant main effect of NFT style on the evaluation of the original luxury bag (F (2, 392) = 3.27, $p = .039$, $\eta^2 = .016$), supporting H3. Participants in the low-price NFT condition ($M_{\_low\ price}$ = 3.66, SD = 1.68) evaluated the original bag significantly higher than those in the no NFT condition ($M_{\_no\ NFT}$ = 3.21, SD = 1.68; contrast F (1, 392) = 4.77, $p = .030$, $\eta^2 = .012$). Similarly, participants in the high-price NFT condition ($M_{\_high\ price}$ = 3.68, SD = 1.67) evaluated the original bag significantly higher than those in the no NFT condition ($M_{\_no\ NFT}$ = 3.21, SD = 1.68; contrast F (1, 392) = 5.09, $p = .025$, $\eta^2 = .013$). However, there were no significant differences between the two NFT conditions with price information ($M_{\_low\ price}$ = 3.66, SD = 1.68 vs. $M_{\_high\ price}$ = 3.68, SD = 1.67; contrast F (1, 392) = .01, $p = .931$, $\eta^2 < .001$; Figure 4). These results suggest that presenting price information for NFTs can sustain their positive effects regardless of the NFT price level. Taken together with the results of Study 2, this finding further supports H3 and highlights the positive role of price information in mitigating the potential dilution effect of poor-quality NFTs on evaluations of original products.

Finally, we conducted an analysis of covariance (ANCOVA) including income, age, and gender as covariates. The results indicated that none of the covariates were significant (All p's > .159); however, the experimental factor remained significant (with three missing

cases excluded, F (1, 386) = 3.20, p = .042, η^2 = .016). Therefore, this positive effect of NFT exposure was robust, regardless of participants' demographic variables, including gender and age. In summary, Study 3 demonstrated that NFT exposure positively influences the evaluation of the original bag, especially when NFT price information is presented. This finding replicates the results of Study 2 and provides further support for H3 in a more realistic setting.

General Discussion

Theoretical Contributions

This study contributes to the existing literature in several important ways. First, it connects to the literature on luxury brands' acceptance of new technologies. Similar to discussions about the adoption of the internet for luxury branding (Dall'Olmo Riley and Lacroix, 2003; Kim et al., 2015), the metaverse presents both challenges and opportunities (Brandes and Dolp, 2025; Joy et al., 2022). With the growing popularity of the metaverse, luxury brands increasingly present their products in this virtual space and leverage digital assets to enhance product exclusivity and deepen consumer engagement (Sung et al., 2023). However, when brands create virtual products through NFTs and transfer them into the metaverse, key design elements are often lost during the reformatting process. Particularly with respect to luxury brands, which rely on an image of rarity and exclusivity (Dubois and Paternault, 1995; Kapferer and Valette-Florence, 2021), building relationships with young, tech-savvy customers using low-resolution graphics may conflict with maintaining a high-end brand image. Despite the critical role of digital assets in shaping consumer perceptions, research on the most effective visual features remains scarce, particularly when incorporating new technologies such as NFTs. This study introduces the features of the metaverse platform and visualization and investigates how incorporating these new technologies affects consumer perceptions of brands. In this sense, our research extends recent work on the

518 importance of the platforms for virtual goods, specifically Hamari and Keronen's (2017)
519 study on the relationship between platform service design and the value of virtual goods, by
520 providing further evidence for the importance of platform design.

521 Second, while consumers typically assess luxury brand items in the physical world
522 based on their potential social value, including social status, identity, uniqueness, and prestige
523 (Pillai and Nair 2021; Xi et al., 2022), recent research reveals that consumers evaluate luxury
524 brand NFTs in the metaverse by considering both their potential economic and social value
525 (Sung et al., 2023; Xie et al., 2024). Building on this emerging stream of research on luxury
526 brand consumption (Baek et al., 2023; Joy et al., 2022), our study shows that the features of
527 NFTs can significantly influence consumer perceptions and evaluations of physical luxury
528 products. These findings offer insights into how luxury brands can achieve their marketing
529 objectives without compromising their brand image when adapting to new technologies.

530 Third, our research contributes to the growing literature on visual representations in
531 digital retail environments by examining how the visual quality of NFTs influences consumer
532 perceptions of luxury goods. While prior studies have primarily focused on the direct effects
533 of NFTs as alternative investments (Chen et al., 2025; Schaar and Kampakis, 2022) or their
534 role in fostering online community engagement (Cho et al., 2024; Lee et al., 2023), our study
535 is the first to investigate how NFT visual quality affects evaluations of their physical
536 counterparts in the context of luxury brands.

537 Our findings also advance media richness theory in significant ways that challenge
538 its traditional applications. While conventional research has focused primarily on
539 organizational communication, showing that employee performance improves when
540 managers use richer media for ambiguous tasks (Cable and Yu, 2006; Gajendran et al., 2022),
541 our research demonstrates its relevance to consumer-luxury brand relationships in metaverse
542 contexts. In particular, our findings diverge from traditional media richness assumptions in a

543 critical way: while classic theory suggests that richer media invariably lead to better
544 outcomes (Grewal et al., 2021; Tseng and Wei, 2020), we find that visual quality effects
545 depend on complementary informational elements. Specifically, we demonstrate that the
546 impact of NFT visual quality on luxury brand perceptions is contingent upon supplementary
547 cues, such as price signaling. This represents an important theoretical refinement, shifting
548 media richness from a static channel characteristic to a dynamic NFT element that luxury
549 retailers can actively manage. Furthermore, by identifying perceived authenticity as a
550 mediator, our research extends the visual product aesthetics literature (Clement et al., 2013;
551 Hagen, 2021; Pleyers, 2024) by revealing the psychological processes underlying consumer
552 evaluations of luxury goods in digital environments.

553 Finally, this study highlights the importance of price information in shaping the
554 directional influence of NFTs on consumer perceptions of the original brand. In Study 1, we
555 observed a negative assimilation-based effect of lower-quality NFTs on the original brand
556 when price information was not available to customers (Lee and Suk, 2010; Stapel and
557 Koomen, 2000). Conversely, a contrast-based positive effect was found when price
558 information was salient in Studies 2 and 3. Future research should explore these effects
559 simultaneously across different sectors to provide broader insights into the role of NFTs and
560 price information in shaping consumer perceptions.

561 ***Practical Implications***

562 This study provides actionable insights for luxury brand managers aiming to incorporate
563 NFTs into their marketing strategies. Maintaining high visual quality is essential to uphold
564 brand exclusivity and prestige. While poor-quality NFTs may harm brand perception, our
565 findings show that highlighting price information can help offset these negative effects. This
566 insight directly informs how luxury brands should structure their NFT offerings and
567 communications. For example, Adidas's "Into the Metaverse" collaboration (Calderon, 2021)

may be relevant to our findings. Their initial NFT-based products received mixed feedback due to visuals that were relatively basic by luxury standards. However, by later introducing clearer value propositions, including exclusive access to Adidas Originals experiences and branded physical wearables, they successfully repositioned their NFT strategy as premium and aligned it with their brand equity. This real-world case offers a useful model for luxury brands, suggesting that luxury brand managers should either maintain exceptional visual quality or implement clear, value-signaling premium strategies when entering metaverse-based NFT platforms.

Luxury brands can implement advanced technical solutions to overcome visual quality limitations. Specifically, sophisticated 3D rendering platforms such as Blender or Unreal Engine provide luxury marketers with capabilities to develop and refine photorealistic textures and animations—elements particularly crucial for virtual fashion representations. This approach is exemplified by Gucci's NFT film for its Aria collection, which successfully maintained cinematic high quality through advanced rendering techniques (Yu, 2021). Additionally, strategic partnerships with metaverse platforms have proven effective, as demonstrated by Burberry's collaboration with Mythical Games, which facilitated the optimization of NFT visual assets for specific digital environments while ensuring cross-platform compatibility (McDowell, 2022).

Beyond addressing visual quality concerns, implementing effective pricing strategies is equally crucial for luxury brands in the NFT space. Dynamic NFT pricing models represent an emerging industry benchmark, particularly valuable given NFTs' inherently fluctuating values (Schaar and Kampakis, 2022). Our findings suggest that transparent pricing creates important contrast effects that benefit the original luxury products. Strategic bundling of physical and digital goods can further justify premium pricing positions (Orazi and Nyilasy, 2025). For example, Dolce & Gabbana's collection, which generated $6 million in revenue,

successfully paired digital NFTs with physical haute couture pieces (Thomas, 2021). These real-world examples demonstrate how luxury brands can transcend technical constraints through strategic partnerships and pricing models that enhance rather than detract from their premium positioning. Such approaches align with our empirical findings on the importance of both visual quality and price transparency in creating favorable consumer evaluations of luxury products. Importantly, these insights extend beyond luxury NFTs to other digital commerce contexts, such as in-game purchases and AR-integrated experiences, where similar contrast effects between digital and physical merchandise may influence consumer evaluations of original luxury goods.

Our findings suggest that luxury retailers should implement systematic evaluations of the perceived visual aesthetics of NFTs (Lavie and Tractinsky, 2004; Lee et al., 2018; Zhu et al., 2023) to ensure congruence between NFTs and physical products' aesthetic judgments. Additionally, they should develop clear price-value frameworks that contextualize NFT offerings, extending traditional luxury price display strategies (Dion and Arnould, 2011) to metaverse marketplaces. Finally, integration protocols that maintain consistent luxury brand signifiers across physical and digital touchpoints are essential. These step-by-step recommendations provide academically grounded implementation guidance derived directly from our empirical findings.

In addition to marketing strategies, luxury brands should consider the evolving regulatory landscape surrounding NFTs when implementing our findings. As authorities develop frameworks for digital assets, brands must balance visual quality and price transparency as both marketing tools and compliance measures. The increasing scrutiny of NFT marketing claims—exemplified by recent SEC enforcement actions against NFT marketplaces (Gatto and Earp-Thomas, 2024)—may require luxury brands to ensure visual representations meet quality standards to avoid misleading advertising accusations. Similarly,

our recommended price transparency practices align with emerging disclosure requirements for digital assets across major jurisdictions. These regulatory considerations complement our empirical findings, providing a framework for implementing NFT strategies that are both effective and compliant with emerging digital asset regulations.

Limitations and Future Research Directions

The metaverse presents significant potential for fashion marketing and brand experiences (Park and Lim, 2023). As virtual shopping environments become increasingly important for consumer engagement, luxury brands are strategically positioning themselves at the intersection of physical and digital experiences through NFTs. For luxury brands to succeed in the metaverse, understanding how visual quality affects consumer evaluations of NFTs is crucial. To address this need, our research examines how NFT visual quality influences consumer perceptions and evaluations of luxury goods, offering insights that may shape the future of fashion in digital environments.

While our findings advance understanding of how consumers respond to NFT visual quality, this study has several limitations that present opportunities for future research. First, the reliance on U.S.-based MTurk participants may constrain the generalizability of the results. Future research should incorporate more diverse samples across cultures and demographics to better reflect the global nature of luxury markets and digital technologies. In particular, including participants from Asian countries—where metaverse adoption and digital engagement are especially prominent—would offer valuable cross-cultural insights and enhance external validity (Kim, 2024). Second, this study focuses specifically on luxury handbags, which may limit the generalizability of our findings. To enhance the broader applicability of this research, future studies should expand the scope to include diverse luxury product categories across multiple brands. Furthermore, incorporating the role of NFT

642 familiarity, NFT expertise, or platform experience within this context would offer deeper
643 insights into consumer responses.
644 The current operationalization of NFT visual quality could be further refined in
645 future research. While we manipulated NFT visual quality primarily through resolution
646 differences, we recognize that this construct inherently encompasses multiple visual elements
647 (e.g., resolution, viewing angles, lighting) that may have collectively influenced participant
648 responses. Our current design does not isolate the specific contribution of each visual
649 attribute to the 'low' versus 'high' quality classifications, potentially introducing
650 confounding effects that could impact the internal validity of our findings. Given that visual
651 features significantly influence consumer immersion and perception in the metaverse (Zhao
652 et al., 2022), future research would benefit from disentangling these elements to assess their
653 individual influence on perceived quality and authenticity.
654 While we identified perceived authenticity as a key mediator, future research could
655 explore additional mediating factors, such as perceived scarcity (Murtas et al., 2024) or
656 perceived brand value (Chung et al., 2014; Xie et al., 2024), to further uncover the
657 psychological mechanisms underlying consumer evaluations of luxury goods in the
658 metaverse. To clarify these mechanisms, researchers could also systematically vary NFT
659 style independently from price information to assess whether style differences independently
660 serve as a contrasting factor. Investigating conditions where price information is absent may
661 further reveal whether style differences can mitigate or amplify the effects of NFT quality on
662 consumer evaluations of authentic products.
663 Finally, given the limited research on consumer reactions to NFTs, future studies could
664 explore how brands strategically use variations in visual quality to convey exclusivity or
665 differentiate themselves in saturated markets. For example, brands may intentionally present
666 NFTs with distinct visual styles or simplified aesthetics to signal artistic uniqueness or cultural

value. Future research could examine whether consumers interpret such variations as deliberate brand positioning or as quality deficits, and how these interpretations influence perceived brand authenticity or value. Such work could deepen our understanding of how consumers interpret branding signals in digital luxury contexts.

References

Baek, T. H., Kim, J., Yoon, S., Choi, Y. K., & Taylor, C. R. (2023). The COVID-19 threat and luxury advertising. *Journal of Consumer Behaviour*, *22*(3), 582-596.

Balabanis, G., & Stathopoulou, A. (2021). The price of social status desire and public self-consciousness in luxury consumption. *Journal of Business Research*, *123*, 463-475.

Bao, W., Hudders, L., Yu, S., & Beuckels, E. (2024). Virtual luxury in the metaverse: NFT-enabled value recreation in luxury brands. *International Journal of Research in Marketing*. Advance online publication.

Barrera, K. G., & Shah, D. (2023). Marketing in the metaverse: Conceptual understanding, framework, and research agenda. *Journal of Business Research*, *155*, 113420.

Batat, W. (2024). What does phygital really mean? A conceptual introduction to the phygital customer experience (PH-CX) framework. *Journal of Strategic Marketing*, *32*(8), 1220-1243.

Beverland, M. B., & Farrelly, F. J. (2010). The quest for authenticity in consumption: Consumers' purposive choice of authentic cues to shape experienced outcomes. *Journal of Consumer Research*, *36*(5), 838-856.

Bowles, M. C., & Fengler, W. (2024). *Spend Z: Gen Z changes everything.* NielsenIQ. https://nielseniq.com/wp-content/uploads/sites/4/2024/06/NIQ_SpendZ-Report-_LINKS.pdf

Brandes, L., & Dölp, K. (2025). Non-fungible tokens (NFTs) as digital brand extensions: Evidence on financial performance and parent-brand spillovers. *International Journal of Research in Marketing*. Advance online publication.

Business Research Insights. (2024). *Fashion brands NFT market size, share, growth, and industry analysis, by type (game, collections, and others) by application (primary market and secondary market), regional insights, and forecast to 2032*. https://www.businessresearchinsights.com/market-reports/fashion-brands-nft-market-113311

Cable, D. M., & Yu, K. Y. T. (2006). Managing job seekers' organizational image beliefs: The role of media richness and media credibility. *Journal of Applied Psychology*, *91*(4), 828-840.

Calderon, S. (2021). *Adidas and the Metaverse.* https://whatarenfts.com/blog/adidas-and-the-metaverse.

Chan, H. H. Y., Henninger, C., Boardman, R., & Blazquez Cano, M. (2024). The adoption of digital fashion as an end product: A systematic literature review of research foci and future research agenda. *Journal of Global Fashion Marketing*, *15*(1), 155-180.

Chen, Q., Choi, B. J., & Lee, S. J. (2025). Tailoring customer segmentation strategies for luxury brands in the NFT market–The case of SUPERGUCCI. *Journal of Retailing and Consumer Services*, *82*, 104121.

Cheng, P., & Zhang, C. (2023). Show me insides: Investigating the influences of product exploded view on consumers' mental imagery, comprehension, attitude, and purchase intention. *Journal of Retailing and Consumer Services*, *70*, 103168.

Cheung, M. L., Leung, W. K., Chang, L. M. K., Aw, E. C. X., & Wong, R. Y. (2024). Immersive time in the metaverse and visits to the physical world: why not both? A holistic customer engagement framework. *International Journal of Contemporary Hospitality Management*, *36*(11), 3674-3703.

Cho, M., Ko, E., & Taylor, C. R. (2024). Do non-fungible tokens create long-term value for luxury brands? The effect of NFT promotions on customer equity. *Computers in Human Behavior*, 108347.

Chu, S. C., Kim, H., & Kim, Y. (2023). When brands get real: The role of authenticity and electronic word-of-mouth in shaping consumer response to brands taking a stand. *International Journal of Advertising*, *42*(6), 1037-1064.

Chung, K., Youn, C., & Lee, Y. (2014). The influence of luxury brands' cross-border acquisition on consumer brand perception. *Clothing and Textiles Research Journal*, *32*(4), 219-234.

Clement, J., Kristensen, T., & Grønhaug, K. (2013). Understanding consumers' in-store visual perception: The influence of package design features on visual attention. *Journal of Retailing and Consumer Services, 20*(2), 234-239.

Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly, 11*(3), 355-366.

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management Science*, 32(5), 554-571.

Dall'Olmo Riley, F., & Lacroix, C. (2003). Luxury branding on the Internet: Lost opportunity or impossibility?. *Marketing Intelligence & Planning*, *21*(2), 96-104.

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: A

predictive validity perspective. *Journal of the Academy of Marketing Science*, *40*, 434-449.

Dion, D., & Arnould, E. (2011). Retail luxury strategy: assembling charisma through art and magic. *Journal of Retailing*, *87*(4), 502-520.

Dubois, B., & Paternault, C. (1995). *Observations*: Understanding the world of international luxury brands: The“"dream formula”" *Journal of Advertising Research*, *35*(4), 69–76.

Durocher, Y. (2022, October 19). NFTs: The fashion industry’s future baby. *Forbes*. https://www.forbes.com/sites/forbesagencycouncil/2022/10/18/nfts-the-fashion-industrys-future-baby/?sh=3013f9b55fc3

Fan, L., Wang, Y., & Mou, J. (2024). Enjoy to read and enjoy to shop: An investigation on the impact of product information presentation on purchase intention in digital content marketing. *Journal of Retailing and Consumer Services*, *76*, 103594.

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.

Frank, R. (2023, January 17). Gen Z is driving luxury sales as wealthy shoppers get younger. *CNBC*. https://www.cnbc.com/2023/01/17/gen-z-is-driving-luxury-sales-as-wealthy-shoppers-get-younger.html

Gajendran, R. S., Loewenstein, J., Choi, H., & Ozgen, S. (2022). Hidden costs of text-based electronic communication on complex reasoning tasks: Motivation maintenance and impaired downstream performance. *Organizational Behavior and Human Decision Processes*, *169*, 104130.

Gatto, J., & Earp-Thomas, M. (2024). *NFT legal issues.* https://www.lawoftheledger.com/2024/12/articles/nfts/nft-legal-issues/

Grewal, R., Gupta, S., & Hamilton, R. (2021). Marketing insights from multimedia data: Text, image, audio, and video. *Journal of Marketing Research, 58*(6), 1025-1033.

Hagen, L. (2021). Pretty healthy food: How and when aesthetics enhance perceived healthiness. *Journal of Marketing*, *85*(2), 129-145.

Hamari, J., & Keronen, L. (2017). Why do people buy virtual goods: A meta-analysis. *Computers in Human Behavior*, *71*, 59-69.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

He, H., Wang, T., Yang, H., Fu, J., Yuan, N. J., Yin, J., ... & Zhang, Q. (2023, October). Learning profitable NFT image diffusions via multiple visual-policy guided

772 reinforcement learning. In *Proceedings of the 3[1s]t ACM International Conference on*
773 *Multimedia* (pp. 6831-6840).
774 Hofstetter, R., De Bellis, E., Brandes, L., Clegg, M., Lamberton, C., Reibstein, D., ... &
775 Zhang, J. Z. (2022). Crypto-marketing: How non-fungible tokens (NFTs) challenge
776 traditional marketing. *Marketing Letters*, *33*(4), 705-711.
777 Hollebeek, L. D., Menidjel, C., Sarstedt, M., Jansson, J., & Urbonavicius, S. (2024).
778 Engaging consumers through artificially intelligent technologies: Systematic review,
779 conceptual model, and further research. *Psychology & Marketing*, *41*(4), 880-898.
780 Ishii, K., Lyons, M. M., & Carr, S. A. (2019). Revisiting media richness theory for today and
781 future. *Human Behavior and Emerging Technologies*, *1*(2), 124-131.
782 Joy, A., Zhu, Y., Peña, C., & Brouard, M. (2022). Digital future of luxury brands: Metaverse,
783 digital fashion, and non-fungible tokens. *Strategic Change*, *31*(3), 337-343.
784 Kapferer, J. N., & Valette-Florence, P. (2021). Which consumers believe luxury must be
785 expensive and why? A cross-cultural comparison of motivations. *Journal of Business*
786 *Research*, *132*, 301-313.
787 Kaur, J., Mogaji, E., Paliwal, M., Jha, S., Agarwal, S., & Mogaji, S. A. (2024). Consumer
788 behavior in the metaverse. *Journal of Consumer Behaviour*, *23*(4), 1720-1738.
789 Khelladi, I., Lejealle, C., Rezaee Vessal, S., Castellano, S., & Graziano, D. (2024). Why do
790 people buy virtual clothes? *Journal of Consumer Behaviour*, *23*(3), 1389-1405.
791 Kim, H., Choi, Y. J., & Lee, Y. (2015). Web atmospheric qualities in luxury fashion brand
792 websites. *Journal of Fashion Marketing and Management*, *19*(4), 384-401.
793 Kim, J., Cho, A., Lee, D. C., Park, J., Kim, A., Jhang, J., & Kim, C. (2025). Consumer
794 preferences for the visual presentation of non-fungible tokens (NFTs) of luxury
795 products: The role of perceived authenticity. *Journal of Retailing and Consumer*
796 *Services*, *82*, 104131.
797 Kim, J. (2024). Why do experiments fail? Six practical suggestions for successful online
798 experiments. *Journal of Travel Research*, *63*(7), 1835-1844.
799 Kim, J., Giroux, M., & Lee, J. C. (2021). When do you trust AI? The effect of number
800 presentation detail on consumer trust and acceptance of AI recommendations.
801 *Psychology & Marketing, 38*(7), 1140-1155.
802 Kim, M. (2019). Digital product presentation, information processing, need for cognition and
803 behavioral intent in digital commerce. *Journal of Retailing and Consumer*
804 *Services*, *50*, 362-370.

Kim, S. E., Lee, J. E., & Youn, S. Y. (2024). Effects of promotional bundles with non-fungible token (NFT) fashion on consumers' perceptions. *Journal of Theoretical and Applied Electronic Commerce Research*, *19*(4), 3331-3351.

Kumar, N. (2024, November 29). Metaverse statistics: Active users data. *DemandSage.* https://www.demandsage.com/metaverse-statistics/

Kuzmichev, V., & Yan, J. (2022). The application of digital twins in the field of fashion. In *Digital twins: basics and applications* (pp. 45-57). Springer International Publishing.

Lavie, T., & Tractinsky, N. (2004). Assessing dimensions of perceived visual aesthetics of websites. *International Journal of Human-Computer Studies*, *60*(3), 269-298.

Lee, C. T., Ho, T. Y., & Xie, H. H. (2023). Building brand engagement in metaverse commerce: The role of branded non-fungible tokens (BNFTs). *Electronic Commerce Research and Applications*, *58*, 101248.

Lee, J. E., Hur, S., & Watkins, B. (2018). Visual communication of luxury fashion brands on social media: effects of visual complexity and brand familiarity. *Journal of Brand Management, 25*, 449-462.

Lee, M. P., & Suk, K. (2010). Disambiguating the role of ambiguity in perceptual assimilation and contrast effects. *Journal of Consumer Research*, *36*(5), 890-897.

Liu, L., Wu, S., & Cai, G. (2023). Impact of online product presentation on sales: the effects of text-image introductory information and celebrity endorsements. *Journal of Product & Brand Management*, *32*(8), 1220-1232.

Lu, Z. Y., Hsee, C. K., & Wu, K. (2024). Short-Asking with Long-Encouraging (SALE): A simple method to increase purchase quantity. *Journal of the Academy of Marketing Science*, *52*(4), 1152-1170.

McDowell, M. (2022, June 20). Burberry brings back the Blankos block party NFT-based game. *Vogue Business*. https://www.voguebusiness.com/technology/burberry-brings-back-the-blankos-block-party-nft-based-game

Morewedge, C. K., Monga, A., Palmatier, R. W., Shu, S. B., & Small, D. A. (2021). Evolution of consumption: A psychological ownership framework. *Journal of Marketing*, *85*(1), 196-218.

Muret, D. (2023, November 28). Louis Vuitton launches new NFT, a virtual trunk costing 6,000 euros. *Fashion Network*. https://www.fashionnetwork.com/news/Louis-vuitton-launches-new-nft-a-virtual-trunk-costing-6-000-euros,1581431.html

Murtas, G., Pedeliento, G., & Mangiò, F. (2024). Luxury fashion brands at the gates of the Web 3.0: An analysis of early experimentations with NFTs and the metaverse. *Journal of Global Fashion Marketing, 15*(1), 90-114.

Nadini, M., Alessandretti, L., Di Giacinto, F., Martino, M., Aiello, L. M., & Baronchelli, A. (2021). Mapping the NFT revolution: Market trends, trade networks, and visual features. *Scientific Reports*, *11*(1), 20902.

Newman, G. E., & Dhar, R. (2014). Authenticity is contagious: Brand essence and the original source of production. *Journal of Marketing Research*, *51*(3), 371-386.

Orazi, D. C., & Nyilasy, G. (2025). Phygital products: Effects and boundaries of metaverse-first retail strategies. *Journal of Retailing*. Advance online publication.

Pandey, S., Mittal, S., & Chawla, D. (2024). Tackling consumer information asymmetry and perceived uncertainty for luxury re-commerce through seller signals. *Journal of Retailing and Consumer Services*, *79*, 103736.

Pangarkar, A., Arora, V., & Shukla, Y. (2022). Exploring phygital omnichannel luxury retailing for immersive customer experience: The role of rapport and social engagement. *Journal of Retailing and Consumer Services*, *68*, 103001.

Park, H., & Lim, R. E. (2023). Fashion and the metaverse: Clarifying the domain and establishing a research agenda. *Journal of Retailing and Consumer Services*, *74*, 103413.

Park, J., Kim, J., Lee, D. C., Kim, S. S., Voyer, B. G., Kim, C., Sung, B., Gonzalez-Jimenez, H., Fastoso, F., Choi, Y. K., & Yoon, S. (2022). The impact of COVID-19 on consumer evaluation of authentic advertising messages. *Psychology & Marketing*, *39*(1), 76-89.

Park, Y., Ko, E., & Do, B. (2023). The perceived value of digital fashion product and purchase intention: The mediating role of the flow experience in metaverse platforms. *Asia Pacific Journal of Marketing and Logistics*, *35*(11), 2645-2665.

Pillai, K. G., & Nair, S. R. (2021). The effect of social comparison orientation on luxury purchase intentions. *Journal of Business Research*, *134*, 89-100.

Pleyers, G. (2024). Visual complexity in product design: How does the degree of elaborateness of the front-pack image impact consumers' responses?. *Journal of Consumer Behaviour*, *23*(3), 1418-1445.

Profumo, G., Testa, G., Viassone, M., & Ben Youssef, K. (2024). Metaverse and the fashion industry: A systematic literature review. *Journal of Global Fashion Marketing*, *15*(1), 131-154.

Saeed, N., Akhtar, N., Attri, R., & Yaqub, M. Z. (2024). How violation of consumers' expectations causes perceived betrayal and related behaviors: Theoretical perspectives from expectancy violation theory. *Journal of Retailing and Consumer Services*, *81*, 103961.

Särmäkari, N. (2023). Digital 3D fashion designers: Cases of Atacac and The Fabricant. *Fashion Theory*, *27*(1), 85–114.

Schaar, L., & Kampakis, S. (2022). Non-fungible tokens as an alternative investment: Evidence from CryptoPunks. *Journal of the British Blockchain Association, 5*(1), 1-12

Shahid, S., Paul, J., Gilal, F. G., & Ansari, S. (2022). The role of sensory marketing and brand experience in building emotional attachment and brand loyalty in luxury retail stores. *Psychology & Marketing*, *39*(7), 1398-1412.

Stapel, D. A., & Koomen, W. (2000). How far do we go beyond the information given? The impact of knowledge activation on interpretation and inference. *Journal of Personality and Social Psychology, 78*(1), 19-37.

Stapel, D. A., Koomen, W., & Van der Pligt, J. (1997). Categories of category accessibility: The impact of trait concept versus exemplar priming on person judgments. *Journal of Experimental Social Psychology, 33*(1), 47-76.

Sun, C., Fang, Y., Kong, M., Chen, X., & Liu, Y. (2022). Influence of augmented reality product display on consumers' product attitudes: A product uncertainty reduction perspective. *Journal of Retailing and Consumer Services*, *64*, 102828.

Sung, E., Kwon, O., & Sohn, K. (2023). NFT luxury brand marketing in the metaverse: Leveraging blockchain-certified NFTs to drive consumer behavior. *Psychology & Marketing*, *40*(11), 2306-2325.

Tam, F. Y., & Lung, J. (2025). Luxury fashion brands in metaverse retailing: A review of literature and practice. *Foresight.* Advance online publication.

Taylor, C. R. (2023). Non-fungible tokens (NFTs) as promotional devices: Research needs and future projections. *International Journal of Advertising*, *42*(5), 799-800.

Thomas, D. (2021, October 4). Dolce & Gabbana just set a $6 million record for fashion NFTs. *The New York Times.* https://www.nytimes.com/2021/10/04/style/dolce-gabbana-nft.html

Tseng, C. H., & Wei, L. F. (2020). The efficiency of mobile media richness across different stages of online consumer behavior. *International Journal of Information Management, 50*, 353-364.

Vantage Market Research. (2024, September 26). Metaverse in fashion Market - Global industry Assessment & Forecast. https://www.vantagemarketresearch.com/industry-report/metaverse-in-fashion-market-2649.

Voichek, G., & Novemsky, N. (2024). Positive contrast scope insensitivity. *Journal of Consumer Research*, Advance online publication.

Xi, X., Yang, J., Jiao, K., Wang, S., & Lu, T. (2022). "We buy what we wanna be": Understanding the effect of brand identity driven by consumer perceived value in the luxury sector. *Frontiers in Psychology*, *13*, 1002275.

Xie, Q., Muralidharan, S., & Edwards, S. M. (2024). Who will buy the idea of non-fungible token (NFT) marketing? Understanding consumers' psychological tendencies and value perceptions of branded NFTs. *International Journal of Advertising*, *43*(6), 987-1015.

Wongkitrungrueng, A., & Suprawan, L. (2024). Metaverse meets branding: Examining consumer responses to immersive brand experiences. *International Journal of Human–Computer Interaction*, *40*(11), 2905-2924.

Yang, H. (2024). The genesis effect: Digital goods in the metaverse. *Journal of Consumer Research, 51*(1), 129-139.

Yang, J., Teran, C., Battocchio, A. F., Bertellotti, E., & Wrzesinski, S. (2021). Building brand authenticity on social media: The impact of Instagram ad model genuineness and trustworthiness on perceived brand authenticity and consumer responses. *Journal of Interactive Advertising*, *21*(1), 34-48.

Yilmaz, T., Sagfossen, S., & Velasco, C. (2023). What makes NFTs valuable to consumers? Perceived value drivers associated with NFTs liking, purchasing, and holding. *Journal of Business Research*, *165*, 114056.

Yoo, J., Kim, J. H., Kim, M., & Park, M. (2024). Imagery evoking visual and verbal information presentations in mobile commerce: The roles of augmented reality and product review. *Journal of Research in Interactive Marketing*, *18*(2), 182-197.

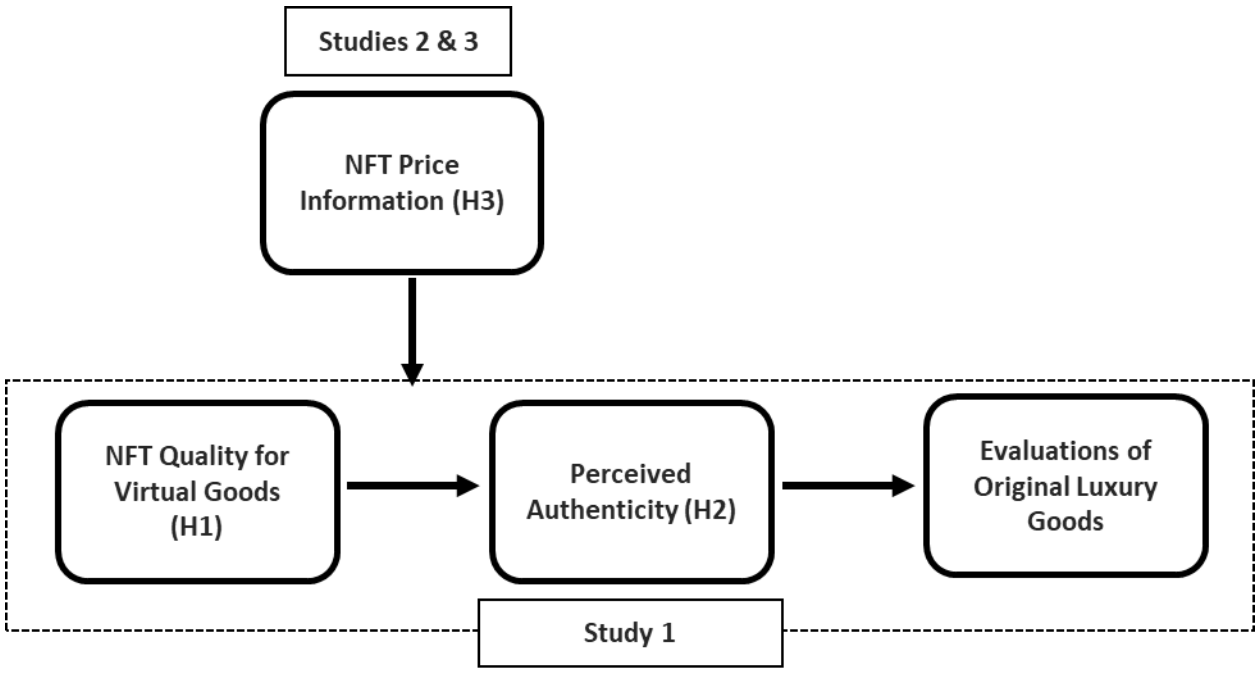
Yu, H. (2021, May 31). You can now be the first person to own a Gucci NFT. *Tatler Asia.* https://www.tatlerasia.com/power-purpose/technology/sg-gucci-nft-christies-auction

Zhang, L., & Phang, I. G. (2025). How NFTs contribute to consumers' purchase intention towards luxury fashion physical products. *Journal of Fashion Marketing and Management: An International Journal*, *29*(3), 496-519.

Zhao, Y., Jiang, J., Chen, Y., Liu, R., Yang, Y., Xue, X., & Chen, S. (2022). Metaverse: Perspectives from graphics, interactions and visualization. *Visual Informatics*, *6*(1), 56-67.

Zhu, Y., Wang, Y., Wei, J., & Hao, A. (2023). Effects of vividness, information and aesthetic design on the appeal of pay-per-click ads. *Journal of Research in Interactive Marketing*, *17*(6), 848-864.

944 **Figure 1. Research Framework**



945

946

947

948

949

950

Figure 2. Stimuli of Studies 1 & 2

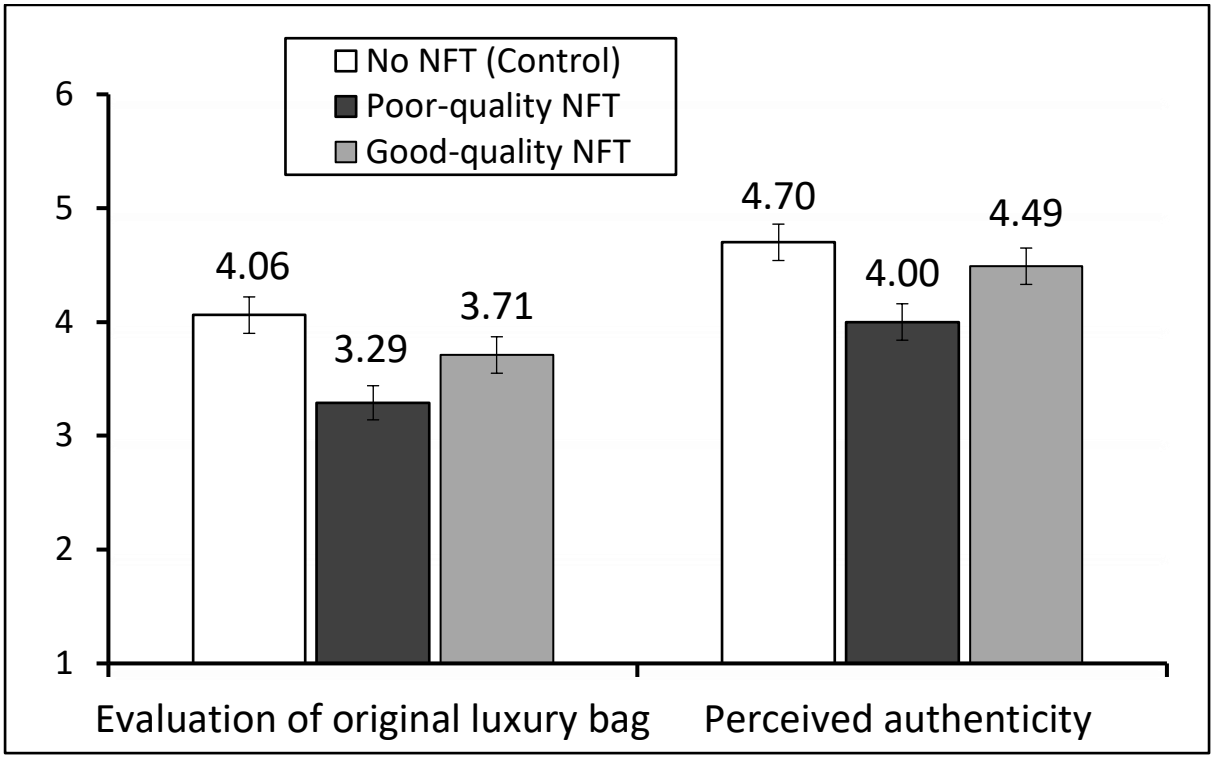
Poor quality NFT [Study 1] vs. High quality NFT [Study 1]

Poor quality NFT with price information [Study 2]

Real Bag [Study 1 & Study 2 – same style] vs. Real Bag [Study 2 - different style]

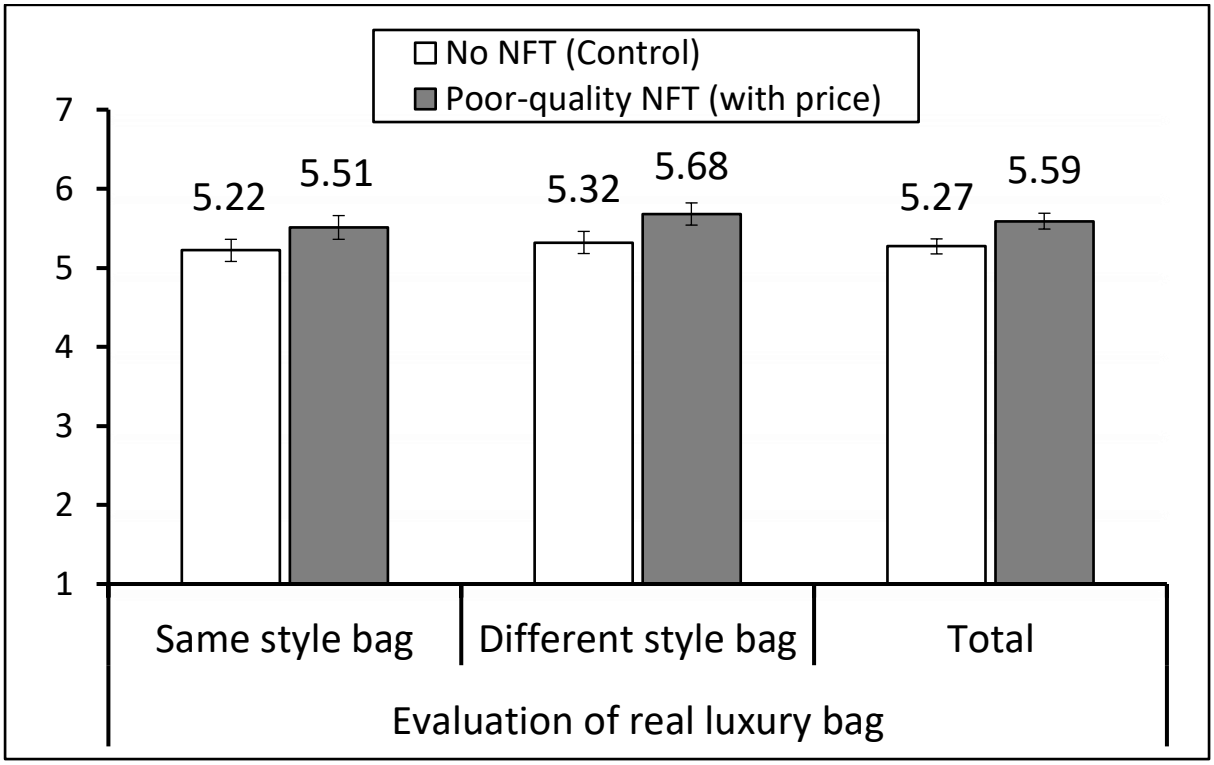
Figure 3. Results of Studies 1 & 2

Results of Study 1



* *Error bars represent the standard error.*

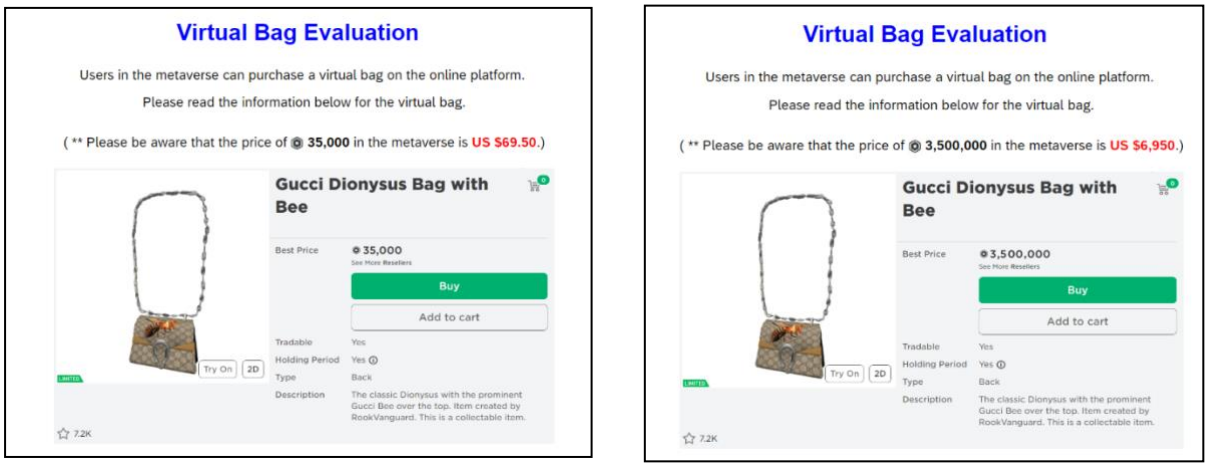
Results of Study 2



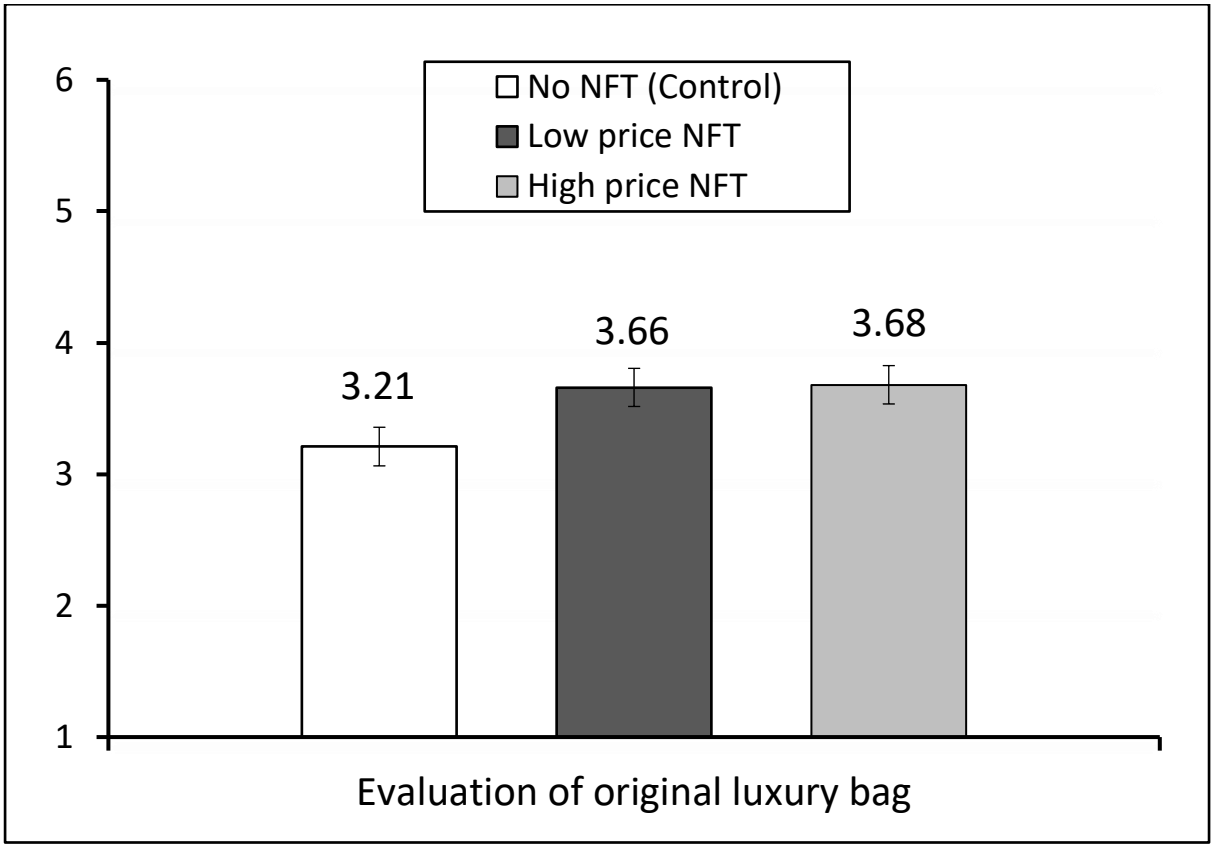
* *Error bars represent the standard error.*

Figure 4. Stimuli and Results of Study 3

Stimuli: Low price NFT condition vs. High price NFT condition



Results of Study 3



995 **Table 1. Profiles of Participants in Each Study**

		Study 1 (*n* = 355)	Study 2 (n = 244)	Study 3 (*n* = 395)
Gender	Male	44.8%	72.5%	49.0%
	Female	55.2%	27.5%	51.0%
Age	18–29	14.1%	32.4%	13.4%
	30–39	34.9%	56.6%	33.2%
	40–49	25.1%	6.6%	26.8%
	50–59	14.1%	3.3%	12.9%
	60–	11.8%	1.2%	13.7%
Race	White/Caucasian	83.1%	92.2%	72.4%
	African American	8.7%	2.0%	9.4%
	Hispanic	3.1%	0.0%	3.5%
	Asian	3.7%	4.9%	11.6%
	Others	1.4%	0.8%	3.1%
Education level	Did not complete high school	0.3%	2.9%	0.5%
	High school graduate or some college	31.5%	31.1%	36.5%
	College graduate (4 years)	45.4%	48.0%	44.3%
	Postgraduate degree	22.8%	18.0%	18.7%
Family income (US$)	<$30,000	14.9%	6.1%	20.5%
	$30,001–$60,000	25.4%	14.8%	27.6%
	$60,001–$90,000	24.2%	26.6%	20.5%
	$90,001–$120,000	14.4%	19.7%	15.4%
	>$120,001	21.1%	32.8%	15.9%

996
997

Table 2. Scale of Empirical Studies

Quality of NFT bag (Study 1): Overall, how would you rate the quality of the virtual bag shown above? 1 = very poor quality, 7 = very good quality
Evaluation of the original luxury bag (Study 1): The luxury bag above is ... 1= very bad/ very unfavorable/ very negative, 7 = very good/ very favorable/ very positive
Perceived authenticity of the luxury bag (Studies 1, 2, and 3): The luxury bag above is ... 1 = not at all authentic, 7 = very authentic
Perceived retail price of the original bag (Study 2): What you do think is the retail price of the luxury bag above in an official store? 1 = less than $2,000, 2 = $2,000–$2,499, 3 = $2,500–$2,999, 4 = $3,000–$3,499, 5 = $3,500–$3,999, 6 = $4,000–$4,499, 7 = $4,500–$4,999, & 8 = $5,000 or higher
Perceived realism of the virtual bag (Study 3): The virtual bag above is ... 1 = not at all realistic, 7 = very realistic
Perceived price of the virtual bag (Study 3): The price of virtual bag above is ... 1 = not at all expensive, 7 = very expensive

Appendix A. Results of Mediation analysis of Study 1

```
**************************************************************************
Model  : 4
    Y  : DV_bag_a
    X  : IV_bag
    M  : authenti

Sample
Size:  355

Coding of categorical X variable for analysis:
 IV_bag     X1     X2
   .000   .000   .000
  1.000  1.000   .000
  2.000   .000  1.000

**************************************************************************
OUTCOME VARIABLE:
 authenti

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .168       .028      2.995      5.090      2.000    352.000       .007

Model
             coeff         se          t          p       LLCI       ULCI
constant     4.702       .162     29.010       .000      4.383      5.021
X1           -.702       .226     -3.101       .002     -1.147      -.257
X2           -.214       .226      -.948       .344      -.658       .230

**************************************************************************
OUTCOME VARIABLE:
 DV_bag_a

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .579       .336      1.997     59.131      3.000    351.000       .000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.466       .244      6.013       .000       .986      1.945
X1           -.380       .187     -2.029       .043      -.749      -.012
X2           -.232       .185     -1.258       .209      -.596       .131
authenti      .551       .044     12.654       .000       .465       .636

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Relative total effects of X on Y
       Effect         se          t          p       LLCI       ULCI
X1      -.767       .223     -3.442       .001     -1.205      -.329
X2      -.350       .222     -1.576       .116      -.787       .087

Omnibus test of total effect of X on Y
    R2-chng          F        df1        df2          p
       .033      5.949      2.000    352.000       .003
----------

Relative direct effects of X on Y
       Effect         se          t          p       LLCI       ULCI
X1      -.380       .187     -2.029       .043      -.749      -.012
X2      -.232       .185     -1.258       .209      -.596       .131

Omnibus test of direct effect of X on Y:
    R2-chng          F        df1        df2          p
       .008      2.090      2.000    351.000       .125
----------

Relative indirect effects of X on Y

 IV_bag      ->    authenti    ->    DV_bag_a

       Effect     BootSE   BootLLCI   BootULCI
X1      -.387       .125      -.643      -.150
X2      -.118       .124      -.363       .121

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000
```

Appendix B. Literature review on NFTs, visual information, and consumer perceptions in retailing

Author(s)	Visual Information	Independent variable(s)	Mediator(s) /Moderator(s)	Dependent variable(s)	Key Findings
Nadini et al. (2021)	Image-based clustering and features	NFT visual features and sales history		Predictive success of NFT sales	NFTs within a collection tend to be visually homogenous; both past sales and visual features predict price.
Lee, Ho, & Xie (2023)	Brand NFTs (BNFTs) as visual brand expressions (design, style, storytelling)	BNFT attributes	Mediator: Brand attitude Moderator: SOR framework (stimulus-organism-response)	Brand commitment, purchase intention, engagement with BNFTs	BNFTs provide immersive and aspirational branding through visually rich and exclusive digital items Visual storytelling, customization, and scarcity drive emotional and symbolic value in metaverse branding.
Bao et al. (2024)	Digital visual design shaping product appearance and quality	Luxury brands NFT campaigns		Perception of virtual luxury	NFT-enabled virtual luxury is perceived as offering new value dimensions.
Kim, Lee & Youn (2024)	NFT visuals embedded in fashion product	NFT promotional bundle	Mediator: Perceived risk and authenticity Moderator: Product type (luxury vs. non-luxury)	Consumer evaluation and willingness to pay	NFTs bundled with physical items increase value for non-luxury brands but lower authenticity for luxury brands.
Xie, Muralidharan, & Edwards (2024)	Creative and aesthetic design of NFTs	Status consumption, financial constraints, and dispositional innovativeness	Mediator: NFT values (entertainment, informative, unique, and expressive)	Brand word-of-mouth (WOM) intention	Branded NFTs that are entertaining, unique, and expressive increase brand WOM among Gen Z and Millennials.
Brandes & Dolp (2025)	Image-based extension fit	NFT campaign design factors	Mediator: Brand attitude Moderator: Brand type (premium vs. value brand)	NFT campaign revenue and perception of a parent brand	Image-based extension fit is positively correlated with revenues. NFT campaigns negatively affect consumer perceptions of parent brands.

Chen, Choi, & Lee (2025)	Visually appealing NFTs	NFT user behaviors (Token preference and transaction history)	Moderator: Customer motivation (investment, aesthetic, and technical)	Customer segmentation and behavioral typology of NFT buyers	Visual and symbolic value plays a major role for casual collectors, while speculators seek short-term returns, and crypto natives care more about token mechanics than brand names.
Kim et al. (2025)	NFT visualization type (easy vs. hard to visualize)	Visual presentation (easy-to-visualize NFT vs. Difficult-to-visualize NFT)	Mediator: Authenticity Moderator: Product type (luxury vs. non-luxury)	Consumer attitudes and willingness to pay	Easier-to-visualize NFTs increased authenticity, trust, and willingness to pay, especially for luxury products.
Orazi & Nyilasy (2025)	Visual and immersive components of Phygital products (PPs) and metaverse environments	Retail Strategy of PPs (Metaverse-first vs. Physical first)	Mediator: perceived investment value Moderator: Arousal	Consumer willingness to pay for phygital products	Even though PPs are identical in content, order of presentation significantly affects perceived value. Customizable metaverse atmospherics offer a cost-effective intervention for mitigating WTP loss.
Zhang & Phang (2025)	NFT design aesthetic	NFT characteristics	Mediator: perceived hedonic value Moderator: Perceived NFT-physical product fit	Purchase intention	Luxury fashion NFTs with four characteristics (scarcity, exclusivity, design aesthetic and novelty) positively affect consumer purchase intentions.