Journal of
Theoretical and Applied Electronic Commerce Research

MDPI

Article

Effects of Promotional Bundles with Non-Fungible Token (NFT) Fashion on Consumers' Perceptions

Seong Eun Kim [1,*], Jung Eun Lee [2] and Song-yi Youn [3]

[1] Merchandising, Eskenazi School of Art, Architecture + Design, Bloomington, IN 47405, USA
[2] Department of Consumer & Design Sciences, Auburn University, Auburn, AL 36948, USA; jlee@auburn.edu
[3] Textile and Apparel Management, University of Missouri, Columbia, MO 65211, USA; syoun@missouri.edu
* Correspondence: wk21@iu.edu

Abstract: The rapid expansion of the non-fungible token (NFT) market, which grew over 200% in 2023 to reach $22 billion, has opened new avenues for fashion brands to engage consumers through digital fashion products under blockchain technology. This study investigated the effects of NFT promotional bundles that combine physical and NFT fashion items as a pair on consumer perceptions. By investigating the interaction effect between the brand type (luxury vs. non-luxury) and promotional bundle types (PHY+free NFT vs. NFT+free PHY), the research demonstrated how these bundles influenced consumers' perceived value, risk, and authenticity according to the brand type. The findings showed that while a freebie physical item can enhance consumers' perceived value of NFT products for non-luxury brands, it led to value-discounting inferences, particularly for luxury brands. This study contributes to the literature on NFT fashion by exploring consumer perceptions and providing insights for fashion retailers on effectively framing promotional bundles to maximize consumer engagement for NFT fashion products.

Keywords: non-fungible token; NFT; promotional bundle; perceived value; perceived risk

Citation: Kim, S.E.; Lee, J.E.; Youn, S.-y. Effects of Promotional Bundles with Non-Fungible Token (NFT) Fashion on Consumers' Perceptions. *J. Theor. Appl. Electron. Commer. Res.* **2024**, *19*, 3331–3351. https://doi.org/10.3390/jtaer19040161

Academic Editor: Chuanlan Liu

Received: 5 September 2024
Revised: 8 November 2024
Accepted: 14 November 2024
Published: 28 November 2024

1. Introduction

With the remarkable over 200 percent growth of the non-fungible token (NFT) market in 2023, the market soared to $22 billion, a value comparable to the market as of 2021 [1]. Riding on the current growth momentum, the NFT market is expected to be worth over $80 billion by 2025 [2]. NFTs are derived cryptocurrency assets that have unique identifiers, enabling them to be immutable in trade [3]. These features of NFTs make it possible for fashion brands to sell digital fashion products as if consumers purchase physical products, providing new experiences to consumers above traditional clothing consumption [4,5]. In particular, as the metaverse market spreads among the young generation, the foray of fashion brands into NFTs is not merely about creating new consumer experiences but a part of business expansion strategies aimed at penetrating the young market [6]. As a result, various fashion brands, spanning from luxury to non-luxury, have contrived various marketing strategies to sell their NFT products within the virtual and cryptocurrency marketplace.

To promote NFT fashion products along with their physical products, many fashion brands have adopted promotional strategies [6]. For example, the luxury fashion brand Salvatore Ferragamo offered complimentary customized NFT sneakers to customers who purchased Ferragamo apparel at their store in NYC [7]. This promotional strategy involves selling both physical fashion items and NFT digital fashion items in bundle packages, offering either an NFT fashion item for free (i.e., supplementary product) with the purchase of a physical fashion item (i.e., focal product) or a physical fashion item (i.e., supplementary product) with the purchase of an NFT item (i.e., focal product) as a complimentary addition [8]. The former bundle entails giving away freebie NFTs with physical purchases to familiarize consumers with NFT products, while the latter bundle offers that the sale

of NFT items often comes with the bonus of a physical item, thereby enhancing the value for consumers.

While some advantages of freebie promotional bundles have been identified, such as free products enhancing positive perceptions by adding extra value to the focal product [9–11], the phenomenon of value-discounting inference presents a notable challenge. Value-discounting inference is the process where consumers assign a lower value to a product that is offered for free, often because of assumptions about its lower quality compared with the focal product. his inference can be especially intensified for promotional bundles that include an NFT as the focal product, given the significant uncertainties surrounding NFTs due to their association with cryptocurrency and the unfamiliarity with their market [12]. Understanding how the perceptions toward promotional bundles including NFTs influence consumer decisions and behaviors is critical for fashion retailers, ensuring they enhance rather than diminish the perceived value of the NFT promotional bundle.

This study also explores the role of brand type (luxury vs. non-luxury brands) as a moderator. Luxury brands have sought to embrace new technologies such as NFT fashion to enhance their brand image, demonstrating innovation and leadership in the fashion industry [13]. However, promotional bundles including NFT products might potentially undermine consumers' perceptions of luxury brands and increase skepticism toward their products, particularly when offered for free [12,14]. In contrast, given that products from non-luxury brands are typically more affordable [15], even when the physical product is provided for free, consumers are less likely to develop negative perceptions toward the promotional bundle as well as the brands and their products. Thus, by investigating brand types, this study aims to provide tailored implications for fashion retailers regarding freebie promotional bundles.

Despite the recent surge in research attention on NFTs and the current trend in the fashion industry and its promotional strategies regarding fashion NFTs, to the best of our knowledge, no study has investigated freebie promotional bundles comprising NFTs and physical products. Therefore, to fill this gap, the purpose of this study is to examine consumers' perceptions, encompassing perceived risk and authenticity of physical products, contingent on the positioning of the NFT and physical products as either focal or supplementary items within the freebie promotional bundle. In addition, this study investigates a moderating role of brand (luxury vs. non-luxury brand), along with the mediating role of consumers' perceptions on the relationship between the types of freebie promotional bundle and perceived value. This study contributes to the NFT fashion literature by exploring the consumers' perception of NFT promotional bundles and their psychological mechanisms for value-discounting inference on these bundles. This investigation also provides valuable insights to fashion retailers into how to frame freebie promotional bundles incorporating NFT fashion to achieve the best possible outcomes.

2. Conceptual Background and Hypothesis Development

2.1. Non-Fungible Token (NFT)

A blockchain is a distributed ledger that chronologically stores information, including cryptographic proof and transaction data, in interconnected blocks [16,17]. This system, visible to all users in its community, is resistant to modification, enhancing transaction integrity [18]. Operating as a decentralized network, free from geographical constraints and governments' financial regulations, it enables direct transactions of virtual assets between buyers and sellers, irrespective of their location or time, using cryptocurrencies such as Bitcoin [16]. Based on the existing cryptocurrencies, crypto tokens are created as a subclass of cryptocurrencies to add more functions to them, such as payment systems and ownership certificates in a particular platform or network [3]. Most crypto tokens are fungible, meaning that if a token holder trades one token, they receive something of equal value in return, identical in worth to the one exchanged [19].

Unlike most crypto tokens, non-fungible tokens (NFTs) are unique digital assets that maintain a non-fungible function in a crypto token form built upon an existing blockchain,

which means that they cannot be exchanged on a like-for-like basis [20,21]. These features enable each token to have its own identifier and become immutable in a transaction (i.e., when someone digitally copies an NFT, it will become a different token) [22]. Currently, exploiting NFTs' technical features, many industries use NFTs to represent their real-world objects as authenticators and to create digital objects, such as digital art and music, virtual real estate, and gaming items, and sell them with crypto payments [22].

As NFT markets are still new and not known to the majority, the value and rarity of NFTs highly depend on the creators' reputations and supply–demand dynamics [23,24]. Kräussl and Tugnetti [23] claimed that how famous the creators are and how many NFTs the creators launch in the market are essential to determining the value of NFTs. This is because NFT consumers have a propensity to seek rare and exclusive NFTs to distinguish their NFT collections from others [23]. Vasan [24] also found that in the NFT art collection market, high-reputation artists could stabilize their income by trading their NFT art collections because of the consistent demand from investors, while low-reputation artists had difficulties in gaining attention from investors. These studies manifested that the value of NFTs is vulnerable to external factors and that the relationship between creators and consumers can shape the value and rarity of NFTs.

2.2. NFTs and the Fashion Industry

NFT fashion has been developed as virtual fashion to bridge between the physical and virtual worlds, the latter called the metaverse [4]. A metaverse is a 3D virtual space where people experience life, like in the physical world, where users can own a house and interact with other users/peers in the virtual universe. As people experience the virtual world through an avatar in the metaverse world, they need to purchase digital clothing and accessories to dress up the avatar. In the metaverse environment, such digital clothing and accessories are stored as digital tokens, and these items can be bought, sold, and traded as unique and indivisible fashion items. Following this trend, luxury fashion brands have jumped into the NFT fashion market in the metaverse—i.e., Louis Vuitton (e.g., the LVxNFT Avatar in the game *Final Fantasy XIV*), Burberry (e.g., Burberry's *Blankos Block Party*), and Gucci (e.g., the Aria NFT collection) [15].

Various fashion brands have also participated in fashion events in the metaverse to use NFT fashion as their powerful marketing tool. For example, Decentraland launched the very first Metaverse Fashion Week in March 2022 [21]. Various fashion brands, such as Etro, Dolce and Gabbana, and Tommy Hilfiger, participated in this Fashion Week [21]. The Metaverse Fashion Week received considerable attention from the fashion industry, and over 108,000 people logged into the virtual world during the four days of the Metaverse Fashion Week [21]. By penetrating the metaverse fashion market, fashion brands can enhance their brand images and expose their brands to younger generations, such as Gen Z [4,8]. Joy et al. [4] argued that considering the younger generations' digitalized lifestyle, launching NFT fashion products becomes a new opportunity for fashion brands to expose their brands to Gen Z. Kishan and Umer [8] also mentioned that luxury brands have invested considerable effort into providing the young generation with cutting-edge vibes by launching NFT fashion collections to have them feel exclusivity and signals of wealth in the metaverse [8].

Despite fashion brands' efforts to integrate NFTs into their marketing strategies, consumers have yet to fully recognize the value of NFTs when it comes to purchasing them. As a result, fashion brands often include NFTs in promotional bundles rather than selling the NFTs by themselves as a means to boost the sales of their physical products. Furthermore, they aim to capture consumers' attention by leveraging NFTs as a marketing tool in the social media and metaverse environments [8]. For example, Jimmy Choo offered a pair of free sneakers with the purchase of NFT fashion [25], while some luxury brands have provided free NFTs with the purchase of a physical product (e.g., NFT as authentication). Given that NFTs are commonly sold as part of promotional bundles in the fashion industry, this study adopted the concept of freebie promotional bundles, wherein

the promotional bundle consists of NFTs and physical fashion products. Despite consumers paying the same price for a promotional bundle containing two identical items (i.e., an NFT and a physical product), two variations of promotional bundles can be created depending on which product serves as the focal product: (1) a promotional bundle offering a free NFT with a purchase of a physical product vs. (2) a promotional bundle offering a free physical product with a purchase of an NFT. Hereafter, we will refer to the former promotional bundle as 'PHY+free NFT' and the latter bundle as 'NFT+free PHY.'

2.3. Freebie Promotional Bundles and Value-Discounting Inference

The freebie promotional bundle is a marketing strategy where a supplementary item is offered for free along with the purchase of the focal product [9,10]. As a promotional bundle with a freebie provides the supplementary product as a free benefit (i.e., zero-price product), consumers generally experience positive feelings about the free product as well as the overall value of the bundle promotion by adding extra value to the main product [9–11].

Consumers' perceptions toward freebie promotional bundles are frequently explained by value-discounting inference, which refers to the phenomenon where individuals perceive the value of a product to be lower when it is offered for free or at a significant discount [26]. This inference is based on the assumption that if an item is given away or sold at a reduced price, it might be of lower quality, of lower price, and/or less attractive [26]. Research in promotional bundles suggests that consumers form inferences based on the perceived value of the components within a bundle, thereby influencing consumer decisions such as perceived attractiveness toward the bundle [6] or willingness to pay [27,28]. As the supplementary products are generally provided for free or at a discounted price in the promotional bundle, consumers infer the supplementary product with price discounts as low quality [29] and/or having low demand [30]. In a similar vein, when consumers do not have price information about the free product in a freebie promotional bundle, the value of the free product can be inferred at discounted value and lower than the focal product [27]. As consumers assume that the marketers will generate profit from the sale of freebie promotional bundles, they make diverse inferences from the promotion that the main product is overpriced or that the free product does not have much value [27]. Because of value-discounting inference, Raghubir [31] found that freebie promotions can harm the valuation of the free product, such that consumers are less willing to purchase the product when it becomes a standalone item. Furthermore, Liu and Chou [28] found that consumers tend to attach more value to the focal product, while the supplementary products are considered to have either a lower value than the focal product or no value at all.

Several previous studies have investigated freebie promotional bundles that include physical and digital products, particularly focusing on physical and digital books [6–8]. In this context, consumers are often reluctant to simultaneously acquire both physical and digital formats because of content substitutability between them. However, when consumers were informed about the benefits of using each format and considered the add-on item as a freebie or discount, demand for both physical and electronic forms significantly rose [6,32]. However, unlike promotional bundles consisting of physical and digital books, bundles comprising physical products and digital NFTs are somewhat different, as these items are noninterchangeable and serve distinct purposes, with the physical fashion item to be worn in real life while the NFT is to be utilized as a virtual avatar or digital warranty.

In the context of NFT promotional bundles, value-discounting inference can shed light on how consumers evaluate the value of individual products within the bundle when sold separately. According to this inference, the value of the free product in the promotional bundle is typically inferred as lower than the value of the focal product [27], and thus, the value of the physical product as a standalone item would be perceived as higher in the PHY+free NFT bundle (the physical product as a focal product) than in the NFT+free PHY bundle (the physical product as a freebie). This effect is expected to persist when the NFT is offered as a standalone product; the NFT would be perceived to be more valuable when

it is the focal product (NFT+free PHY bundle) than when it is the free product (PHY+free NFT bundle) in the promotional bundle. Therefore, we proposed the following hypothesis:

H1. *Compared with NFT+free PHY, (a) consumers' willingness to pay for the standalone physical product is higher for PHY+free NFT, while (b) their willingness to pay for the standalone NFT is lower for PHY+free NFT.*

Furthermore, in terms of the total value of a bundle including a physical product and an NFT, we expect that consumers will be inclined to pay more money for the PHY+free NFT than the NFT+free PHY. The PHY+free NFT bundle is a promotional strategy where the primary emphasis is on a tangible or physical product, and the promotional component is a digital NFT item as freebie [6,31]. Because consumers are likely to place more emphasis on the focal than the supplementary product, the inclusion of a physical product as a focal item would result in consumers perceiving higher value than vice versa because of the immediate utility or usability associated with the physical item as the focal item [33,34]. Conversely, the NFT+free PHY bundle is a promotional arrangement centered around a digital NFT product, and consumers are provided with a physical item as a promotion complementing the digital offering [35]. In this case, the undisclosed and unfamiliar features associated with the digital NFT could potentially result in a decrease in the overall value of the promotional bundle. In addition, because of the uncertain and fluctuating value of NFTs, consumers may be willing to pay a lower price when the digital NFT product serves as the focal product in a bundle than when a physical product serves as the focal product. Thus, we hypothesized the following:

H2. *Consumers are willing to pay a higher price for a PHY+free NFT than an NFT+free PHY promotional bundle.*

2.4. Types of Freebie Promotional Bundle and Perceived Risk

In this study, perceived risk was adopted to explain the mechanism of why consumers' value perceptions differ across combinations of physical and NFT products in freebie promotional bundles. Perceived risk refers to consumers' uncertainty about the unknown consequences of their choices [36]. When consumers forecast that their purchases are not likely to meet their expectations or satisfaction in terms of product performance and financial benefits [37], they show adverse consequences (i.e., cancellation and no purchase) due to the following risk in shopping circumstances [36]. For example, Jarvenpaa et al. [38] found that the level of perceived risk is high in the online shopping environment, as consumers cannot physically touch or feel the product. In addition, Aqueveque [36] argued that when consumers anticipate a financial loss from a purchase, the financial uncertainty and risk perceptions increase, leading them to ultimately devalue the products.

Purchasing NFT fashion products can be risky for consumers for two reasons: (1) NFTs are digital and intangible products, and (2) NFTs are built upon the cryptocurrency market [12]. Specifically, because NFT products are digital products that consist of computer log files, which are intangible [20], consumers are unable to physically interact with the products, making it challenging for them to assess the quality and determine the value of NFT products, thus raising perceived risk [38]. Moreover, NFTs are built upon cryptocurrency, which has high uncertainty in future value after purchase [12]. Wang [12] found that the NFT market is a receiver of the price volatility spillover effect of cryptocurrency, which refers to the vulnerability of other markets' price volatility. Thus, this spillover of volatility from the cryptocurrency market to the NFT market carries associated risks. In particular, the recent extreme price volatility of cryptocurrency, with about a 76 percent price drop from the peak [39], manifests that consumers may perceive high risks in consuming NFT fashion products [36].

Because of the intangible and volatile nature of NFTs, when an NFT is acquired as the focal product in a promotional bundle (i.e., NFT+free PHY), consumers perceive

greater risk in purchasing the bundle than when the NFT is included as a freebie product (i.e., PHY+free NFT). In addition, as consumers may assume that the utility of a freebie cannot exceed that of a focal item [28], the free physical product in the NFT+free PHY bundle may not be able to compensate for the utility of the focal NFT product that has been reduced due to uncertainty [36], leading high level of risk for purchasing the bundle. In contrast, for the PHY+free NFT bundle, the perceived risk associated with the bundle may be reduced, as consumers have the opportunity to physically interact with and assess the quality of the product they are purchasing [40], with the bonus of receiving an NFT at no extra cost. This leads consumers to lower the risk of receiving freebie NFT as a part of the bundle, as they focus more on the utility of the focal product [28]. Therefore, the following hypothesis was proposed:

H3. *The perceived risk of purchasing a PHY+free NFT bundle is lower than that of purchasing an NFT+free PHY bundle.*

2.5. Types of Freebie Promotional Bundle and Perceived Authenticity

In addition to perceived risk, this study incorporated perceived authenticity to examine consumers' perceptions toward physical products depending on different combinations of a physical product and NFT in freebie promotional bundles. Authenticity in general refers to "the genuineness, reality, or truth of something" [41], while in the consumer research area, it indicates consumers' subjective measure of genuineness and sincerity regarding brands and products including product quality, which can be based on the consumers' personal experiences, interests, and knowledge [41,42]. Although, to our best knowledge, no previous study has investigated the perceived authenticity in the context of the freebie promotional bundle, one study may offer insights in this regard. Kadirov [43] argued that general price promotion, such as price discounts, can elicit both positive and negative authenticity perceptions from consumers. Frequent price promotions can trigger consumer skepticism regarding regular prices and excessive profit, which in turn decreases perceived authenticity. In contrast, when consumers perceive that the brand sacrifices to offer discounted prices, they may view the brand as genuinely committed to helping consumers.

Consumers use the price of the focal product as an anchor point to infer the value of the supplementary product. Thus, the supplementary product is typically perceived as lower in value than the focal product because of value-discounting inference [27,44]. This tendency extends to perceptions of product quality, as lower prices are commonly associated with lower quality according to the widely known price–quality–value model [45]. Therefore, when a product is discounted or perceived as lower in value than usual, consumers may have doubts about its quality, which can further raise suspicions about its authenticity. Price promotions and excessive marketing intensify consumer skepticism regarding product quality, regular pricing, and profit margins, potentially diminishing perceived authenticity [43].

In addition, the value of NFTs is often unclear and difficult to measure because of fluctuating market values and uncertainties regarding resale and investment values [15]. When NFTs are presented as the focal product in a promotional bundle (i.e., NFT+free PHY), it may be difficult for consumers to infer the value of the supplementary product because they need to use the unknown value of digital assets (NFTs) as an anchor to infer [15]. Some consumers, especially those who have not purchased NFTs, often consider NFTs as having low or no monetary value [46]. Consequently, the unknown or low perceived value of NFTs as a focal product may decrease consumers' perceptions of authenticity regarding the physical product in an NFT+free PHY bundle. On the other hand, when the physical product is offered as a focal product in a promotional bundle, consumers may perceive that they are making a typical purchase but receiving an NFT for free as a bonus. Consequently, a promotional bundle with a physical product as the focal product and an NFT as the free supplementary product may lead consumers to only positive responses

without devaluing the authenticity of the physical product [11,47]. Thus, we proposed the following hypothesis:

H4. *The perceived authenticity toward the physical product is higher for a PHY+free NFT bundle than an NFT+free PHY bundle.*

2.6. Brand as a Moderator: Luxury vs. Non-Luxury Brands

Considering brand types (luxury vs. non-luxury) is crucial in NFT promotion strategies, because the perceived value and pricing associated with luxury fashion brands markedly shape consumer expectations toward promotional offers [8,15]. We proposed that consumers would perceive a higher level of risk and be more concerned about the authenticity of the physical product in an NFT+free PHY bundle than in a PHY+free NFT bundle, while the effects may vary depending on the type of brand, especially given the distinct price levels associated with luxury vs. non-luxury brands.

Regarding consumer risk toward promotional bundles, as the price of bundles from luxury brands tends to be high, consumers may perceive even higher uncertainty when they purchase promotional bundles with an NFT as the focal product compared with bundles with a physical product as the focal product. This is because consumers want to physically interact with a product until their uncertainty gets released for high-priced purchases [40], while purchasing an NFT as a focal product may be perceived as carrying elevated uncertainty and risk due to the intangible nature of NFTs. In addition, because consumers need to invest a high amount of money to purchase an NFT as a focal product in a promotional bundle from a luxury brand, they may perceive considerable risk due to the potential loss of investing a substantial amount of money at once in an asset [48], especially considering their high-risk perception of cryptocurrency transactions [49].

Furthermore, regarding perceived authenticity toward a physical product included in a promotional bundle, purchasing an NFT as a focal product is expected to diminish authenticity perceptions compared with purchasing a physical product as a focal product, and this effect is expected to be stronger for luxury than non-luxury products. For luxury brands, because the monetary value of the physical product as a standalone product is high, consumers may be highly suspicious about the promotional value when the physical product is given for free, which is overly good (too good to be true) and can cause suspicion regarding intentions of the promotion and authenticity of the physical product [50]. On the other hand, for non-luxury brands, the price of the physical product itself, as well as that of the promotional bundle, are relatively low, which may not cause risk perceptions and doubt about the authenticity of the physical product as much as for promotional bundles from luxury brands. Thus, perceptions of the degree of risk and authenticity may not differ across types of promotional bundles from non-luxury brands. The following hypothesis was proposed:

H5. *Brand moderates the effect of types of promotional bundles on perceived risk and perceived authenticity. (a) The perceived risk is lower, and the perceived authenticity of a physical product is higher, for a PHY+free NFT bundle than an NFT+free PHY bundle for luxury brands, while (b) the perceived risk and authenticity do not differ between the PHY+free NFT bundle and the NFT+free PHY bundle for non-luxury brands.*

2.7. Mediating Effect of Perceived Risk and Authenticity

The mediating role of perceived risk has been demonstrated in consumers' decision-making processes; when consumers perceive risk during product evaluation, it diminishes the perceived value [51]. For example, previous studies showed that when consumers experience considerable uncertainty regarding a product's performance or are financially burdened by its high price, they perceive a high risk associated with purchasing the product and ultimately evaluate the product as having low value [51,52]. In addition, in the digital finance context, Xie et al. [49] found that uncertainties considering cryptocurrency

expenditures and unfamiliarity with digital financial services act as barriers to adopting innovative financial services (e.g., fintech), consequently heightening perceived risk and reducing perceived value. As NFTs require cryptocurrency for transactions and relatively unknown payments, consumers would perceive a high risk in purchasing an NFT product as a focal, which would in turn devalue the NFT+free PHY bundle. Conversely, when consumers buy a PHY+free NFT bundle, they may perceive a low risk because they are familiar with buying physical products as focals, leading to a higher perceived value compared with purchasing an NFT+free PHY bundle.

Furthermore, previous studies consistently found that perceived authenticity is a strong antecedent of consumption behavior [53,54]. When consumers perceive the brand and product as authentic, they perceive high brand equity and superior product quality, which eventually increases their willingness to pay price premiums [55] and positively influences perceived value [52,56–58]. Consistently with previous studies, the link between perceived authenticity and the value consumers assign to promotional bundles can be explained through the lens of consumer trust and value association [54,55]. In the context of promotional bundles, when consumers recognize a physical product within a promotional bundle as authentic, they attribute a higher level of trust not only to the product itself but to the promotion behind it.

Specifically, the link between the NFT+free PHY bundle and its perceived value would become stronger through authenticity. This can be explained by the integral role of authenticity in enhancing consumer trust and perceived value [54], particularly within the realm of promotional bundles that include digital assets such as NFTs. When a physical product known for its tangible quality and reliability is offered as a freebie in conjunction with an NFT, it leverages the established trust and perceived authenticity of the brand's physical offerings to bolster the value of the digital NFT. This is because authenticity of the physical product serves as a tangible proof of quality and brand commitment [55], which, when extended to the NFT, enhances assurance associated with digital assets. Conversely, in the PHY+free NFT bundle, product authenticity is inherently expected, as a physical product is the main product of the bundle, thus making the link between the NFT+free PHY bundle and the perceived value stronger through authenticity.

Consequently, because of the expected moderating roles of brand types (H5), we anticipated that the mediating roles of perceived risk and authenticity would be moderated by brand types (luxury vs. non-luxury). In the case of luxury brands, when NFT products are focal in promotional bundles (i.e., NFT+free PHY), the perceived risk associated with purchasing such luxury bundles is heightened. This perception leads to a diminished value compared with bundles where physical products are focal (i.e., PHY+free NFT), as consumers are wary of spending large sums on products that are unfamiliar, uncertain, and intangible [48,49]. Similarly, in the case of the luxury NFT+free PHY bundle, since consumers are not able to have tangible proof of product authenticity [55], they may perceive less value compared with the luxury PHY+free NFT bundle. On the other hand, in the case of non-luxury brands, we anticipated that regardless of promotional bundle types (e.g., NFT+free PHY vs. PHY+free NFT), there would be no mediating effect of perceived risk and authenticity because the two bundles are affordable. Thus, we hypothesized that:

H6. *For luxury brands, compared with NFT+free PHY bundles, (a) perceived risk and (b) authenticity are higher for PHY+free NFT bundles, consequently leading to higher perceived value.*

H7. *For non-luxury brands, there is no mediating effect of (a) perceived risk or (b) authenticity on the relationship between the type of bundle and perceived value.*

3. Study 1

Study 1 was designed to explore the effect of NFT promotional bundles, by offering the NFT as either a focal product or a freebie, on consumers' willingness to pay for the physical product and NFT as standalone products (H1) as well as that for the promotional

bundle (H2). Study 1 also examined how the different types of promotional bundles were perceived regarding perceived risk (H3) and perceived authenticity (H4).

3.1. Pretest 1: Stimulus Development for Study 1

This study developed stimuli presenting two types of NFT promotional bundles (PHY+free NFT vs. NFT+free PHY). For the product images of promotional bundle stimuli, this study selected sneakers among fashion product categories, as NFT sneakers are a prevailing category of NFT fashion, from mass-market to luxury brands [59]. In addition, considering that certain colors can bring consumers strong associations with brands [60], this study utilized plain white sneakers without any brand logos to reduce any confounding effect caused by design and brand preferences. Next, the same product image of the sneakers was utilized in the creation of NFT sneakers, with a change to the background of the product image. The backgrounds of the NFT sneaker stimuli resemble those of actual NFT sneakers found on the StockX platform, https://stockx.com/lp/nfts/ (accessed on 11 March 2024), to enhance the realism of the stimuli and capture the essence of NFT product design. Finally, two types of promotional bundles were developed using product and NFT images. The descriptions indicated that they were promotional bundles comprising a pair of physical sneakers and an NFT sneaker. In the PHY+free NFT bundle, the product image was positioned on the left side alongside a description of "a physical pair of sneakers", while the NFT image was placed on the right side with the description of "NFT sneaker for free". On the other hand, in the NFT+free PHY bundle, the NFT image with the description of "NFT sneaker" was placed on the left side, while the image of the physical pair of sneakers and its description of "a physical pair of sneakers" was placed on the right side (see Appendix A.1.).

We conducted a pretest using two types of promotional bundles to ensure there were no confounding effects regarding the design of the sneakers. We collected 62 participants from Amazon Mechanical Turk (MTurk), which provides rigorous screening criteria and participants' qualifications. After being randomly presented one of the promotional bundles, participants were asked to rate their attitude toward the design of the sneakers using three items on a 7-point scale (i.e., "Unfavorable–favorable", $\alpha = 0.70$) [61]. We confirmed that there was no difference in attitude toward designs across the two types of promotional bundles ($F_{(1, 60)} = 1.40$, $p > 0.05$) and that participants' attitudes toward design were positively high for both promotional bundles ($M_{\text{PHY+free NFT}} = 5.64$, $M_{\text{NFT+free PHY}} = 5.86$).

3.2. Study 1 Method

Study 1 used a between-subject experimental design where two types of NFT promotional bundles (PHY+free NFT vs. NFT+free PHY) were manipulated. Before providing the study stimuli to participants, a video was provided to introduce brief information about NFTs and their marketability to leverage consumers' knowledge about NFT fashion. Then, participants were asked to answer simple, comprehensive questions about NFTs and the contents of the video to make sure that they watched the video and acquired some knowledge about NFTs (e.g., "NFT requires crypto money to buy it" answered T/F).

Next, participants were randomly assigned to one of two conditions: NFT+free PHY or PHY+free NFT bundles. Each condition included a scenario containing the description of a shopping situation where participants were considering purchasing a promotional bundle consisting of a physical pair of sneakers and its digital version as an NFT from a fictitious designer shoe brand, "Fortemio". We used the fictitious fashion brand to avoid any confounding effect of the brand on consumers' perceptions. In the scenario, participants assigned to the PHY+free NFT bundle were informed that upon purchasing a pair of physical sneakers, they would receive a complimentary NFT. Additionally, they were shown an image stimulus representing the PHY+free NFT bundle, developed through the stimulus development process. Conversely, those in the NFT+free PHY situation were informed of the opposite arrangement.

After reviewing an assigned stimulus, the participants were asked to respond to how much they were willing to pay for the physical product alone and the NFT product alone when they were sold separately, as well as for the promotional bundle in U.S. dollars, providing open-ended responses [62]. They were also asked about the degree of risk they perceived when considering purchasing the NFT promotional bundle using three items (e.g., "Not all concerned"–"Highly concerned") [63] and their perception of the physical product's authenticity using three items (e.g., "Original"–"Reproduction") [64]. Furthermore, attitude toward the product designs [61] was measured for the manipulation check. All variables were measured on a 7-point scale.

3.3. Study 1 Results

3.3.1. Demographics and Confirmatory Factor Analysis for Study 1

Study 1 collected 80 responses through MTurk, with 40 participants per group. The respondents' genders were male (55%) and female (45%). Most participants were in their 30s (41%), identified as Caucasian (90%), held college degrees (71%), and reported an annual income ranging between $50,000 and $74,999 (39%).

We confirmed that attitudes toward the sneakers were not significantly different between the two types of promotional bundles, NFT+free PHY and PHY+free NFT ($F_{(1, 78)} = 1.26$, $p > 0.05$); the attitudes were positively high ($M_{\text{PHY+free NFT}} = 5.40$ and $M_{\text{NFT+free PHY}} = 5.72$), confirming no confounding effect regarding the consumers' preferences toward the product. Confirmatory factor analysis (CFA) was utilized to examine the measurement model and identify the constructs in Study 1. One item each from perceived risk and perceived authenticity of the physical product was removed because of its low factor loadings, below 0.50. After the removal of those items, the data showed a good fit: $\chi^2/df = 1.15$, CFI = 0.99, TLI = 0.99, RMSEA = 0.04. These fit values aligned with the recommended cutoff values: CFI $\geq$ 0.95, TLI $\geq$ 0.95, and RMSEA $\leq$ 0.08 [65]. Additionally, convergent validity was confirmed, as all factor loadings exceeded 0.60, all composite reliability (CR) values were above 0.72, and all average variance extracted (AVE) values surpassed 0.50. Furthermore, the square root of each latent variable's AVE was greater than its corresponding correlation coefficient with other factors, thereby affirming discriminant validity [65,66].

3.3.2. Hypotheses Testing

A one-way multivariate analysis of variance (MANOVA) was conducted to examine the effects of types of promotional bundles on the dependent variables: willingness to pay for the physical (H1a) and NFT products (H1b) as standalones as well as for each promotional bundle (H2), perceived risk (H3), and perceived authenticity (H4). The bundle types were coded as dummy variables (PHY+free NFT: 0, and NFT+free PHY: 1). The results showed that participants were willing to pay a higher price for the physical product as a standalone when it was included in the PHY+free NFT bundle as a focal product than when it was in the NFT+free PHY bundle as a free product ($F_{(1, 78)} = 5.64$, $p < 0.05$, $M_{\text{PHY+free NFT}} = 86.15$, $M_{\text{NFT+free PHY}} = 55.03$), accepting H1a. In contrast, they were willing to pay a higher price for the NFT product as standalone when the NFT was included as a free product in the promotional bundle (PHY+free NFT) than when it was a focal product in the bundle (NFT+free PHY) ($F_{(1, 78)} = 6.32$, $p < 0.05$, $M_{\text{PHY+free NFT}} = 76.70$, $M_{\text{NFT+free PHY}} = 47.28$), rejecting H1b. Furthermore, respondents were willing to pay more for the PHY+free NFT bundle than for the NFT+free PHY bundle ($F_{(1, 78)} = 8.20$, $p < 0.01$, $M_{\text{PHY+free NFT}} = 85.35$, $M_{\text{NFT+free PHY}} = 51.54$), accepting H2. The results also showed that respondents perceived higher risk for the NFT+free PHY bundle than the PHY+free NFT bundle ($F_{(1, 78)} = 8.15$, $p < 0.01$, $M_{\text{PHY+free NFT}} = 4.90$, $M_{\text{NFT+free PHY}} = 5.38$), accepting H3. However, there was no significant difference in the perceived authenticity toward the physical product between the two bundle types ($F_{(1, 78)} = 0.28$, $p > 0.05$, $M_{\text{PHY+free NFT}} = 3.69$, $M_{\text{NFT+free PHY}} = 3.89$), rejecting H4. The results are shown in Table 1.

Table 1. MANOVA results and mean values of willingness to pay (WTP), perceived risk, and physical authenticity across types of promotional bundle.

Variables	PHY+Free NFT (n = 40)	NFT+Free PHY (n = 40)	F
WTP for physical product ($)	86.15	55.03	5.64 *
WTP for NFT ($)	76.70	47.28	6.32 *
WTP for promotional bundle ($)	85.35	51.54	8.20 **
Perceived risk	4.90	5.38	8.15 **
Perceived authenticity of physical product	3.69	3.89	0.28

Notes: * $p < 0.05$, ** $p < 0.01$.

3.4. Study 1 Discussion

In line with the proposed hypothesis, willingness to pay for physical products as standalone items within the PHY+free NFT bundle was higher than for those in the NFT+free PHY bundle. This finding aligns with the principles of value-discounting inference, where consumers tend to perceive greater value in focal products as they devalue items provided as free promotion. However, unlike the expectation, when NFT products were focal in the bundle (NFT+free PHY), the willingness to pay for standalone NFT products was lower than when they were offered as freebies (PHY+free NFT). This denotes that consumers weigh more value on physical products than on unknown and unfamiliar NFT products. Consequently, in the PHY+free NFT bundle, the tangible nature of physical products affects consumers to assign physical products as the primary source of bundle value and infer the value of NFT freebies as higher from the focal physical products [33]. The emphasis on the physical product within the promotional bundle was further evident when comparing the willingness to pay for the whole bundle across the two types of bundles; participants exhibited a higher willingness to pay for the PHY+free NFT bundle than for the NFT+free PHY bundle. This indicates that consumers prefer focal physical products with NFT supplements because of their tangible nature and immediate utility [67]. Thus, when a physical product is the focal point of a promotional bundle, it enhances the willingness to pay for the bundle, even when accompanied by a digital asset such as an NFT.

Furthermore, the inherent uncertainties and fluctuating values associated with digital NFTs as focal products heightened the perceived risk of the entire bundle, while the perceived authenticity was not different between the two types of promotional bundle. This underscores the importance of tangible products in driving consumer valuation in promotional strategies and reducing the perceived risk associated with the bundle, particularly in the context of integrating emerging digital assets such as NFTs. However, no significant impact of promotional bundle type on perceived authenticity could be explained by the unknown brand used in the stimuli. Without an established reputation associated with the brand, which lowers the likelihood of encountering counterfeit products, participants may not differentiate the authenticity of physical products, whether they are included as focal or supplementary items in the promotional bundle.

4. Study 2

Study 2 tested the moderating effect of brand type (luxury vs. non-luxury) to understand how consumers differently perceive the promotional bundle depending on the given brand, either luxury or non-luxury (H5). Unlike Study 1's stimulus, where a fictitious brand was used, Study 2 included two familiar brands as luxury vs. non-luxury brands to test the moderating effect of brand types. Furthermore, Study 2 investigated moderated mediating effects of perceived risk and authenticity on the relationship between the type of promotional bundle and perceived value (H6 and H7).

4.1. Pretest 2: Stimuli Development for Study 2

To decide the two types of brands (i.e., luxury and non-luxury), a pool of fashion brands, both luxury and non-luxury, known for their sneaker products was initially com-

piled [68,69]. From this list, a total of eight brands were selected: four non-luxury brands (Nike, Adidas, Reebok, and New Balance) and four luxury brands (Louis Vuitton, Gucci, Dior, and Balenciaga). Next, to select two appropriate brands (one luxury and one non-luxury brand) for the main study, a total of 50 responses were collected via MTurk. Each participant was assigned all brands, and they were asked to evaluate each brand on perceived brand familiarity (e.g., I am familiar with the brand) [70], perceived luxury (e.g., the brand is a symbol of prestige) [71], perceived expensiveness (i.e., very cheap–very expensive) [72], and attitude toward the brand (i.e., unfavorable–favorable) [61]. Responses were recorded using a 7-point scale.

We selected New Balance and Gucci for non-luxury and luxury brands, respectively, using three criteria. First, Gucci was perceived to be more luxurious ($M_{\text{New Balance}} = 4.90$, $M_{\text{Gucci}} = 5.82$, $t = -3.33$, $p < 0.01$) and more expensive ($M_{\text{New Balance}} = 5.04$, $M_{\text{Gucci}} = 5.92$, $t = -3.67$, $p < 0.001$) than New Balance. Second, no significant difference in brand familiarity was found between New Balance and Gucci ($M_{\text{New Balance}} = 5.83$, $M_{\text{Gucci}} = 5.74$, $t = 0.78$, $p > 0.05$). Third, attitudes toward the two brands were not significantly different ($M_{\text{New Balance}} = 5.83$, $M_{\text{Gucci}} = 5.51$, $t = 1.58$, $p > 0.05$).

To create stimuli for Study 2, we used the same images of sneakers from Study 1 and added the brand logo of each brand. Then, we set the prices of each brand's sneakers in accordance with the real retail price listed on their websites, factoring in similarities in style and material, leading to a price of $990 for the Gucci sneakers and $75 for the New Balance sneakers (see Appendix A.2.).

4.2. Study 2 Method

Study 2 employed a 2 × 2 between-subject experimental design, with two types of promotional bundle type (PHY+free NFT vs. NFT+free PHY) and two types of brand (luxury: Gucci vs. non-luxury: New Balance). First, consistently with Study 1, to improve participants' understanding of NFTs, they were asked to watch a video about NFTs and answer screening questions regarding NFTs. Next, participants were randomly assigned to one of four conditions. Then, they received a scenario with a consumption context where they were asked to imagine the situation of purchasing a promotional bundle containing a physical pair of sneakers and NFT sneakers. We provided both images of a pair of sneakers and NFT sneakers in the promotional bundle while differentiating the order of the images to make the focal product placed on the left side and the freebie on the right side, with an indication of which item was free. For example, in the case of the PHY+free NFT bundle, we provided the following instructions: "Gucci is selling a physical pair of sneakers for $990 (left image). When you buy the sneakers, you will get the NFT digital sneakers for free (right image)". In the case of the NFT+free PHY bundle, "Gucci is selling an NFT sneaker for the cryptocurrency equivalent of $990 (left image). When you buy the NFT, you will get a physical pair of Gucci for free (right image)".

After reading the scenarios, respondents were asked to answer on perceived risk using four items [63], perceived authenticity of the physical product using three items [73], and perceived value using three items [74]. For the manipulation check, participants were asked about luxury brand value [71], attitudes toward product design [61], and brand familiarity [70]. All items were measured on a 7-point scale.

4.3. Study 2 Results

4.3.1. Demographics and Confirmatory Factor Analysis for Study 2

The study collected 236 participants through MTurk, resulting in approximately 60 participants per experimental condition. The majority of participants were aged between 25 and 34 (73%), Caucasian (86%), and college graduates (69%). Most participants had annual household incomes between $50,000 and $74,999 (42%), followed by between $25,000 and $49,999 (24%).

Participants perceived significantly higher luxury perceptions for Gucci than New Balance ($M_{Gucci} = 5.61$, $M_{New\ Balance} = 5.35$, $F_{(1, 234)} = 7.27$, $p < 0.01$), while the attitudes

toward product design (M_{Gucci} = 5.93, $M_{New\ Balance}$ = 5.81, $F_{(1, 234)}$ = 1.04, $p > 0.05$) and brand familiarity (M_{Gucci} = 5.75, $M_{New\ Balance}$ = 5.69, $F_{(1, 234)}$ = 0.54, $p > 0.05$) were not significantly different between Gucci and New Balance. Therefore, the manipulation of the brand was successful.

The measurement model was examined by using confirmatory factor analysis (CFA) to identify the constructs used in Study 2. One item from perceived risk and one item from perceived value were excluded because of their low factor loadings, below 0.50. After excluding those items, the model fit well to the data: χ^2/df = 2.03, CFI = 0.98, TLI = 0.96, RMSEA = 0.06. Furthermore, convergent validity was confirmed, as all factor loadings were over 0.68, all values of composite reliability (CR) were over 0.70, and all average variance extracted (AVE) values were over 0.50. In addition, the square root of the AVEs for each latent variable was higher than the corresponding correlation coefficient between factors, confirming discriminant validity [65,66]. Items and CFA results are shown in Table 2.

Table 2. Factor loadings and correlation matrix from confirmatory factor analysis results.

Factor/Items	Factor Loading	CR	AVE	Correlation Matrix		
				PR	PA	PV
Perceived risk (PR)		0.70	0.54	0.74 [a]		
Not at all risky–Extremely risky	0.73					
Not at all worried–Very worried	0.75					
Perceived authenticity of physical product (PA)		0.92	0.79	0.42	0.89 [a]	
Original–Reproduction (*R*)	0.90					
Genuine–Fake (*R*)	0.85					
Faithful–Altered (*R*)	0.92					
Perceived value (PV)		0.70	0.50	0.05	0.18	0.69 [a]
It is an excellent buy for the money.	0.68					
It is very good value for the money.	0.70					

Notes: composite reliability (CR); average variance extracted (AVE); [a] square root of AVE value for each construct; (R) reverse coded.

4.3.2. Hypothesis Tests

To test hypotheses, a two-way multivariate analysis of covariance (MANCOVA) was conducted, where attitudes toward brand and product design were used as covariates to control their effects. Promotional bundle types (0 = PHY+NFT free, 1 = NFT+PHY free) and brands (0 = NB, 1 = Gucci) were coded as dummy variables. Levene's test for homogeneity of variance showed nonsignificant results for all three variables of perceived risk ($F_{(3, 232)}$ = 0.58, $p > 0.05$), perceived authenticity ($F_{(3, 232)}$ = 1.75, $p > 0.05$), and perceived value ($F_{(3, 232)}$ = 1.47, $p > 0.05$), indicating approximately equal variance across groups. The MANCOVA results showed that there were no main effects of either brand or promotional bundle type on perceived risk and perceived authenticity. However, interaction effects between brand and promotional bundles on perceived risk ($F_{(1, 230)}$ = 10.76, $p < 0.001$, partial η^2 = 0.05) and perceived authenticity ($F_{(1, 230)}$ = 6.69, $p < 0.01$, partial η^2 = 0.03) were significant. The results are shown in Table 3.

Table 3. Mean values and MANCOVA results for promotional bundle types across brands.

Outcomes/Predictors	Mean		*F* (MANCOVA)		
	NB	Gucci	Bundle (A)	Brand (B)	A × B
Perceived Risk			1.40	1.93	10.76 ***
PHY+free NFT	5.25	4.54			
NFT+free PHY	4.85	5.20			
Perceived Authenticity			0.97	0.90	6.69 **
PHY+free NFT	4.32	4.67			
NFT+free PHY	4.57	3.95			

Notes: *** $p < 0.001$, ** $p < 0.01$.

To further test interaction effects, a one-way analysis of variance (ANOVA) with planned contrasts was conducted to examine whether the effects of promotional bundle type on perceived risk and authenticity differed across brands. The planned contrast results showed that for Gucci, perceived risk was greater for the NFT+free PHY than the PHY+free NFT bundle ($M_{\text{PHY+free NFT}} = 4.53$, $M_{\text{NFT+free PHY}} = 5.20$, $F_{(3, 232)} = 3.67$, $p < 0.01$, partial $\eta^2 = 0.05$), while there was no significant difference in perceived risk for New Balance. In addition, perceived authenticity was higher for the PHY+free NFT than the NFT+free PHY bundle ($M_{\text{PHY+free NFT}} = 4.67$, $M_{\text{NFT+free PHY}} = 3.94$, $F_{(3, 232)} = 2.91$, $p < 0.05$, partial $\eta^2 = 0.04$) for Gucci, while the difference was not significant for New Balance (see Figure 1). The results supported H5a (luxury brand) and H5b (non-luxury brand).

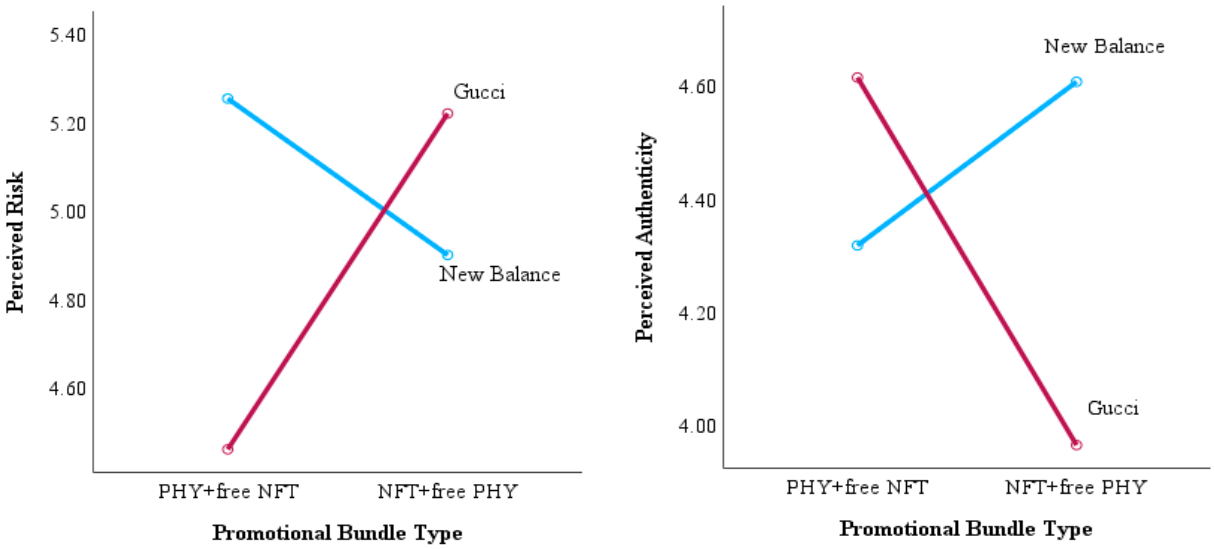

Figure 1. The interaction between promotional bundle type and brand on perceived risk and authenticity of physical product.

Lastly, to test H6 and H7 (mediating effects of perceived risk and authenticity), PROCESS analysis with the bootstrap method using Model 8 was conducted. Attitudes toward brand and product were used as covariates. Consistently with the MANCOVA result, the interaction effects of promotional bundle type and brand on perceived risk ($t = 3.28$, $p < 0.001$) and perceived authenticity ($t = -2.59$, $p < 0.01$) were significant. Specifically, for the Gucci condition, participants perceived higher risk ($t = 3.04$, $p < 0.01$) and perceived lower authenticity of the physical product ($t = -2.43$, $p < 0.01$) for the promotional bundle of NFT+free PHY than that of PHY+free NFT. On the other hand, perceptions of risk and authenticity did not differ across the promotional bundle types for New Balance. Furthermore, perceived risk was not a significant mediator in the relationship between the types of promotional bundles and perceived value for Gucci, rejecting H6a. However, we found that perceived authenticity mediated the relationship between promotional bundle type and perceived value for Gucci ($B = -0.06$, 95% CI [−0.13, −0.01]; B is an unstandardized coefficient), accepting H6b. As expected, the mediating effects of perceived risk and authenticity were not significant for New Balance, accepting H7a and H7b.

4.4. Study 2 Discussion

The findings showed that the influence of the type of promotional bundle on consumers' perception of risk and authenticity varied depending on the brand, whether luxury or non-luxury. Specifically, for the luxury brand, consumers perceived lower risk and were more likely to believe in the authenticity of the physical product in the PHY+free NFT bundle than in the NFT+free PHY bundle. This result can be explained by the fact that the high price associated with the promotional bundle for the luxury brand heightened the uncertainty and risk perception, particularly when the NFT served as the focal product, because

of the absence of tangible elements and potential losses in cryptocurrency transactions associated with NFTs [49]. Additionally, the seemingly too-good-to-be-true deal of receiving a luxury physical product for free in the NFT+free PHY bundle may have led consumers to question the authenticity of the physical luxury product and the brand's intentions behind the promotion [50]. In contrast, there was no difference in perceived risk and authenticity across the types of promotional bundles for non-luxury brands. The promotional bundle price for the non-luxury brand was relatively low compared with that for luxury brands, leading consumers to perceive similar levels of risk and authenticity between the NFT+free PHY and PHY+free NFT bundles without exhibiting the value-discounting effect.

Because the promotional bundle type did not significantly influence perceived risk or authenticity for non-luxury brands, mediating effects of perceived risk and authenticity on the relationship between promotional bundle type and perceived value were not found for non-luxury brands. However, we found a significant mediating effect of perceived authenticity for luxury brands. As consumers perceive the physical product as more likely to be authentic in the PHY+free NFT bundle than in the NFT+free PHY bundle, they also perceive higher value for the PHY+free NFT bundle than the NFT+free PHY bundle. This result aligned with previous literature showing that perceived authenticity serves as a strong predictor and significant mediator to explain the mechanism of consumption behavior [52–54,56–58].

In contrast, the result showed that perceived risk was not a significant mediator in the relationship between the types of promotional bundles and perceived value regardless of the brand type. This study concluded that when consumers perceive value in a bundle that includes NFT fashion products, they did not associate the value of the NFT promotional bundles with the risk arising from the volatility of the monetary value based on cryptocurrencies. In particular, the insignificant mediating effect of the perceived risk for the luxury brand condition supported this. In the case of luxury brands, even though participants perceived high risk in purchasing an NFT+free PHY bundle, there was no significant mediation effect of the perceived risk between promotional bundle type and perceived value, as opposed to the expectation that the perceived risk would reduce the perceived value [49].

5. Conclusions

5.1. Theoretical Implications

Based on the promotional bundle effect that leverages the unique characteristics of NFTs in the fashion industry, we explored how consumers perceive and assign value to NFTs within promotional bundles, offering four theoretical contributions. First, this study expanded the scope of knowledge of NFT products to marketing in the literature. Most previous research on NFT products was mainly about the technical feasibility of non-fungibility in cryptocurrency [14] and features of NFT as an investment [19]. Meanwhile, despite the increasing popularity of NFT fashion products in the fashion industry, limited research has been done regarding the marketing effect of NFT fashion products. Therefore, we introduced a novel perspective on the role of digital assets in consumer psychology by accommodating the unique attributes of NFT fashion products.

Second, based on the promotional bundle effect that leverages the unique characteristics of NFTs in the fashion industry, we explored how consumers perceive and assign value to NFTs within promotional bundles. Because most previous studies on the promotional bundle have examined bundles consisting of the same product type (e.g., free physical product with a purchase of a physical product) [6,27], investigations into promotional bundles encompassing both digital and physical formats have been scarce [6]. Furthermore, to the best of our knowledge, no previous study has explored the alternating effect of the focal and free products within a promotional bundle consisting of two of the same products. Thus, this study not only examined cutting-edge technology (NFTs) within promotional bundles by reflecting the features of NFT promotional bundles in the fashion industry but

investigated an unexplored area of research, consequently contributing to the literature on promotional bundles.

Third, this study contributed to incorporating perceived risk and perceived authenticity to understand why consumers showed different value perceptions across the combinations of physical and NFT products in a bundle. Even though there have been ample scholarly discussions about the degree of risk in NFT product consumption due to the intangibility and uncertainty of NFTs [12], perceived risk has not been tested in the context of NFT fashion product consumption. In addition, although numerous prior studies in service industries, such as food products [56] and tourism [57], have indicated that promotional bundles offering freebies can generate doubts about product authenticity, there has been a lack of research investigating the perceived authenticity of products in freebie promotional bundles for consumer goods encompassing both physical and digital merchandise. Therefore, this study filled an important gap in the literature by empirically testing the role of perceived risk and authenticity in the context of NFT fashion product consumption, which provides a better understanding of how these factors influence consumer valuation of product bundles that combine physical items and NFTs.

Last, by examining the moderating effect of brand (luxury vs. non-luxury brands), this study contributed to the literature on promotional bundles explaining consumers' varying risk and authenticity perceptions across different brand types. In addition to the absence of research investigating promotional bundles including NFT fashion products, no studies have examined the moderating effects of brand on the effects of types of promotional bundles on perceived risk and authenticity. As the results in this study revealed that consumers' perceptions of risk and authenticity were influenced by the type of promotional bundles for luxury brands but not for non-luxury brands, these findings offer valuable insights to the promotion- and brand-related literature, showing the significance of brand considerations in promotional bundles containing digital assets.

5.2. Managerial Implications

The findings have several managerial implications. First, this study offered guidance for marketers in designing effective promotional strategies that leverage the unique characteristics of NFTs. If marketers want to provide NFTs as focal products, they may need to be cautious about the uncertainty level of consumers toward NFT fashion products. As consumers do not know or clearly understand the features of NFTs (i.e., NFT concept, usage, transaction methods, and price volatility), they may be reluctant to attempt to purchase the focal NFT products and the promotional bundles. This can lead to unsuccessful marketing outcomes despite offering physical products as freebies. Therefore, if marketers provide extensive and precise information and guidance about NFT fashion products, they can ameliorate consumers' risk perception of purchasing NFT fashion products as standalone or focal products, increasing consumers' price value perception.

Secondly, the implications of this study vary depending on the brand type. For relatively unknown brands seeking to establish a presence in the physical fashion market, opting for NFT-centric promotional bundles as a primary strategy may not be advisable. In such scenarios, consumers' unfamiliarity with both the brand and the concept of NFTs, including NFT fashion products, could result in a diminished perceived value of these promotional bundles. This lack of familiarity risks not only reducing the perceived price value of the bundles but potentially devaluing the brand's image. It could adversely influence consumers' perceptions of authenticity regarding the physical products offered by these unknown brands. Therefore, these brands should consider alternative strategies that gradually introduce NFT fashion products while focusing on building brand recognition and trust.

Luxury brands should be mindful of the potential value-discounting effects associated with NFT fashion products. Despite the established prestige of these brands, consumers often perceive a heightened risk and have doubts about the authenticity of the physical product when investing substantial amounts in NFT fashion items. This apprehension

can lead to skepticism about the worthiness of NFT products as a luxury expenditure. Furthermore, just as with unknown brands, offering a bundle of NFTs with a supplementary physical item could inadvertently impact the perceived authenticity and exclusivity of the luxury brand's physical offerings. Consumers might perceive the physical products as less valuable or authentic if they are presented as add-ons to NFTs. Therefore, it is crucial for luxury brands to exercise caution and strategic foresight when positioning NFT products, whether as focal or free items, in promotional bundles, to ensure they uphold their image of exclusivity and high value.

For non-luxury brands, the strategy of offering a physical freebie with NFT products could be particularly effective, as it aligns with their broader market positioning of providing value and accessibility. This approach can serve to introduce consumers to the concept of NFTs in a less intimidating manner, leveraging the familiarity and trust already established with the brand. Additionally, for non-luxury brands, this strategy might be an opportunity to experiment with innovative marketing techniques without intensifying consumers' negative perceptions about the physical products and brand image.

5.3. Limitations and Future Studies

Despite the careful experiment we developed and conducted, this study had limitations. First, this study utilized a limited sample of participants per study scenario, possibly limiting the generalizability of the findings. Future research should aim to include a larger and more diverse sample to strengthen the applicability of the results across broader populations. Second, as this study explored three brands (one unknown, one luxury, and one non-luxury brand) and one type of product (a pair of sneakers), the result may not be generalized to other products and any brand contexts. Future studies should consider investigating diverse products and brands to enhance the generalizability of the results. Second, as NFTs are built upon cryptocurrency, determining their exact price value poses challenges. Thus, this study used a U.S. dollar value equivalent to a cryptocurrency value (i.e., equivalent to $990), which may have had a potential confounding effect. Additionally, although the payment methods for NFT products are different from those of physical products (i.e., charging a crypto wallet), our experimental design did not involve actual transaction processes with NFT products. The experimental design aimed to control the effects other than different types of promotional bundles as stimuli, which may not fully capture the complexities, such as transaction difficulty or competency, that consumers encounter when engaging with NFTs in real-life settings. Future studies are recommended to explore promotional bundles incorporating NFT products in more realistic settings, integrating other factors such as transaction processes to provide a comprehensive understanding of consumer behavior in this context.

Author Contributions: Conceptualization, S.E.K., J.E.L. and S.-y.Y.; methodology, S.E.K., J.E.L. and S.-y.Y.; formal analysis, S.E.K. and J.E.L.; investigation, S.E.K., J.E.L. and S.-y.Y.; writing—original draft preparation, S.E.K., J.E.L. and S.-y.Y.; writing—review and editing, J.E.L. and S.-y.Y.; supervision, J.E.L.; project administration, S.E.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was approved by the Institutional Review Board of University of Missouri.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available upon request to the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Study Stimulus Images

Appendix A.1. Study 1 Stimuli

(**a**) PHY+free NFT bundle

Physical pair of sneakers

NFT sneaker for free

(**b**) NFT+free PHY bundle

NFT sneaker

Physical pair of sneakers for free

Appendix A.2. Study 2 Stimuli

(**a**) Gucci: NFT+free PHY bundle

NFT Gucci sneaker for the cryptocurrency equivalent of $990

Physical pair of Gucci sneakers for free

(**b**) Gucci: PHY+free NFT bundle

Physical pair of Gucci sneakers for $990

NFT Gucci sneaker for free

(**c**) New Balance: NFT+free PHY bundle

NFT New Balance sneaker for the cryptocurrency equivalent of $75

Physical pair of New Balance sneakers for free

(d) New Balance: PHY+free NFT bundle

Physical pair of New Balance sneakers for $75

NFT New Balance sneaker for free

References

1. Milmo, D. NFTs Market Hits $22bn as Craze Turns Digital Images Into Assets. *The Guardian*, 16 December 2021. Available online: https://www.theguardian.com/technology/2021/dec/16/nfts-market-hits-22bn-as-craze-turns-digital-images-into-assets (accessed on 11 March 2024).
2. Canny, W. Jefferies Sees the NFT Market Reaching More than $80b in Value by 2025. *Coindesk*, 20 January 2022. Available online: https://www.coindesk.com/business/2022/01/20/jefferies-sees-the-nft-market-reaching-more-than-80-billion-in-value-by-2025 (accessed on 11 March 2024).
3. Wandmacher, R. Tokenomics. In *Cryptofinance and Mechanisms of Exchange: The Making of Virtual Currency*; Springer: Cham, Switzerland, 2019; pp. 113–123.
4. Joy, A.; Zhu, Y.; Peña, C.; Brouard, M. Digital future of luxury brands: Metaverse, digital fashion, and non-fungible tokens. *Strat. Chang.* **2022**, *31*, 337–343. [CrossRef]
5. Zhang, Y.; Liu, C.; Lyu, Y. Examining consumers' perceptions of and attitudes toward digital fashion in general and purchase intention of luxury brands' digital fashion specifically. *J. Theor. Appl. Electron. Commer. Res.* **2023**, *18*, 1971–1989. [CrossRef]
6. Koukova, N.T.; Kannan, P.; Ratchford, B.T. Product form bundling: Implications for marketing digital products. *J. Retail.* **2008**, *84*, 181–194. [CrossRef]
7. McDowell, M. Have a Free NFT with Your Sneaker: Salvatore Ferragamo Gets web3 Cool in Soho Store. *Vogue Business*, 24 June 2022. Available online: https://www.voguebusiness.com/technology/have-a-free-nft-with-your-sneaker-salvatore-ferragamo-gets-web3-cool-in-soho-store (accessed on 3 June 2024).
8. Umer, S.M.; Kishan, V. Application of Non-Fungible Tokens (NFTs) and the Intersection with Fashion Luxury Industry. Master's Thesis, Politecnico Milano, School of Industrial and Information Engineering, Milano, Italy, 2021. Available online: https://www.politesi.polimi.it/handle/10589/182823 (accessed on 3 June 2024).
9. Yadav, M.S.; Monroe, K.B. How buyers perceive savings in a bundle price: An examination of a bundle's transaction value. *J. Mark. Res.* **1993**, *30*, 350–358. [CrossRef]
10. Thaler, R. Mental accounting and consumer choice. *Mark. Sci.* **1985**, *4*, 199–214. [CrossRef]
11. Shampanier, K.; Mazar, N.; Ariely, D. Zero as a special price: The true value of free products. *Mark. Sci.* **2007**, *26*, 742–757. [CrossRef]
12. Wang, Y. Volatility spillovers across NFTs news attention and financial markets. *Int. Rev. Financial Anal.* **2022**, *83*, 102313. [CrossRef]
13. Berado, J. Gucci, Louis Vuitton, and Dior Bring 'Quiet Luxury' to Crypto in 2024. *Forbes*, 1 March 2024. Available online: https://www.forbes.com/sites/digital-assets/2024/03/01/gucci-louis-vuitton-and-dior-bring-quiet-luxury-to-crypto-in-2024/?sh=11914d0e436a (accessed on 21 March 2024).
14. Wang, Q.; Li, R.; Wang, Q.; Chen, S. Non-fungible token (NFT): Overview, evaluation, opportunities and challenges. *arXiv* **2021**, arXiv:2105.07447.
15. Sung, E.; Kwon, O.; Sohn, K. NFT luxury brand marketing in the metaverse: Leveraging blockchain-certified NFTs to drive consumer behavior. *Psychol. Mark.* **2023**, *40*, 2306–2325. [CrossRef]
16. Nakamoto, S. Bitcoin: A Peer-to-Peer Electronic Cash System: Decentralized Business Review. 2008. pp. 1–9. Available online: https://www.debr.io/article/21260.pdf (accessed on 3 June 2024).
17. Lou, X.; Xu, Y. Consumption of sustainable denim products: The contribution of blockchain certified eco-labels. *J. Theor. Appl. Electron. Commer. Res.* **2024**, *19*, 396–411. [CrossRef]
18. Yaga, D.; Mell, P.; Roby, N.; Scarfone, K. Blockchain technology overview. *arXiv* **2019**, arXiv:1906.11078.
19. Kong, D.-R.; Lin, T.-C. *Alternative Investments in the Fintech Era: The Risk and Return of Non-Fungible Token (NFT)*; SSRN: Rochester, NY, USA, 2021; Available online: https://ssrn.com/abstract=3914085 (accessed on 19 February 2024).
20. Aksoy, P.Ç.; Üner, Z.Ö. NFTs and copyright: Challenges and opportunities. *J. Intellect. Prop. Law Pract.* **2021**, *16*, 1115–1126.
21. Moss, J. What to Expect from Metaverse Fashion Week 2023, Adidas to Vivienne Westwood. *Wallpaper*, 28 March 2023. Available online: https://www.wallpaper.com/fashion-beauty/what-to-expect-metaverse-fashion-week-2023 (accessed on 11 March 2024).
22. Di Angelo, M.; Salzer, G. Tokens, Types, and Standards: Identification and Utilization in Ethereum. In Proceedings of the 2020 IEEE International Conference on Decentralized Applications and Infrastructures (DAPPS), Oxford, UK, 3–6 August 2020; IEEE: Piscataway, NJ, USA, 2020; pp. 1–10.
23. Kräussl, R.; Tugnetti, A. Non-fungible tokens (NFTs): A review of pricing determinants, applications and opportunities. *J. Econ. Surv.* **2024**, *38*, 555–574. [CrossRef]
24. Vasan, K.; Janosov, M.; Barabási, A.-L. Quantifying NFT-driven networks in crypto art. *Sci. Rep.* **2022**, *12*, 2769. [CrossRef]
25. Zare, M. Jimmy Choo Unveils First-Ever NFT Collection on Binance NFT. *Crypto Economy*, 20 October 2021. Available online: https://crypto-economy.com/jimmy-choo-unveils-first-ever-nft-collection-on-binance-nft/ (accessed on 11 March 2024).
26. Tversky, A.; Kahneman, D. Advances in prospect theory: Cumulative representation of uncertainty. *J. Risk Uncertain.* **1992**, *5*, 297–323. [CrossRef]
27. Raghubir, P. Free gift with purchase: Promoting or discounting the brand? *J. Consum. Psychol.* **2004**, *14*, 181–186.
28. Liu, H.; Chou, H. The effects of promotional package frames and price strategies on inaction inertia. *Psychol. Mark.* **2019**, *36*, 214–228. [CrossRef]

29. Lee, J.E.; Chen-Yu, J.H. Effects of price discount on consumers' perceptions of savings, quality, and value for apparel products: Mediating effect of price discount affect. *Fash. Text.* **2018**, *5*, 13. [CrossRef]
30. Inman, J.J.; Peter, A.C.; Raghubir, P. Framing the deal: The role of restrictions in accentuating deal value. *J. Consum. Res.* **1997**, *24*, 68–79. [CrossRef]
31. Chrimes, C.; Boardman, R. The Opportunities & Challenges of the Metaverse for Fashion Brands. In *The Garment Economy: Understanding History, Developing Business Models, and Leveraging Digital Technologies*; Springer: Chem, Switzerland, 2023; pp. 389–410.
32. Bhargava, H.K. Multi-device consumption of digital goods: Optimal product line design with bundling. *J. Manag. Inf. Syst.* **2023**, *40*, 724–751. [CrossRef]
33. Banerjee, S. Effect of product category on promotional choice: Comparative study of discounts and freebies. *Manag. Res. News* **2009**, *32*, 120–131. [CrossRef]
34. Nicolau, J.L.; Sellers, R. The free breakfast effect: An experimental approach to the zero price model in tourism. *J. Travel Res.* **2012**, *51*, 243–249. [CrossRef]
35. Keegan, B.J.; McCarthy, I.P.; Kietzmann, J.; Canhoto, A.I. On your marks, headset, go! Understanding the building blocks of metaverse realms. *Bus. Horiz.* **2023**, *67*, 107–119. [CrossRef]
36. Aqueveque, C. Extrinsic cues and perceived risk: The influence of consumption situation. *J. Consum. Mark.* **2006**, *23*, 237–247. [CrossRef]
37. Jacoby, J.; Kaplan, L.B. The Components of Perceived Risk. In Proceedings of the Third Annual Convention of the Association for Consumer Research, Chicago, IL, USA, 2–5 November 1972; pp. 382–393.
38. Jarvenpaa, S.L.; Tractinsky, N.; Vitale, M. Consumer trust in an internet store. *Inf. Technol. Manag.* **2000**, *1*, 45–71. [CrossRef]
39. Coin Market Cap. Available online: https://coinmarketcap.com (accessed on 11 March 2024).
40. Jain, S. Examining the moderating role of perceived risk and web atmospherics in online luxury purchase intention. *J. Fash. Mark. Manag. Int. J.* **2021**, *25*, 585–605. [CrossRef]
41. Napoli, J.; Dickinson, S.J.; Beverland, M.B.; Farrelly, F. Measuring consumer-based brand authenticity. *J. Bus. Res.* **2014**, *67*, 1090–1098. [CrossRef]
42. Grazian, D. *Blue Chicago: The Search for Authenticity in Urban Blues Clubs*; University of Chicago Press: Chicago, IL, USA, 2003.
43. Kadirov, D. Private labels ain't bona fide! Perceived authenticity and willingness to pay a price premium for national brands over private labels. *J. Mark. Manag.* **2015**, *31*, 1773–1798. [CrossRef]
44. Palmeira, M.M.; Srivastava, J. Free offer≠cheap product: A selective accessibility account on the valuation of free offers. *J. Consum. Res.* **2013**, *40*, 644–656. [CrossRef]
45. Monroe, K.B.; Krishnan, R. The Effect of Price on Subjective Product Evaluation. In *The Perception of Merchandise and Store Quality*; Jacoby, J., Olson, J., Eds.; Lexington Book: Lexington, MA, USA, 1985; pp. 209–232.
46. Yilmaz, T.; Sagfossen, S.; Velasco, C. What makes NFTs valuable to consumers? Perceived value drivers associated with NFTs liking, purchasing, and holding. *J. Bus. Res.* **2023**, *165*, 114056. [CrossRef]
47. Chandran, S.; Morwitz, V.G. The price of "free"-dom: Consumer sensitivity to promotions with negative contextual influences. *J. Consum. Res.* **2006**, *33*, 384–392. [CrossRef]
48. Menezes, C.F.; Hanson, D.L. On the theory of risk aversion. *Int. Econ. Rev.* **1970**, *11*, 481–487. [CrossRef]
49. Xie, J.; Ye, L.; Huang, W.; Ye, M. Understanding fintech platform adoption: Impacts of perceived value and perceived risk. *J. Theor. Appl. Electron. Commer. Res.* **2021**, *16*, 1893–1911. [CrossRef]
50. Zhang, Y.; Deng, J.; Xu, Y. The effect of different price promotion ways on consumers' purchasing intention. *Am. J. Ind. Bus. Manag.* **2017**, *7*, 1192. [CrossRef]
51. Agarwal, S.; Teas, R.K. Perceived value: Mediating role of perceived risk. *J. Mark. Theory Pr.* **2001**, *9*, 1–14. [CrossRef]
52. Liang, L.J.; Choi, H.C.; Joppe, M. Understanding repurchase intention of Airbnb consumers: Perceived authenticity, electronic word-of-mouth, and price sensitivity. *J. Travel Tour. Mark.* **2017**, *35*, 78–89. [CrossRef]
53. Beverland, M.B.; Farrelly, F.J. The quest for authenticity in consumption: Consumers' purposive choice of authentic cues to shape experienced outcomes. *J. Consum. Res.* **2010**, *36*, 838–856. [CrossRef]
54. Boisvert, J.; Ashill, N.J. The impact of luxury brand status signaling, extension authenticity and fit on luxury line extension evaluation: A cross-national study. *Int. Mark. Rev.* **2022**, *39*, 395–422. [CrossRef]
55. Beverland, M.B. Crafting brand authenticity: The case of luxury wines. *J. Manag. Stud.* **2005**, *42*, 1003–1029. [CrossRef]
56. Chen, Q.; Huang, R.; Hou, B. Perceived authenticity of traditional branded restaurants (China): Impacts on perceived quality, perceived value, and behavioural intentions. *Curr. Issues Tour.* **2020**, *23*, 2950–2971. [CrossRef]
57. Deng, W.; Lu, C.; Lin, Y.; Chen, W. A study on the effect of tourists value co-creation on the perceived value of souvenirs: Mediating role of psychological ownership and authenticity. *Asia Pac. J. Tour. Res.* **2021**, *26*, 200–214. [CrossRef]
58. Hernandez-Fernandez, A.; Lewis, M.C. Brand authenticity leads to perceived value and brand trust. *Eur. J. Manag. Bus. Econ.* **2019**, *28*, 222–238. [CrossRef]
59. Hirschmiller, S. Decrypting the web3 Strategy Behind Dior Men's Connected b33 NFT Sneakers. *Forbes*, 6 July 2023. Available online: https://www.forbes.com/sites/stephaniehirschmiller/2023/07/06/decrypting-the-strategy-behind-dior-mens-connected-b33-nft-sneakers/?sh=65031fdd29ea (accessed on 11 March 2024).

60. Jin, C.; Yoon, M.; Lee, J. The influence of brand color identity on brand association and loyalty. *J. Prod. Brand Manag.* **2019**, *28*, 50–62. [CrossRef]
61. Lafferty, B.A.; Goldsmith, R.E. Corporate credibility's role in consumers' attitudes and purchase intentions when a high versus a low credibility endorser is used in the ad. *J. Bus. Res.* **1999**, *44*, 109. [CrossRef]
62. Liu, H.-H. How promotional frames affect upgrade intentions. *J. Econ. Psychol.* **2013**, *39*, 237–248. [CrossRef]
63. Campbell, M.C.; Goodstein, R.C. The moderating effect of perceived risk on consumers' evaluations of product incongruity: Preference for the norm. *J. Consum. Res.* **2001**, *28*, 439–449. [CrossRef]
64. Park, C.W.; Young, S.M. Consumer response to television commercials: The impact of involvement and background music on brand attitude formation. *J. Mark. Res.* **1986**, *23*, 11–24. [CrossRef]
65. Kline, P. *A Handbook of Test Construction (Psychology Revivals): Introduction to Psychometric Design*; Routledge: London, UK, 2015.
66. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]
67. Liu, H.; Chou, H. The selection of freebies and the preference for freebie promotions—A perspective on item characteristics. *J. Behav. Decis. Mak.* **2017**, *30*, 420–434. [CrossRef]
68. Ritchter, F. America's Favorite Sneaker Brands. *Statista*, 1 March 2024. Available online: https://www.statista.com/chart/31830/most-popular-sneaker-brands-in-the-us/#:~:text=According%20to%20findings%20from%20Statista,versus%20long-term%20rival%20Adidas (accessed on 11 March 2024).
69. Forsberg, J. 28 Slick Designer Sneakers to Invest in This Spring. *Vogue Scandinavia*, 23 February 2024. Available online: https://www.voguescandinavia.com/articles/28-best-designer-sneakers (accessed on 21 March 2024).
70. Kent, R.J.; Allen, C.T. Competitive interference effects in consumer memory for advertising: The role of brand familiarity. *J. Mark.* **1994**, *58*, 97–105. [CrossRef]
71. Hagtvedt, H.; Patrick, V.M. Art infusion: The influence of visual art on the perception and evaluation of consumer products. *J. Mark. Res.* **2008**, *45*, 379–389. [CrossRef]
72. Slonim, R.; Garbarino, E. The effect of price history on demand as mediated by perceived price expensiveness. *J. Bus. Res.* **1999**, *45*, 1–14. [CrossRef]
73. Park, J.; Javalgi, R.; Wachter, M. Product ethnicity and perceived consumer authenticity: The moderating role of product type. *J. Consum. Mark.* **2016**, *33*, 458–468. [CrossRef]
74. Urbany, J.E.; Bearden, W.O.; Weilbaker, D.C. The effect of plausible and exaggerated reference prices on consumer perceptions and price search. *J. Consum. Res.* **1988**, *15*, 95–110. [CrossRef]