Socio-emotional dynamics of luxury brand management: A mixed-methods examination of consumer reactions to social responsibility and nonverbal communication signals

By

Oguzhan Essiz

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Supervisor: Dr. Austin Lee Nichols

External Supervisor: Dr. Aysu Senyuz

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Central European University

Department of Economics and Business

Author: Oguzhan Essiz

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ABSTRACT

Luxury brand marketing is a dynamic and experiential practical domain. Nonetheless, empirical research in this domain is lacking, with notable gaps in understanding the influence of social responsibility and the role of nonverbal communication strategies. Amidst the increasing adoption of sustainability practices in the luxury industry and the widespread use of nonverbal signals in luxury advertising, the overarching aim of this research is to enhance our scholarly knowledge of luxury brand communication at the consumer level.

In the first essay, I profile the value-based characteristics of sustainable luxury consumers by developing a predictive conceptual model grounded in the theory of consumption values. Specifically, I explore how value perceptions impact the persuasive power of social responsibility communication and consumers' purchase intentions for sustainable luxury products. In doing so, I deploy a hybrid partial least squares structural equation modeling–artificial neural network approach with complementary importance-performance map analyses to study a preregistered sample of 894 luxury consumers in the United States. Results of the first essay demonstrate that functional, emotional, epistemic, conditional, and green consumption values exhibit significant positive impacts on sustainable luxury purchase intention, except social values. Further, I elucidate a theoretically grounded mediator (conspicuous ethical self-identity) and a moderator (green advertising receptivity) that buffer the link between consumption values and purchase intention. I also uncover cross-generational disparities, in which Millennials–compared to Generation X–display greater conspicuous ethical self-identity as well as higher levels of green advertising receptivity and purchase intention.

In the second essay, I explore how, why, and when the intensity of an expresser's smile, a fundamental nonverbal communication signal, can impact the effectiveness of luxury advertising. Thereby, I develop an integrated conceptual model based on the social-functional account of emotions and the stereotype content model of social judgments. Principally, I demonstrate that a

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neutral expression (vs. a slight and broad smile) from the expresser leads to higher levels of actual brand engagement, ad attitudes, and purchase behaviors. This effect is driven by a serial processing mechanism: enhanced competence judgments and perceived ad credibility that emerge when the expresser features a neutral expression. I further elucidate two boundary conditions: the lay rationalism level of observers and the eye gaze direction of the expresser. As a result, the detrimental effect of smile intensity on competence perceptions is attenuated for low-lay rationalistic observers, who base their decisions on feelings, while the neutral expression facilitates higher ad effectiveness when paired with a direct gaze (vs. an averted gaze). I support these findings using preregistered cross-national samples from the United States and China, across different luxury product types, fictitious, and real brands. Evidence comes from field data on Instagram print ads (N = 435), two large-scale field experiments on Meta (N_{total} = 233,301), four pilot tests (N_{total} = 282), and two controlled online experiments (N_{total} = 590).

Throughout both essays, I employ a mixed methods approach and multi-analytical strategies to test my hypotheses. The integration of both essays offers a comprehensive account of how luxury brands can navigate the complex landscape of consumer expectations. Finally, I conclude the two essays by detailing their contributions to theory, methodology, and marketing practice, along with future research agenda.

Keywords: Advertising effectiveness, luxury brand communication, luxury brand marketing, multi-method research, nonverbal behavior, smile intensity, sustainable luxury consumption, value perceptions.

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Oguzhan Essiz, August 7th, 2024, Vienna

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"*Science is not about being right or wrong, it is about being willing to ask the right questions and follow the evidence wherever it leads.*" — Neil deGrasse Tyson.

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GENERAL INTRODUCTION CHAPTER

The marketing discipline encompasses a wide range of activities and strategies aimed at promoting products and services to consumers (AMA, 2017; Kotler et al., 2023). In recent years, efforts have been made to broaden the theoretical and practical scope of marketing. This shift moves away from the traditional, static, profit-centric, and micro-level approach, which often has a narrow technological focus. Instead, it embraces a more comprehensive macro perspective that promotes fair resource transfers and the equitable distribution of co-created value among prosumption-oriented stakeholders (Kelleci, 2024). Considering that the content and functions of marketing theory, like those of other disciplines, are not inherent or self-evident but are socially, economically, and politically constructed and open to negotiation (Hunt, 2002), I align with a critically oriented marketing perspective in this dissertation, in accordance with Alvesson's (1994) seminal view.

While I recognize that marketing encompasses various exchange processes beyond those between companies and private consumers—such as industrial, non-profit, and internal marketing, as well as the economics of distribution—I will contribute to the dialogue on the marketing of consumer goods and services. This focus is due to the fact that significant exchange processes, and those of greatest interest from a critical consumer marketing perspective, are found here (Alvesson, 1994). This perspective also promotes a more extensive consideration of marketing's objectives and impacts, going beyond mere business results to align with a comprehensive understanding of consumer welfare and societal benefits (Burton, 2001). In this regard, I focus on the psychoanalytical dimensions of consumption, examining how consumption, advertising, and various forms of verbal and nonverbal communication strategies influence consumers.

In today's global competitive marketplace, embracing a critical consumer marketing perspective demands an understanding of target-market characteristics (Burton, 2001). In other

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words, effective marketing actions require a focus on consumer behavior (CB) because consumer demand and the nature of CB are inherently dynamic. Undeniably, CB can be altered by set of internal and external factors, including personality traits (Essiz et al., 2023)[1], demographic characteristics (Oc et al., 2023), situational contexts (Park et al., 2022), social influences (e.g., family, peers) (Essiz and Mandrik, 2022; Lissillour et al., 2024), environmental conditions (Dubois et al., 2021), cultural beliefs (Osburg et al., 2021), and economic circumstances (Kim et al., 2022), among others. From this perspective, deciphering CB is paramount for luxury brands because it allows them to tailor their marketing strategies to meet the unique preferences and expectations of affluent consumers. As Wiedmann et al. (2009) insightfully articulated, luxury consumers are not just buying products; they are investing in experiences and status symbols that reflect their identity and values. Therefore, grasping the evolving dynamics of CB is vital for luxury brands to effectively segment the market and strategically position their offerings to align with the desires for exclusivity while tapping into the psychological and emotional factors. This is crucial for maintaining brand prestige, fostering customer loyalty, and navigating the dynamics of the luxury market (Osburg et al., 2021).

In this vein, luxury brands are becoming more conscious of the proactive role that consumers play in shaping marketing strategies. At its core, the discourse surrounding luxury brand marketing fundamentally evolves in response to shifts in societal (Athwal et al., 2019) and technological landscapes (Dwivedi et al., 2023). As consumers increasingly seek high-end products that not only confer status and authenticity but also align with their emotions (Warren et al., 2018), value perceptions (Essiz and Senyuz, 2024), and social norms (Pai et al., 2022), understanding the contemporary ways in which luxury brands communicate and strategically position themselves becomes paramount.

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[1] To maintain brevity and integrity across the dissertation, the in-text citations in this general introduction section are based on references from Essays 1 and 2.

This issue gains particular relevance in the present context of heightened environmental awareness and the demand for greater corporate social responsibility (Vanhamme et al., 2023). Likewise, the rise of digital marketing has profoundly transformed luxury branding (Shuqair et al., 2024), highlighting the necessity of analyzing ubiquitous nonverbal communication signals, such as facial expressions in advertisements, and their impact on CB. Consequently, there is an overarching need to thoroughly comprehend how luxury brands can effectively capitalize on social responsibility in their marketing strategies and how nonverbal signals in advertising impact consumer engagement, attitudes, and purchasing behaviors.

In the subsequent sections, I begin by addressing the core concepts and the guiding background that shape the entire dissertation. I set the conceptual and contextual framework by examining the notion of luxury consumption and offering pertinent details about the global luxury market. Following this, I probe the idea of sustainability in a more comprehensive manner and evaluate the existing research stream, especially those studies that critique sustainable marketing practices. Lastly, I emphasize the theoretical, methodological, practical, and broader relevance of this dissertation, reinforcing the unified goals of both essays in a coherent way.

Luxury is what you say: An overview of the concept of luxury

To understand luxury in today's world, researchers must define the boundaries of luxury consumption and its components. The word luxury originates from the classical Latin "*luxus,*" suggesting effeminate sensuality, a desire for splendor and display, and "*luxuria,*" which denotes excess, extravagance, and moral frailty (Oc et al., 2023). Luxury is a topic of interest in various fields including sociology, psychology, economics, and marketing. Although it appears straightforward, defining luxury accurately is a challenging issue given its dynamic and subjective nature. This has prompted economists and consumer researchers to theoretically explore what defines luxury, how it is consumed, and its effects in different socioeconomic environments.

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Previously, Veblen was instrumental in initiating discussions about luxury with his theory of the leisure class, suggesting that luxury goods primarily symbolize wealth and status rather than possessing intrinsic values (Veblen, 1899). In this perspective, luxury is seen as compelling because it serves as a social indicator, which is why people are drawn to consume or desire it. Consequently, buying luxury items is associated with conspicuous consumption, which is the practice of purchasing goods and services to display one's income or wealth, along with hedonism (Kapferer, 2014). The notion of conspicuous consumption underscores that luxury items are bought not just for their utility but as markers to showcase and reflect social position (Ko et al., 2019 for a conceptual review).

Regardless of its ethically questionable status, luxury thrived among the elite members of society and religious leaders throughout the classical and early modern periods in Europe (Adams, 2012 for the traditional history of luxury). For instance, from a Christian perspective, luxury was seen as pleasing when it served to glorify the God. During these times, luxury served purposes beyond mere consumption and enjoyment by individuals; it was also used to inspire awe, project power, and signify social status (Roberts, 2019). Furthermore, up until the seventeenth century, the consumption of luxury was governed by sumptuary laws and regulations, which aimed to maintain social hierarchies and moral standards by limiting the consumption of specific goods, including but not limited to clothing (Adams, 2012).

Since the eighteenth century, the production and consumption of luxury have been acknowledged as drivers of economic growth and contributors to prosperity (Smith, 1776 for the wealth of nations and foundations of classical economics). From the perspective of neoclassical economics, luxury items are defined as goods for which demand increases disproportionately as consumer income grows. These goods are typically sensitive to economic changes, scarce, and yield high profit margins (Goodland and Ledec, 1987). Consequently, the concept of luxury

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transforms a basic resource, in such instance money, into a culturally valued good that is accessible to only a few but coveted by many (Oc et al., 2023).

Over the years, the concept of luxury has evolved from simple extravagance to include elements of quality, craftsmanship, and exclusivity (Pai et al., 2022). The contemporary luxury market now appeals to a wider range of demographics, adapting to current consumer trends that prioritize not only material wealth but also intellectual, social, and cultural engagements. Recent studies, including but not limited to Park et al. (2022) and Kim et al. (2022) have observed a shift towards a new style of conspicuous consumption that subtly displays wealth through ethical and philanthropic activities. Thus, luxury consumption today covers a broad spectrum of motivations and desires, ranging from overt displays of wealth to more private and introspective experiences that contribute to self-concept and well-being (Wiedmann et al., 2009). Lee et al. (2021) supports this sentiment, showing how luxury can be both conspicuous and inconspicuous, influenced by individual motivations and the broader social environment.

Hence far, it is evident that the motivations behind luxury consumption are complex and miscellaneous, incorporating both interpersonal factors—the Veblen, snob, and bandwagon effects—and personal factors, such as hedonism, utilitarian aspects, and perfectionism (Dubois et al., 2021; Veblen, 1899; Wiedmann et al., 2009). From this angle, luxury goods are seen as objects of desire that provide pleasure and meet both psychological and functional needs (Oc et al., 2023). Accordingly, emotional responses, both positive (e.g., gratitude) and negative (e.g., guilt from overspending), significantly influence luxury consumption (Essiz and Senyuz, 2024).

Grasping these motivations is essential for understanding why consumers opt for luxury brands and how these choices fulfill their social and psychological needs. With this discussion in mind, I define luxury consumption as the use of products from luxury brands, which varies in its level of conspicuousness. I view it as a means for individuals to express their identity, wealth, social status, and exclusivity. Since consumers often buy luxury goods to enhance their self-

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concept (Dubois et al., 2021), I contend that the term luxury holds importance in fulfilling personal motivations.

Today, consumers of luxury brands display heterogeneity in their demands, aspirations, and preferences due to varying levels of conspicuousness. Some consumers opt for conspicuous consumption to showcase their wealth, while others prefer to consume luxury products more discreetly to signify their class and status (Koi et al., 2019). There is no unanimous agreement in extant literature on who qualifies as a luxury consumer or what constitutes luxury products and brands. One of the more straightforward definitions comes from Dubois and Laurent (1994), labeling the luxury consumer as someone who perceives their purchases as luxury products.

However, such a definition may be considered too narrow and problematic, as earlier research indicates that perceptions of luxury vary from person to person (e.g., Brun and Castelli, 2013; Kapferer, 2014). Therefore, it can be argued that luxury cannot be defined wholly without considering consumer and brand characteristics. This suggests that luxury is significantly influenced by brand-level perceptions as well as individual perceptions, with each person's definition shaped by their own consumption experiences. The modes for categorizing luxury consumers are diverse, typically considering factors such as generation, social class, the type of luxury goods consumed, net liquid assets, and consumption frequency, among others (e.g., Wiedmann et al., 2009). To accurately define luxury consumers, it is essential to comprehend the value-based needs that drive luxury goods consumption and to adopt classifications that reflect the value motivations of consumers. This dissertation adheres to this approach.

Furthermore, although luxury traditionally connoted exclusivity and affluence, the concept has become more democratized over time (e.g., Shukla et al., 2022). Brands now navigate the boundary between luxury and premium, providing high-quality products at more accessible prices (Lyons et al., 2019). This expansion of accessible luxury challenges established ideas of luxury, necessitating a reevaluation of how luxury is perceived and consumed across various

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cultures and consumer demographics. In this context, a luxury brand name represents a company's reputation as a producer of luxury and signifies status to consumers (Brun and Castelli, 2013). Therefore, whether a brand is considered luxury or premium largely depends on consumer perceptions of that brand. Pai et al. (2022) offer a conceptualization of a luxury brand as one that is high quality, provides authentic value, maintains a prestigious image with features such as craftsmanship, and can foster a deep emotional connection with consumers.

In this dissertation, it is vital to distinguish between luxury and premium products and services. The distinction between luxury and premium items involves multiple aspects, not just price. It includes factors such as timelessness, heritage, rarity, and social status (Pai et al., 2022). Premium brands focus on the price-to-quality ratio, with consumers prepared to pay more for superior quality (Sjostrom et al., 2016). Conversely, luxury brands are characterized by higher price points that occasionally surpass their functional value (Wiedmann et al., 2009).

In branding literature, luxury is described as the pinnacle of prestigious brands, encompassing a mix of tangible and intangible values (Dubois et al., 2021). However, the concept of "*premium*" is less extensively discussed compared to luxury. The term "*premium*" originates from the Latin word "*praemium,*" which means reward/bonus/prize/profit (see dictionary.com/browse/premium/). Lyons et al. (2019) note that premium brands have limited flexibility for downscale extensions without risking being perceived merely as functional brands. Consequently, premium brands often aim to attract a broader audience than luxury brands.

Furthermore, some brands may be considered luxury in certain product categories but not in others (Sjostrom et al., 2016). For instance, BMW's higher model series are often categorized as luxury, whereas the lower model series are viewed as premium. Hence, there is a distinction between upper-range and lower-range luxury brands. This means that while a brand may be classified as luxury, not all luxury brands are seen as equal, and a brand's perceived level of luxury can vary between different product categories as exemplified above.

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Strictly speaking, luxury goods are situated at one end of the spectrum, with premium goods at the other. The transition from premium to luxury is gradual and largely determined by consumer perception. Transforming a premium brand into a luxury brand involves more than just raising prices, and luxury brands should avoid expanding their appeal into the premium market to preserve their exclusivity, which is crucial to their allure (Kim et al., 2021). From the discussion above, it becomes clear that while quality is significant for both luxury and premium brands, premium brands tend to have less selective distribution and lower prices compared to luxury brands.

With this conceptual distinction in mind, it is reasonable to state that the definition of luxury is dynamic, shaped by cultural, economic, and individual factors. In this research, I embrace the critical luxury studies perspective of Roberts (2019) and explore luxury in relation to other socio-cultural practices, aiming to understand the social, economic, and emotional impacts of luxury consumption as it will be discoursed in my empirical essays. Adopting this critical perspective requires examining a range of products and experiences and their effects on the reactions of luxury consumers. As the luxury market evolves, it mirrors broader socioeconomic changes and shifts in consumer values. Ultimately, I view luxury as both a reflection of personal ambitions and societal progression, marking it as a dynamic and lasting element of consumption culture.

The contemporary global luxury industry at a glance

Luxury spans a major international business, encompassing various B2C sectors such as fashion, jewelry, automobiles, beauty, travel, real estate, home decor, fine art, technology, gourmet foods, and private transportation like yachts and jets (Roberts, 2019). Collectively, the luxury industry significantly contributes to global welfare. According to Bain & Company's recent report (D'Arpizio et al., 2024), luxury cars, hospitality, and personal luxury goods alone constitute over 80% of the total market (see Fig.1). While luxury business relies on the unequal distribution of

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income, it also drives economic growth, innovation, cultural enrichment, and sustainable practices, providing economic, environmental, and social benefits (Bhandari et al., 2022).

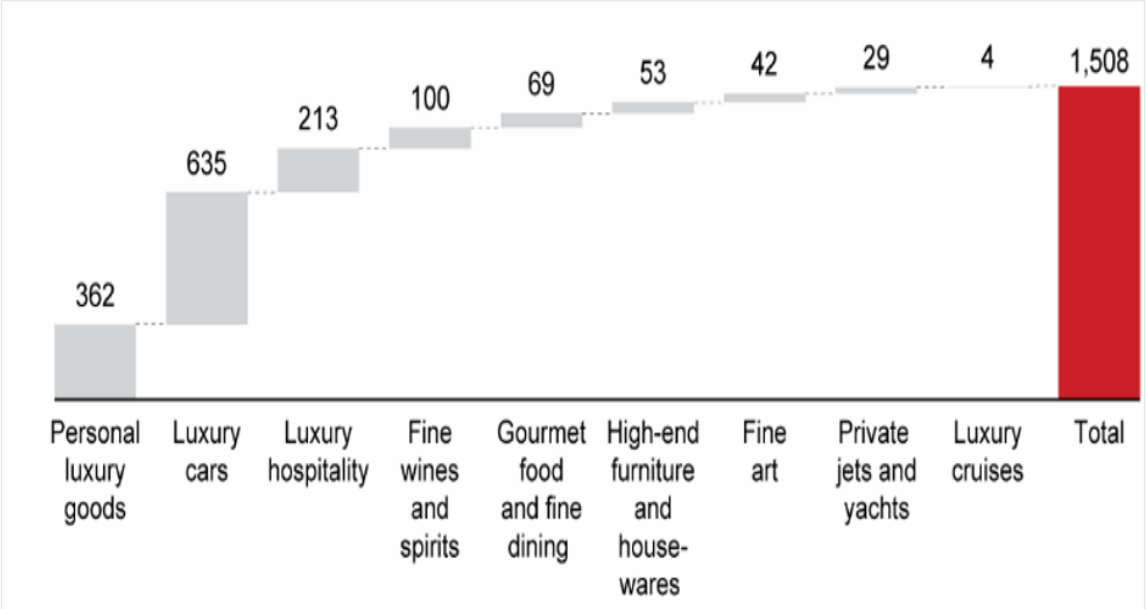

Fig.1. Worldwide luxury market spending (in € billion). The personal luxury goods market includes but is not limited to leather, apparel, beauty, watches, jewelry, and shoes. Source: D'Arpizio et al. (2024), Bain & Company Consulting.

According to the recent analysis by Bain & Company (D'Arpizio et al., 2024), the personal luxury goods sector, which includes fashion accessories, apparel, bags, jewelry, watches, and eyewear, is the cornerstone of the luxury industry. This segment grew to an estimated €362 billion in 2023, marking a 4% increase from 2022. Accessories, apparel, and jewelry were among the fastest growing categories, each expanding by 5% to 6% annually. Looking ahead, the global market for personal luxury goods is expected to soar to €570 billion by 2030, with the overall market value capitalization anticipated to reach €2.5 trillion, highlighting the sector's robust resilience. Similar forecasts are provided by other research firms such as Statista Market Insights (2024a) (see Fig.2).

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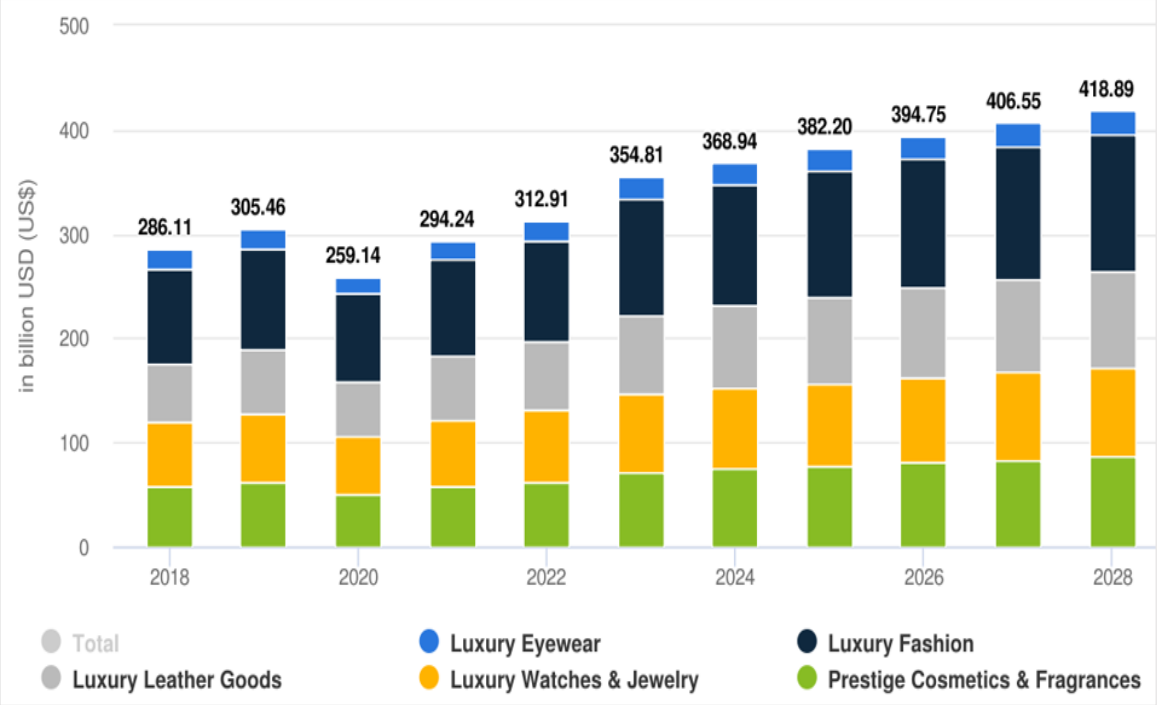

Fig.2. Worldwide personal luxury goods market forecast: Generated and predicted yearly revenue by luxury segment (Data: 2018-2028). Source: Statista Market Insights (2024a).

In terms of national distribution within the industry, Italy leads as the origin for the highest number of luxury companies, followed by the U.S., and China, with France and Switzerland also making significant contributions (see Table 1). Italy hosts 23% of luxury firms, solidifying its status as a central hub for luxury, with notable companies like Gucci and Versace originating there. The U.S. holds the second-largest portion of luxury companies at 17%, supported by a wealthy consumer base and a well-established retail network. China accounts for 11% of these companies, benefiting from a substantial population of affluent consumers and competitive manufacturing advantages due to lower costs and a vast labor market (see ECDB, 2024 for further details). Pertaining to revenue generation, the U.S. and China are forecasted to continue leading the global luxury market as the two largest markets in the coming years (Statista Market Insights, 2024b) (see Fig.3).

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Table 1. Countries hosting the most luxury companies, according to the recent data from eCommerce Data Analytics (ECDB, 2024), focusing on the top 100 luxury firms by revenue.

Rank	Country of origin	Share of luxury companies	Examples of companies
1	Italy	23%	Prada, Armani, Moncler
2	United States	17%	Estee Lauder PVH Corp., Tapestry
3	China	11%	Chow Tai Fook, Lao Feng Xiang
4	France	9%	LVMH, Kering, Chanel
5	Switzerland	8%	Rolex, Swatch, Richemont

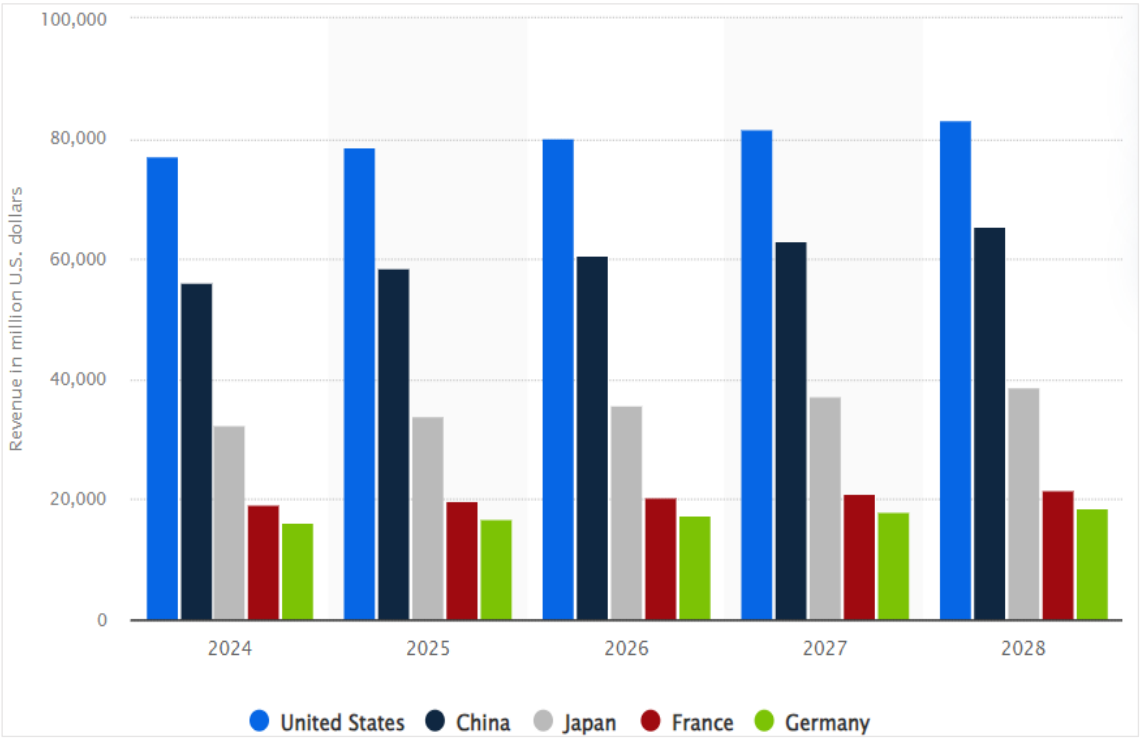

Fig.3. Generated and predicted worldwide revenue generation of the luxury goods market: Top 5 countries (Data: 2024-2028). Source: Statista Market Insights (2024b).

Against this contextual information, the luxury sector's significant expansion has sparked interest both academically and in the practical realm. However, it is noteworthy that luxury product marketing literature has received less attention compared to other domains (Shashi et al., 2021). The luxury industry deserves inquiry from critical marketing scholars who aim to understand the complexities of both the positive impacts and the potential drawbacks of luxury.

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My preceding discussion highlighted one of the main challenges in the luxury sector as evolving consumer behaviors. Modern consumers are increasingly aware of digital marketing efforts, both verbal and nonverbal signals, as well as sustainability and ethical manufacturing practices, which has led to changes in buying patterns (Kim et al., 2022; Shuqair et al., 2024). Luxury brands therefore need to adapt to meet these new consumer demands. Taken together, this dissertation concentrates on the personal luxury goods market, with empirical studies using data from the two largest luxury markets globally, the United States and China, each chosen for their unique features. Further details on the geographical focus and reasons for selecting these markets are opened in each essay.

The notion of sustainability and critiques on sustainable marketing

Sustainability is an umbrella and layered concept with numerous interpretations in scholarly literature. Broadly, it is typically understood through its three foundational pillars: people, planet (society), and profit (economy), known as the triple bottom line approach (Alhaddi, 2015). The notion of sustainability first emerged in 1713 in Germany, particularly within the forestry sector, where it was advised that the amount harvested should not exceed the forest's natural regrowth (Caradonna, 2017). Later, in 1987, the United Nations refined this idea by aligning it with the three pillars, emphasizing the necessity for improving quality of life, fostering economic and social progress, and preserving the environment concurrently. The United Nations Brundtland Commission in 1987 broadly defined sustainability as "*meeting the needs of the present without compromising the ability of future generations to meet their own needs.*" Consequently, the objective of sustainable development is to maintain a balance between economic, social, and environmental growth.

Previous studies often depict sustainability focusing on a singular aspect or merely integrating environmental and social dimensions (e.g., Goodland and Daly, 1996). This perspective is considered narrow because environmental and social sustainability each have

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distinct origins, processes, and outcomes (Peattie, 2010), and prioritizing one may lead to compromises in the other. For instance, a company may excel in one sustainability dimension while neglecting another (Cavender, 2018). The ambiguity surrounding the definitions of sustainability and sustainable development might even lead companies to falsely assert their commitment to sustainable practices while contributing to unsustainability (Mattis, 2008). To counteract this issue of information asymmetry and skepticism, it is essential to provide stakeholders with transparent signals about sustainability efforts (Griskevicius et al., 2020). In scenarios where it is difficult for stakeholders to obtain reliable and credible sustainability information about a company, establishing legitimacy can be the priority.

To this end, corporate social responsibility (CSR) and environmental social governance (ESG) strategies provide a broader view of sustainability. They signal a brand's quality, value, performance, and commitment to sustainability, while also helping to reduce and mitigate business risks (Lagasio and Cucari, 2019; Pope and Wæraas, 2016). It is important to distinguish between CSR and ESG within the context of this dissertation, as they represent distinct concepts and backgrounds that contribute to promoting corporate sustainability and ethical behavior. Specifically, CSR is often considered a precursor to ESG practices, having established the groundwork for ESG principles within the corporate world (Mattis, 2008). CSR is a strategic approach that holds corporations accountable for their actions, ensuring they yield positive outcomes for various stakeholders including the environment, customers, employees, communities, and the public sector (Cavender, 2018). In comparison, ESG builds upon the CSR concept by providing measurable standards that investors and customers can use to evaluate a company's philanthropic, social, and governance efforts (Lagasio and Cucari, 2019). This approach moves beyond mere altruism by converting these principles into quantifiable metrics, therefore offering stakeholders a more thorough understanding of a company's economic, social, and environmental impact.

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Thus far, the above discussion underscores the importance of seeing the concept of sustainability within the frameworks of ESG and CSR. ESG criteria assess a company's operations in terms of environmental performance, social responsibility, and governance practices (Lagasio and Cucari, 2019). For the global luxury industry, this involves scrutinizing how brands manage their environmental footprint, their relationships with employees and communities, and their governance structures. Conversely, CSR focuses on a luxury company's efforts to contribute positively to society and the environment beyond mere profit generation (Pope and Wæraas, 2016). Luxury brands committed to CSR might concentrate on ethical labor practices, community involvement, and environmental conservation (e.g., Athwal et al., 2019). By situating sustainability within the spaces of ESG and CSR, it becomes evident that while brand management is crucial, it is only a part of a broader spectrum. Consequently, I argue that effective branding in the luxury sector should transcend the superficial masking of unsustainable practices and genuinely reflect a commitment to ethical and sustainable operations.

In this dissertation, the primary focus is on consumers as a micro stakeholder group. However, it is important to recognize that companies might also make misleading CSR or ESG claims (i.e., greenwashing), to other stakeholders, such as regulators, investors, employees, and community members. To alleviate this, a comprehensive understanding of sustainability also involves discussing sustainable sourcing and supply chain management. Sustainable sourcing (SS) is emerging as a key component of best practice in procurement, with corporate sustainability greatly reliant on effective SS practices (Bhandari et al., 2022). SS involves adopting sustainable methods and practices when acquiring raw materials, products, and services, focusing concurrently on the social and environmental impacts of these activities (Khan et al., 2024). The procurement function plays a crucial role in achieving sustainable supply chains, given its position at the start of the flow of goods and services, and its emphasis on the environmental, economic, and social impacts of organizational activities (Karaosman et al., 2020). Ultimately, SS promotes a

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holistic approach that carefully considers the different aspects of sourcing activities, aligning with the triple bottom line approach (Bhandari et al., 2022).

Moreover, a thorough approach to sustainability should extend beyond the confines of an organization, as significant environmental and social challenges often originate from external stakeholders (i.e., second-tier suppliers or those even further upstream) (Karaosman et al., 2020). From the above discussion, the strategic importance of sustainability is evident, yet further research is necessary to better understand the specific practices needed for its implementation, especially concerning sustainability communication and the impact of unique contextual challenges on developing sustainable sourcing and supply chains (Mugoni et al., 2024). Nonetheless, at first glance, there appears to be an inherent conflict, a collision course between sustainability and marketing communication.

That is to say, marketing is often viewed as diametrically opposed to sustainability notion. This clash arises because, as recent research notes, sustainability encourages reduced consumption, whereas marketing tends to promote increased consumption, leading to certain collective discourses (Essiz et al., 2023). For instance, Peattie (2010) pointed out that marketing efforts are frequently criticized for fostering unsustainable consumption patterns and a materialistic lifestyle, such as through wasteful packaging and the strategy of planned obsolescence. This growing concern about environmental impacts among consumers has spurred the development of new sub-marketing specializations aimed at addressing this conflict. These include similar terms such as sustainability marketing, green marketing, eco-marketing, and environmental marketing, among others. In this dissertation, I choose to use "*sustainable and green marketing*" terms interchangeably as they encapsulate a comprehensive, long-term approach to consumer behavior processes that relate to sustainability, as advocated by Peattie (2015).

Sustainable/green marketing was developed to protect and conserve environmental resources, using marketing tools to foster transactions that benefit both companies and

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consumers (Belz and Peattie, 2010). This approach reimagines the traditional marketing 4Ps (product, price, promotion, and place) to ensure that the design, pricing, promotion, and distribution of goods and services inflict minimal environmental harm. Essentially, it involves applying the marketing mix in a way that is greener and more sustainable. According to Essiz et al. (2023), sustainable marketing encompasses a broader perspective and integrates sustainable development goals (SDGs) into its framework, particularly SDG12, requiring both consumers and producers to alter their behaviors to align with these goals.

From this viewpoint, the ethical justification of luxury is questioned amidst increasing inequality, challenging the legitimacy of luxury conglomerates (Wells et al., 2021). Historically, luxury has been linked to economic growth and prosperity (Veblen, 1899), with prosperity in turn fueling the expansion of luxury. However, the luxury sector has often overlooked sustainability issues (Davies et al., 2012), but now faces a pressing need to address them due to rising scrutiny from consumer activists who criticize brands for their opaque supply chains and unethical practices, involving but not limited to animal and worker exploitations. Although the luxury industry has not traditionally been linked with environmental and social responsibility concerns as much as the mid-market or fast fashion, shifts in social norms and the heightened expectations of consumers and investors are now pushing luxury brands toward sustainability (Shashi et al., 2021).

For instance, the recent trend toward the democratization of luxury, where luxury brands have made their products more accessible at lower price points (Shukla et al., 2022), brings challenges related to cost, volume, lead times, and sustainability. Thus, managing sustainability in luxury supply chains is becoming increasingly crucial as luxury brands encounter similar pressures to those faced by the fast fashion sector, including downward pricing pressures, global sourcing, high product variety, and unpredictable demand (Karaosman et al., 2020). Building on this dialogue, it is obvious that a balanced approach to luxury production is crucial for sustainability,

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focusing on transparency, fostering local production, and promoting long-term relationships (Osburg et al., 2021). In light of this discussion, I perceive sustainable luxury as a concept which evolves and encompasses the sourcing, manufacturing, and consumption of luxury goods while ensuring responsible resource use among stakeholders that minimizes environmental harm.

Although there is growing interest in sustainable luxury (Athwal et al., 2019; Osburg et al., 2021), there remains a scarcity of critical analysis on how luxury brands formally report and communicate their sustainability efforts to stakeholders. This dissertation aims to fill that gap. Within this research, I adopt and expand upon the current discourse of Pai et al. (2022), defining sustainable luxury brand communication as the strategic sharing of sustainability-related information by luxury brands through both physical and digital mediums to all responsible stakeholders. Particularly, such communication approach is intended to interactively engage and educate luxury consumers about the brand's internal sustainable practices, CSR and ESG initiatives, external collaborations and partnerships, and the broader environmental impacts of the industry.

Historically, luxury has been associated with extravagance and excessive consumption (Davies et al., 2012), suggesting a potential clash with the principles of sustainability. Luxury is often linked with personal indulgence, whereas sustainable consumption emphasizes restraint and ethical considerations (Kim et al., 2022). Veblen's theory of conspicuous consumption further underscores this contrast, describing how the affluent use consumption and leisure as a means to showcase their social status and differentiate themselves from lower socioeconomic groups (Veblen, 1899). This viewpoint implies that luxury consumption is intrinsically about visibility and prestige, seemingly at odds with sustainability values. Therefore, luxury marketing, frequently criticized for encouraging consumerism and superficiality, requires a critical examination to assess its compatibility with sustainable practices.

At present, many consumers still perceive luxury brands as promoters of superficial

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lifestyles, overconsumption, and symbols of wealth inequality, fostering attitudes of dominance, hedonism, and even social distance (Oc et al., 2023). In stark contrast, sustainable luxury is linked with values such as social justice, environmental stewardship, and equality (Athwal et al., 2019). As a result, there is skepticism among consumers regarding luxury brands that claim to be caring and prosocial through their CSR and ESG initiatives. Consumers often question whether existing CSR and ESG efforts are genuinely altruistic or are simply driven by self-interest, potentially leading to perceptions of corporate hypocrisy (Davies et al., 2012). This phenomenon is frequently labeled as greenwashing in scholarly discussions. Greenwashing highlights a consumer's inclination to doubt and scrutinize, creating significant impacts on marketplace dynamics by capturing the levels of doubt, uncertainty, and skepticism towards a firm's CSR and ESG endeavors (Adamkiewicz et al., 2022).

In this context, previous research has shown that the use of verbal and nonverbal messaging strategies can reduce consumer skepticism towards a brand's CSR efforts, evoke positive emotions, and diminish feelings of guilt, leading to favorable views of luxury companies (e.g., Septianto et al., 2023). Therefore, it is beneficial to investigate which communication approaches could effectively convey transparent social responsibility information and generate positive consumer reactions for luxury brands.

To reconcile the idea of conspicuous consumption with sustainable luxury, it is essential to transition from a focus on ostentation to authenticity and responsibility. From this perspective, only then, luxury and sustainability could be seen as compatible. The scarcity associated with luxury brands, often manifested through exclusive retailing channels and limited-edition products, tends to portray luxury items as both rare and durable (Park et al., 2022). Consequently, these elements are in line with sustainable production and perceived as socially responsible by consumers. Reinforcing this view, Pai et al. (2022) highlighted attributes of luxury brands such as product integrity, quality, scarcity, beauty, and durability that align well with sustainable

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development principles. Thus, it becomes imperative to critically evaluate whether the production and consumption of luxury genuinely enhance economic, environmental, and societal heritage in a substantial and enduring manner.

Last but not least, research on luxury and prestige marketing indicates that decision-making in luxury purchases significantly deviates from that in commodity-style buying (Osburg et al., 2021). The intrinsic value of luxury goods is predominantly psychological, with consumption driven by a unique combination of brand-level, or social, and personal signals (Dubois et al., 2021). To align conspicuous consumption with sustainable luxury, a profound transformation in personal values, practices, and consumer perceptions is deemed. This dissertation explores these dynamics by suggesting a reconciliation of luxury that includes sustainability. By promoting transparency, adopting ethical production methods, and incorporating ESG and CSR frameworks, I contend that luxury brands can redefine exclusivity and prestige as contributions to societal and environmental well-being. This approach ensures that luxury consumption can be both indulgent and responsible, setting a path towards a sustainable future in the luxury industry.

Luxury brand communication: A shift towards the luxury experience

Modern luxury brands have fully integrated social media as a pivotal platform for enhancing brand image and cultivating customer relationships (Atwal and Williams, 2017). Dwivedi et al. (2023) suggest that marketers face the challenge of creating interactive ways to align consumer commitment with the provision of unique and enjoyable experiences. Luxury has shifted from being about the possession of goods to being associated with experiences (Belk, 1988). For some consumers, luxury represents something rare, not only to be purchased but also experienced infrequently. Wang et al. (2023) argue that this indicates a shift in how luxury is perceived—from a transactional relationship to one centered on holistic experiences.

Within the scope of this dissertation, it is thus crucial to emphasize that experiences play a fundamental role in luxury consumption activities. Reflecting on the preceding discussion in the

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general introduction, I propose that experiential marketing represents a valuable approach to marketing, one that leverages the distinctive nature of luxury consumption. Experiential marketing is aimed at evoking emotions to inspire purchases of specific products or services (Atwal and Williams, 2017). Previous studies have extensively explored the role of mixed emotions in luxury marketing (e.g., Bandyopadhyay et al., 2022), highlighting that luxury brands primarily offer pleasure and connect with consumers on an emotional level (Makkar and Yap, 2018). This research stream indicates that luxury brands often foster emotional attachments through memorable ownership experiences. Additionally, social psychologists suggest that luxury consumption acts as a means of identity construction, self-fulfillment, and belonging, with emotions such as empathy and shame playing critical roles in how luxury consumers perceive themselves compared to others (e.g., Dubois et al., 2021).

From the current discussion, it is evident that emotions play a crucial role in the psychology of luxury consumers. Therefore, investigating socioemotional communication strategies through a cross-cultural lens is vital for marketers aiming to develop effective marketing and promotional practices for the global luxury market. Yet, this remains a significant challenge for both researchers and practitioners due to the complex and often subconscious nature of emotional psychological processes (Kapferer, 2014). Additionally, previous research provides only a general understanding of how consumers interact with luxury brands on social media, especially in response to verbal cues such as slogan appeals (Septianto et al., 2023).

Since Veblen's (1899) concept of conspicuous consumption, the ideas of (1) pecuniary emulation—an individual's attempt to project an image to others—and (2) invidious comparison—the effort to differentiate oneself from those in lower social classes—continue to be primary motives behind luxury consumption. A critical understanding of these motives is essential for effective experiential luxury brand communication, as they enable consumers to develop value perceptions driven by affect and cognition systems. In the context of digital

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marketing, this dissertation explores these dynamics by examining the impact of image portrayal and value perceptions influenced by verbal and nonverbal cues.

In this respect, understanding the nonverbal behavior of customers is particularly crucial for any effective marketing (DePaulo, 1992). In fact, nonverbal behavior is often considered as important, if not more so, than verbal behavior. Early research indicates that approximately 50% of interpersonal communication is conveyed through nonverbal means, such as facial expressions of emotions, gestures, and postures (Wang, 2009). Nonverbal behavior plays multiple roles, including conveying information, regulating interactions, expressing intimacy, and exercising social control (Warren et al., 2018). In the context of advertising, Shuqair et al. (2024) stress the significant impact of nonverbal behavior. For instance, they suggest that nonverbal attitude measures might be more effective than verbal ones for assessing customer responses to online ads. Despite extensive research in the field of social psychology (DePaulo, 1992 for a seminal review), the study of nonverbal behavior in luxury marketing communication remains wholly unexplored. This dissertation seeks to address this gap.

Finally, by providing consumers with detailed information on the environmental impacts of the luxury industry, from the sourcing of raw materials to product disposal, and highlighting the innovative approaches luxury brands are adopting to promote sustainable practices, consumers can gain a deeper understanding of the implications of their own consumption behaviors (Cavender, 2018). Coupled with the previous discussion, the concepts of sustainable luxury and experiential marketing offer holistic insights that can guide the development of credible sustainable communication strategies. Such development may enhance perceptions of sustainable luxury and demonstrate a commitment to sustainable development through experiential communications. From the prior discussion, it is evident that exploring how emotions play a role in luxury consumption experiences is trivial. This dissertation focuses on enhancing our understanding of this matter.

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The present dissertation and integration of empirical essays

Despite numerous calls for further research, luxury marketing communication continues to be an under-researched domain, as continually highlighted in recent reviews of the field (e.g., Athwal et al., 2019; Osburg et al., 2021; Wang et al., 2023). Given this backdrop, my research is centered on luxury brand communication at the consumer level, presenting two original empirical papers (i.e., essays)[2]. Through these essays, my two main objectives are (i) to advance the theoretical, methodological, and practical aspects of luxury brand marketing and (ii) contribute to overall consumer satisfaction.

The present dissertation consists of two essays. The first essay, "*Predicting the value-based determinants of sustainable luxury consumption in the United States: A multi-analytical approach and pathway to sustainable development in the luxury industry,*" studies the value-based facets of sustainable luxury brand communication, developing a predictive model grounded in the theory of consumption values. In this essay, I demonstrate that sustainable luxury consumption is significantly driven by multiple value perceptions—functional, social, emotional, epistemic, conditional, and green—deciphering the nature of consumer engagement with sustainable luxury brands. I further conceptualize the mediating role of conspicuous ethical self-identity and the moderating role of green advertising receptivity on the link between value perceptions and sustainable luxury purchase behaviors. I decisively delve into the cross-generational disparities between Millennials and Generation X in the relationships of the above constructs. Theoretically, I unravel the psychographic, behavioral, and demographic determinants of sustainable luxury consumption. Methodologically, I quantify my predictions with a multi-analytical testing approach that captures multiplex behavioral responses vis-à-vis sustainable luxury choices. On a managerial basis, I offer

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[2] One structural note to highlight is that, in crafting my two essays, I used the plural first-person pronoun: "*We*" instead of "*I*." My stylistic choice is in parallel with the scholarly tradition of framing consumer behavior research in a way that encourages critique and further inquiry. Bearing this in mind, my objective is to promote a spirit of cooperative dialogue. Although the research showcased herein stems from my solo efforts, the use of "*We*" also recognizes my intellectual exchanges with advisors, colleagues, and the wider marketing research community.

actionable insights for luxury brand practitioners on leveraging multidimensional value perceptions in their sustainable product positioning and communication strategies.

The second essay, "*The dark side of a big smile: Detrimental effects of smile intensity on luxury brand advertising effectiveness in the United States and China,*" explores the potential negative impact of nonverbal communication signals, specifically the intensity of an expresser's smile, on the effectiveness of luxury advertising. Developing an integrated conceptual model based on the social-functional account of emotions and the stereotype content model of social judgments, I find that a neutral expression (vs. a slight and broad smile) of the expresser enhances luxury ad effectiveness by serially mediating perceptions of the expresser's competence and ad credibility. I also identify two focal moderators—lay rationalism levels of observers and the expresser's eye gaze direction—that regulate these effects. Theoretically, I add the relevant literature on nonverbal communication of emotions and the psychology of luxury branding. My empiricism extends the conceptual understanding of facial expressions of basic emotions by positioning smile intensity as a nonverbal disabler of luxury advertising effectiveness. Methodologically, I report a rigorous approach for studying and assessing smile intensity, through a multi-method triangulation. Managerially, I articulate tactical recommendations for luxury brand businesses and marketers as a whole to leverage the morphological characteristics of facial expressions in their ad design and positioning strategies.

In setting the overarching conceptual rationale for this dissertation, I draw upon the ontological perspectives of the affect-cognition theory of decision-making (Cristofaro, 2020), which builds upon earlier critical consumer models that explore the interplay between affect and cognition (Shiv and Fedorikhin, 1999). This approach also integrates principles from social cognitive theory (Bandura, 2001) and dual process theory (Tversky and Kahneman, 1992, 1974). In any consumer decision-making, two conceptual systems typically operate concurrently: an experiential system, which is affective and associated with quick, instinctive processing, and a

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rational system, which is cognitive and involves slower, more deliberate processing (Cristofaro, 2020). Affect refers to the underlying experiences of feelings, emotions, attachments, or moods, encompassing a broad spectrum of emotional states, both positive and negative (Watson and Spence, 2007). These affective states, which can occur at individual, dyadic, or group levels, influence each other through emotional contagion, ultimately shaping the communal affective states that contribute to decision-making processes (Shiv and Fedorikhin, 1999).

On the other hand, cognition is defined as the processes by which sensory input is transformed, reduced, elaborated, stored, retrieved, and utilized. This includes the dual activities of information collection and processing (Bandura, 2001). Consumer decision-making is closely tied to psychological functioning, primarily because judgments involve the cognitive aspects of making decisions (Hunt, 2002). Specifically, the representation of objects, goals, and actions in a decision-making scenario is also based on cognitive representations of the problem itself (Cristofaro, 2020). Consequently, potential distortions in consumer decision-making are inherently linked to consumers' cognitive functions and capabilities. In this context, cognition is viewed as an active process, where individuals interact with the world and adapt to social contexts, deriving mental impressions that simultaneously form their judgments (Shiv and Fedorikhin, 1999). From this perspective, behavior and cognition are deeply intertwined with sensemaking process, seen as a dynamic, adaptive, and active interplay between emotion and thought.

Drawing from this theoretical foundation, this dissertation investigates the affective and cognitive factors that form integral and indivisible components of the consumer's regulatory response system, crucial to the luxury consumer decision-making process. Building on the principles of the affect-cognition theory of decision-making (Cristofaro, 2020; Shiv and Fedorikhin, 1999), I propose that the evolving interplay between affect and cognition aligns with consumer sensemaking process, which is understood as a socially constructed activity. This

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interplay interacts with both verbal and non-verbal exchanges, including value perceptions and facial expressions, within the consumers' physical and social environments. This expectation is also in line with dual process theory of Tversky and Kahneman (1992, 1974). Through this perspective, it is plausible to suggest that consumers depend on their affective and cognitive states when forming value perceptions and judgments towards luxury brands and whilst responding to their social responsibility initiatives and nonverbal communication strategies. However, the extent of this reliance may vary; some consumers might lean more heavily on affect, while others may rely more on cognition.

In an integrative manner, this dissertation delves into the interplay between affect and cognition to explore consumer characteristics and their responses to luxury brand communication strategies. In this pursuit, my research underscores the interaction among ethical brand communication, nonverbal cues, and consumer psychology to dissect consumers' affective and cognitive mindsets. This conceptual rationale guides the present research focus towards understanding the consumer's perception of luxury. The insights gained from this dissertation enrich our understanding of luxury brand marketing by providing a cohesive framework that effectively engages consumers using perceptive and psychological factors.

By aligning brand strategies with affect-cognition driven consumer approach, I show how luxury brands can cultivate deeper and meaningful relationships with their customers, thereby enhancing their competitive standing in the market. My approach not only underscores the importance of consumer engagement but also positions ethical communication and nonverbal marketing as central elements in the domain of socioemotional luxury branding.

Consequently, the focal contribution of this dissertation is its demonstration of how effectively integrating value perceptions towards social responsibility with nonverbal communication strategies, can elevate luxury branding from mere transactions to deep socioemotional interactions, shaped by affective and cognitive influences. The unifying

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conceptual framework of this dissertation is illustrated in Fig.4 as follows.

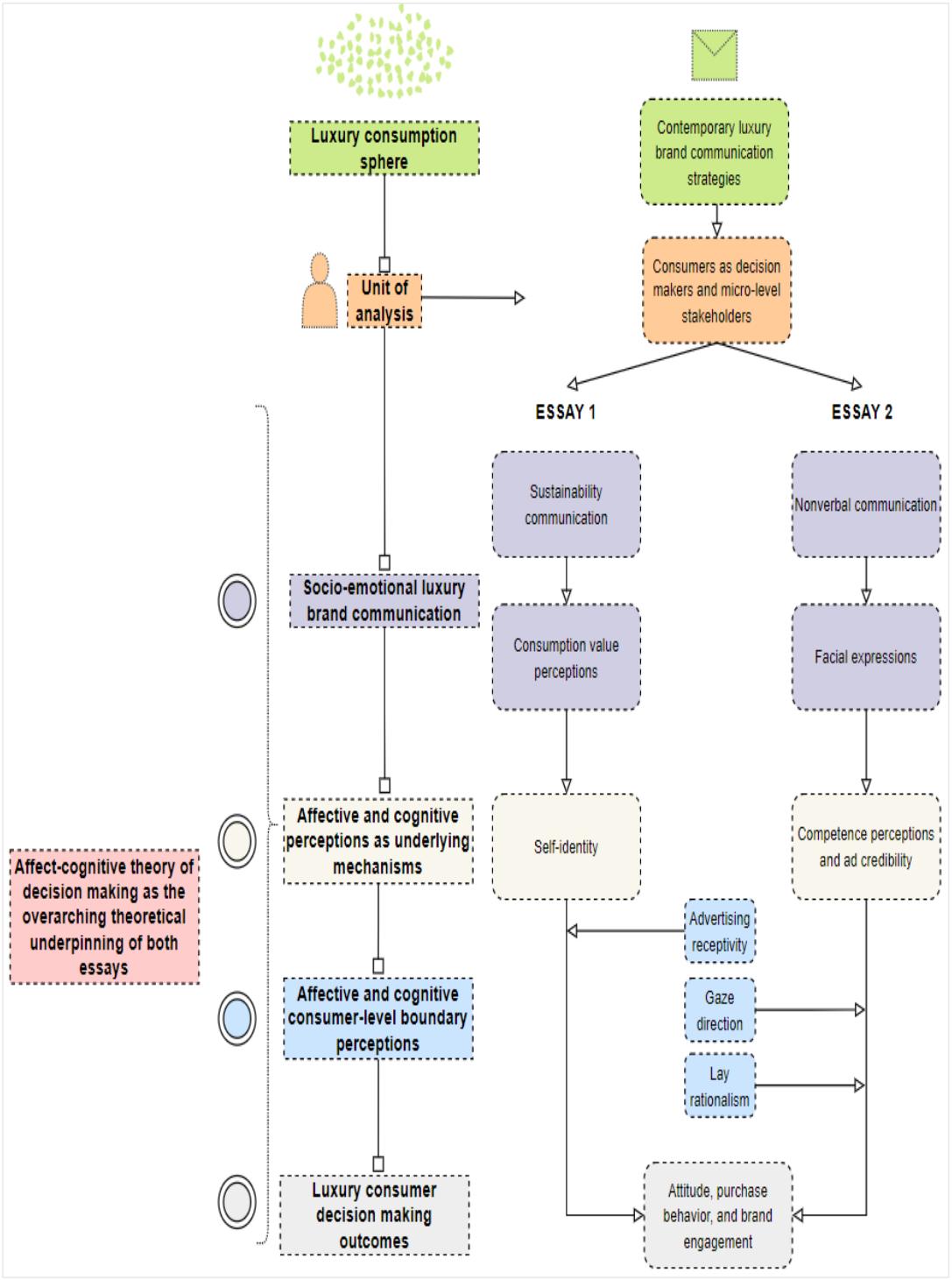

Fig.4. Overarching conceptual framework of the dissertation: Integration of Essay 1 and Essay 2.

Source: The author's own creation.

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Combined, my dissertation contributes to a deeper understanding of consumer engagement with luxury brands in an era marked by sustainability and digital nonverbal cues. The common thread across my two essays is the exploration of consumer reactions to modern luxury brand communication strategies. Collectively, both essays unpack theoretically relevant underlying mechanisms and several boundary conditions. In this manner, I provide robust insights into the consumption and purchasing stages of luxury consumption behavior, concentrating on individual reactions towards brands and products.

Diverging from earlier studies that investigated the motivations behind acquiring luxury goods (e.g., Park et al., 2022), my research delves into the psychological and behavioral impacts of owning luxury products. Across both essays, I explore the real-world consumption experiences or advertising scenarios associated with luxury goods. These essays specifically examine the intrapersonal effects and behavioral responses elicited by interactions with luxury brand communication.

In the two essays, I employ a multi-method approach, collecting structured survey data, secondary field data, large-scale online field studies, and controlled online experiments to gain a triangulated view on the roles of social responsibility and nonverbal behavior in luxury brand marketing and examine their pervasiveness in both hypothetical and real-world setups. My essays encompass participants from the United States and China, focusing on actual luxury consumers who regularly use and purchase conspicuous products. I explore the focal effects across various product types, covariates, and replicable marketing environments. All of these allow me to establish high internal and external validity, augmenting the timely relevance and practical utility of my inferences. Last but not least, it is noteworthy that I further discuss the overarching theoretical, methodological importance, and external relevance of this dissertation for other stakeholders including public policy makers and consumer protection agencies in the integrated conclusion chapter. In what follows, I present the two essays and explicitly demonstrate how

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consumer engagement with luxury brands is not merely a transactional encounter but is influenced by a complex interplay of psychological processes. Meticulously, I report the findings from five pretests and six preregistered main studies that propose novel interventions and agenda for future luxury brand marketing research.

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ESSAY 1 CHAPTER | Predicting the value-based determinants of sustainable luxury consumption in the United States: A multi-analytical approach and pathway to sustainable development in the luxury industry

Abstract

Concern for the environment is prevalent among luxury consumers and sustainable development has become a pervasive theme in the luxury industry. However, there has been limited empirical research on the burgeoning area of sustainable luxury aimed at profiling the characteristics of sustainable luxury consumers. In this research, we explore how value perceptions impact consumers' purchase intentions for sustainable luxury products by building an integrated predictive framework based on the theory of consumption values. We deploy a hybrid partial least squares structural equation modeling–artificial neural network approach with additional importance-performance map analyses to study a sample of 894 luxury consumers in the United States. The empirical findings show that sustainable luxury is profoundly value-driven. After accounting for linear and non-linear patterns, functional, emotional, epistemic, conditional, and green consumption values exhibit significant positive impacts on purchase intention, with the exception of social value that shows insignificant influence on purchase intention. Further, we elucidate a theoretically grounded mediator (conspicuous ethical self-identity) and a moderator (green advertising receptivity) that buffer the link between consumption values and purchase intention. We also uncover cross-generational disparities, in which millennials–compared to Gen X–display greater conspicuous ethical self-identity as well as higher levels of green advertising receptivity and purchase intention. From a theoretical perspective, this research contributes to the sustainability marketing literature and advances our understanding of the psychographic, behavioral, and demographic factors that influence sustainable luxury consumption. This research also offers insights for luxury brand practitioners on how to leverage multidimensional value perceptions in their sustainable product positioning and communication approaches.

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Keywords: ethical self-identity, generational cohorts, green advertising receptivity, purchase intention, sustainable consumer behavior, sustainable development, sustainable luxury, theory of consumption values

Research Highlights

• This research is the first to examine the impact of value perceptions on sustainable luxury fashion purchase intention from the perspective of the theory of consumption values (TCV).

• The generic TCV paradigm is integrated with three new constructs: green consumption value, conspicuous ethical self-identity, and green advertising receptivity.

• The multi-analytical study is based on data from 894 luxury fashion consumers in the United States.

• Green consumption value, emotional value, and epistemic value are the three most significant contributors to sustainable luxury fashion purchasing.

• The research demonstrates cross-generational disparities between Gen Y and X in sustainable luxury fashion orientations.

Essay Information

• This essay was published as an open-access research article in the Business Strategy and the Environment (BSE) Journal, Wiley (IF: 13.4, CS: 17.8, ABS: 3*, ABDC: A, Q1). The publication is available at this link: https://doi.org/10.1002/bse.3569

• This essay was also published as an extended abstract in Research Innovations in Sustainable Marketing (RISM 2023) global symposium proceedings. The publication is available at this link: https://doi.org/10.51300/BRP-2023-87

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1. Introduction

"*Luxury and sustainability are one and the same. We create for the long run. That's what luxury is.*"–*Laurent Claquin, President of Kering Americas*

Sustainable production and consumption have become important value-added cornerstones of business and marketing strategies. It is at the epicenter of consumers' growing awareness concerning the detrimental environmental impacts of overconsumption patterns (Peattie, 2010; White et al., 2019). The mounting research on sustainable consumption has recurrently focused on purchase determinants of low-involvement and low-indulgence fast-moving consumer goods (FMCGs) such as natural foods (Chakraborty and Dash, 2023), fair-trade drinks (Gohary et al., 2023), eco-labeled household cleaning products (Lin and Huang, 2012), and energy-saving lightbulbs (Yan et al., 2021), among others. This ongoing interest in FMCGs inhibits our understanding of how sustainability influences the decision-making process of consumers for a wide spectrum of high-end goods and services considering differences between FMCGs and high-end products with regards to consumer motivations, price sensitivity, and perceived value (e.g., Wiedmann et al., 2009). Accordingly, our knowledge of FMCGs may not be readily transferred to luxury consumption settings (see Osburg et al., 2021 for a further consideration of this issue). Although research has expanded the scope of sustainable consumption across numerous industrial contexts, including but not limited to travel (Bhutto et al., 2022), tourism (Apak and Gürbüz, 2023), and digital technologies (Laukkanen et al., 2022), the luxury landscape has been surprisingly understudied.

Hitherto, equivocal connotations between the concepts of luxury and sustainability have inevitably constrained the study of sustainable luxury consumption, in which luxury is long coupled with ostentation and beyond-necessity consumption habits, whereas sustainability is linked to moderation, ethics, and the conservation of natural resources (e.g., Achabou and Dekhili, 2013). If both terminologies were mutually exclusive constructs, there would be no

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demand for sustainable luxury brands today (Vanhamme et al., 2023). In essence, the early thematic symposium (Osburg et al., 2021) and growing empirical base (e.g., Carranza et al., 2023; Pai et al., 2022) corroborate the optimistic view that luxury and sustainability go hand in hand as both concepts emphasize several common rudiments (e.g., craftsmanship, durability, rarity, and heritage). This development is accompanied by real-world practices; for instance, Louis Vuitton uses eco-friendly materials (e.g., organic cotton) and develops sustainable product lines to reduce its carbon footprint by 55%, and Gucci has publicized making 100% of its raw materials traceable by 2025. Both are examples of juxtaposing luxury with sustainability in their business strategies (Park et al., 2022).

In this regard, the term "sustainable luxury" is understood to encompass ethically and socially conscious design, production, and consumption. This concept focuses on rectifying several perceived wrongs within the luxury industry, such as environmental degradation, human exploitation, and animal cruelty (Bendell and Kleanthous, 2007; Athwal et al., 2019). Sustainable luxury consumption thus signifies a meaningful intersection of luxury and sustainability, underscoring the transformation of luxury consumer behavior in response to the increasing global emphasis on sustainability. From a consumer's perspective, we define sustainable luxury consumption as the ability of individuals to consume luxury goods and services with sustainable attributes so as to enhance their social-environmental well-being without jeopardizing the ability of future generations to fulfill their own needs. The above definition is congruent with the holistic perspective of sustainable development (United Nations, 2015) and past generic operationalizations of the construct (e.g., Amatulli et al., 2021). This view of social-environmental well-being in sustainable luxury consumption aligns with the macro perspective of Pai et al. (2022). It refers to the prosperity and quality of life of consumers and communities, achieved through luxury consumption practices that maintain and enhance the natural environment, foster social equity, and support sustainable economic growth.

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As sustainable luxury practices are gaining traction in the marketplace, it becomes imperative for researchers to comprehend the reasons why consumers purchase sustainable luxury and what they think sustainable luxury is. This delineates the aim of the present research. Understanding these questions is important for multiple stakeholders. For consumers, the allure of luxury has traditionally been associated with indulgence and a demonstration of socio-economic status (Kim et al., 2022). This research is beneficial for them to align their status motives with growing environmental awareness, ensuring a balanced relationship between consumption aspirations and ecological imperatives. It helps consumers to make informed sustainable luxury purchase decisions. For luxury brands, the luxury market battle has transitioned from merely economic and financial factors (e.g., sales and profits) to embracing sustainable measures that meet the expectations of consumers (Shashi et al., 2021). This research is crucial for them to effectively hunt sustainable luxury consumers' evolving mindset (Peattie, 2001). Armed with this knowledge, luxury brands may adjust their strategies to improve green brand equity and ensure mutual benefit, aligning their products with consumer beliefs.

For governmental bodies, sustainable luxury consumption extends beyond market dynamics, representing a notable shift in societal practices (Kunz et al., 2020). This research is essential for them to recalibrate policies and propel society towards a future where luxury and sustainability are not antithetical but symbiotic. Such a shift may uphold the feasibility of the United Nation's 2030 Sustainable Development Goal (SDG-12) in the global luxury industry (United Nations, 2015). In summation, the conjoined stakes of these parties emphasize the essentiality of probing into the core values shaping sustainable luxury consumption.

At this juncture, the contemporary debate on sustainable luxury has revolved around the perceived fit of the two concepts (i.e., sustainability vs. luxury) (Osburg et al., 2021) and corporate social responsibility (CSR) communication practices (Amatulli et al., 2021); hence, individual-level factors guiding sustainable luxury engagement have received comparatively scant

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attention (see Athwal et al., 2019; Kunz et al., 2020; Shashi et al., 2021 for comprehensive systematic reviews). This does not, however, negate the fact that behavioral responses towards luxury and sustainable goods can be strongly influenced by consumption value disciplines encompassing personal and social-adjustive components (White et al., 2019; Wiedmann et al., 2009). Accordingly, the question at stake is whether value perceptions motivate or demotivate consumers to purchase sustainable luxury.

Past research on this question has predominantly remained exploratory and conceptual (Cervellon and Shammas, 2013; Hennigs et al., 2013; Jain, 2019; Kelleci, 2022). Whilst some studies have provided preliminary empirical insights (Ali et al., 2019; Wang et al., 2021; Yang et al., 2022), they have only tested a small subset of value dimensions (e.g., exclusivity, hedonic, materialistic, and social values), and others seldom used a unified value-driven theoretical framework (e.g., Sun et al., 2022). Decisively, the direction and magnitude of focal effects in these former works are distorted and subject to measurement errors, as they merely presume linear interactions between value perceptions and sustainable luxury purchases with simple regressions, thereby failing to account for other extraneous effects with non-linear predictive modeling methods (e.g., neural networks) (for further reflection on this critique, see Wiedmann et al., 2009, p.644). Past literature has also left largely unmapped questions pertaining to the roles of boundary mechanisms (mediators and moderators) influencing consumers' ability to translate perceived values into actual usage of sustainable luxury products, which, in turn, could aid in bridging the salient value-action gap (Essiz et al., 2023).

A final void to note is the paucity of sustainable luxury research probing cross-generational differences. Han and Kim (2020) noted significant variations between Millennials (Gen Y) and Gen X in consumption behaviors of luxury brands. Nevertheless, much less is known in the ambit of sustainable luxury (Kapferer and Michaut-Denizeau, 2020; Rolling and Sadachar, 2018), making it indispensable to consolidate opinions of these two cohorts, as they are

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expected to make up 88% of the global luxury sales by 2025 (Statista, 2023a). These gaps in the literature are tackled in this paper.

Drawing upon the preceding discourse, this research explores the roles of six consumption values (functional (FUV), social (SOV), emotional (EMV), epistemic (EPV), conditional (COV), and green (GRV)) on sustainable luxury purchase intention (PUI). The theory of consumption values (TCV) of Sheth et al. (1991) is used to empirically lay out how sustainable luxury choice behavior is a permutation of multiple value orientations. The TCV is a parsimonious micro-lens to quantify the multifaceted nature of sustainable luxury consumer behavior, reasoning that sustainable luxury products are often used to signal consumption value systems (Wang et al., 2021). Prior research aligned with the TCV underscores that the foundation of consumers' context-specific behavioral responses is elucidated with mediation and moderation processes (Chakraborty and Dash, 2023). In this paper, the TCV is scrutinized in conjunction with conspicuous ethical self-identity (CES) as a proposed mechanism and green advertising receptivity (GAR) as a moderating factor to explicate the individual-level variables impacting the value-intention consistency.

Examining the mediating effect of CES holds theoretical significance, reflecting that ethical self-identity has been recognized as a behavioral motivator (White et al., 2019) and is instrumental in understanding the determinants of (un)sustainable consumption patterns (Lavuri et al., 2023). Grounded in self-congruity and extended self-views, consumers typically choose products that align with their ethical self-identity, and that self-identity is a reflection of their attitudes, beliefs, and values (Belk, 1988; Sirgy, 1986). Prior research underscores the importance of linking consumption values to inner psychographic mechanisms (ethical self-conceptions) to encourage tangible sustainable behaviors (Van der Werff et al., 2013). This suggests that CES is an essential locus in the development of sustainable luxury behavioral patterns as well as can be amplified by consumer value judgments.

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Furthermore, GAR stands as a prominent boundary condition in the nexus between consumption values and PUI, given that green luxury advertising has a potent impact on consumers' purchase intentions (Dai and Sheng, 2022). Fundamentally, green advertising assists consumers in recognizing the perceived utilities of sustainable luxury products (Sun et al., 2021). However, the extent to which consumers are receptive to this varies. Such variation gives rise to the question of what factors lead some consumers to be more green-receptive than others? For green luxury communication to effectively influence behavior, it is imperative to decode both the process by which green ads are translated into sustainable actions and their interplay with consumers' intrinsic motivations (Apaolaza et al., 2022). Thus, variations in consumers' GAR, arising from value-based brand communication signals accentuate the need to demonstrate the moderating effect of this construct within the TCV's nomological network.

Finally, the paper seeks to shed light on the sensitivity of two generational cohorts (Gen Y vs. X) to sustainable luxury purchases in consort with CES and GAR. The rationale behind focusing on these cohorts is justified in Sec. 3.9. By examining the ways in which these cohorts interact with sustainable luxury products and their respective value perceptions, this research aims to provide a nuanced understanding of how generational differences influence sustainable consumption behaviors. This exploration is vital for developing targeted marketing strategies that resonate with the ethical inclinations of each cohort.

The present research makes several unique theoretical, methodological, and managerial contributions to the existing literature. Theoretically, we provide a conclusive understanding of value perceptions and choice behavior in relation to sustainable luxury consumption within the empirical context of the United States (U.S.). We do this by building an integrated theoretical model grounded in the TCV and demonstrating its predictive validity in the domain of sustainable luxury. Methodologically, we employ the partial least squares structural equation modeling (PLS-SEM) approach and substantiate its predictions with importance-performance

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map analyses (IPMAs) and deep learning-driven artificial neural network (ANN) models to present a more rigorous testing method that captures linear and non-linear effects of behavioral responses vis-à-vis sustainable luxury choices. Our choice of a hybrid PLS-SEM-ANN approach is motivated by both the theoretical need to capture the complexity and multidimensionality of sustainable luxury consumption more accurately, and the methodological advantages of predictive accuracy, interpretability, fault tolerance, and validation offered by ANNs over other machine learning methods (e.g., cluster analysis and support vector machines; Haykin, 2009).

Practically, we offer suggestions for luxury brands seeking to optimize their sustainable business strategies, containing enhanced sustainable product positioning and effective management of green communication through segmentation based on multiple value perceptions, ethical self-identity, advertising receptivity, and demographic differences.

In the remaining parts, we consecutively provide a literature review/theoretical background (Sec. 2) and conceptual grounds (Sec. 3) for our hypotheses. Next, we report the methodological design (Sec. 4) and analysis (Sec. 5) of the empirical study, followed by the discussion of findings (Sec. 6) along with their implications, limitations, and future research avenues (Sec. 7). In the end, we deliver concluding remarks (Sec. 8).

2. Literature review and theoretical background

2.1. Current perspectives on sustainable luxury consumption

At first glance, the principles and objectives of luxury consumption might appear to clash with those of sustainability. Ever since Bendell and Kleanthous (2007) pointed out the concept of sustainable luxury as a separate construct, scholarly research has been actively debating whether luxury consumption ideologically aligns with sustainability. The ongoing discourse presents two contrasting philosophical viewpoints: (1) an old-school perspective portraying luxury and sustainability as two incongruent concepts (e.g., Achabou and Dekhili, 2013), and (2) a new-school perspective showing their compatibility (e.g., Pai et al., 2022). On the one side, the old-

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school perspective of sustainable luxury is rooted in the simplistic postulation that this contradiction relates to their DNA: luxury consumption is predominantly linked to materialism, personal gratification, and conspicuousness, while sustainability centers around ethics, altruism, restraint, and sobriety (Bendell and Kleanthous, 2007). From this perspective, Davies et al. (2012) showed that if luxury consumers think a non-sustainable luxury product offers more prestige, they might choose it over a sustainable alternative. Further, Achabou and Dekhili (2013) found that using sustainability elements (e.g., recycled materials) in luxury products can adversely influence how consumers view them. This finding argues that when a luxury brand emphasizes the concept of sustainability, it counteracts some of the traditional values or needs linked to luxury consumption. Later on, Kapferer and Michaut-Denizeau (2014) contended that luxury consumption goes against the tenets of sustainable development, especially when consumers view luxury as superficial and a source of societal discord.

On the other side, the new-school perspective of sustainable luxury offers a more optimistic outlook by suggesting that sustainability features can enhance the appeal of luxury brands when it comes to consumer evaluations. A linchpin of this view is that luxury serves as the ideal basis for products upholding environmental and social values (Amatulli et al., 2021). In backing up this view, recent studies have broken down the concept of sustainability into sub-dimensions, demonstrating that certain sustainability elements align with luxury values. Drawing from this contextualization, Pai et al. (2022) argued for the compatibility of sustainable and luxury consumption, as they are both anchored in the key values of craftsmanship, rarity, and durability. Embracing these luxury values might indirectly suggest a more sustainable consumption approach through the preservation of natural resources. This view is further reinforced by Park et al. (2022), who demonstrated that perceived product scarcity can effectively enhance luxury-sustainability fit and strengthen the attitude-willingness to pay relationship.

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Likewise, Alghanim and Ndubisi (2022) emphasized that consumers often observe less disparity between luxury and sustainability, noting that luxury goods are frequently viewed as superior-quality and long-lasting. These traits complement the features of sustainable consumption. Additionally, premium prices and timelessness associated with luxury goods suggest a lower frequency of consumption and prolonged utility over time, allying once again with notions of sustainability and self-transcendence (i.e., enhanced affinity for the environment and the well-being of others) (Carranza et al., 2023; Shashi et al., 2021). While no clear consensus has been achieved regarding these two controversial viewpoints, the old-school perspective is mostly embodied in earlier streams of studies (e.g., Kapferer and Michaut-Denizeau, 2014). Promisingly, more recent works have repeatedly found empirical evidence to advocate the new-school perspective, as they investigate the factors motivating consumers to gravitate towards sustainable luxury (Kim et al., 2022; Vanhamme et al., 2023; Wang et al., 2021).

One plausible explanation for their effects is the variation in how consumers engage with sustainable luxury, specifically through central versus peripheral processing (Athwal et al., 2019). This is sensible considering that the global sustainable luxury market is witnessing a surge in interest, which is positively shifting new luxury consumers' social and environmental attitudes, thereby helping them to make more systematic consumption decisions. Along these lines, the increasing trend of sustainability becoming "*cool*" in recent years is noteworthy, particularly as luxury brands are frequently associated with celebrities who advocate for sustainable practices. High-profile endorsements (e.g., sponsored messages) and public discussions about sustainability by celebrities and influencers have a significant impact on consumer behavior and drive interest in sustainable products (Kapoor et al., 2022). As a result, it is reasonable to expect that luxury consumers, influenced by these endorsements, may increasingly seeking out sustainable luxury options (Vanhamme et al., 2023).

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Putting aside the philosophical disputes surrounding sustainable luxury, the question of whether consumers perceive a match between these two concepts also hinges on their intrinsic motivations and identities (e.g., Athwal et al., 2019; Vanhamme et al., 2023). Table 1 offers a contextualized snapshot of the nascent research stream that addresses this topic and positions the present research. To delve into this conundrum, Cervellon and Shammas (2013) employed the visual elicitation method with participants from Canada, UK, France, and Italy. Their findings indicated that sustainable luxury value could be divided into three main categories: socio-cultural, ego-centered, and eco-centered. In a conceptual study, Hennigs et al. (2013) classified luxury sustainability values into four segments: financial, functional, individual, and interpersonal. Building on the self-determination theory, Ki and Kim (2016) demonstrated that two intrinsic values, specifically seeking personal style and social consciousness, were positive predictors of sustainable luxury purchases. Using Hofstede's cultural dimensions, Wang et al. (2021) found that hedonic needs augmented the propensity of UK and Chinese consumers to purchase sustainable luxury.

Collectively, this past literature espouses that consumers may prioritize different value motives when purchasing sustainable luxury. While some may desire social recognition for their engagement, others may seek personal benefits. As we navigate through this discourse, it is evident that the relationship between luxury and sustainability is multi-dimensional, and inconclusive preliminary findings detailed in Table 1 left the door open for other value-based determinants of sustainable luxury consumption. By seeing luxury and sustainability as harmonious, it becomes possible to realize the cohesive value-driven proposition of sustainable luxury brands. To move this debate forward, we thus adopt the new-school perspective and aim to find a common ground between luxury and sustainability by predicting the pertinence of six value perceptions based on the TCV.

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Table 1. Essay 1: Sustainable luxury literature on value perceptions: Positioning the present research.

Author(s) and year	Value perceptions guiding sustainable luxury preferences	Product category domain	Theoretical background	Methodological choices	Research origin	Mediator(s) and moderator(s)	Control variables
Cervellon and Shammas (2013)	(•) Ego-centered values (np) (•) Socio-cultural values (np) (•) Eco-centered values (np)	N/S	Grounded theory: An inductive framework.	(•) Qualitative exploratory study conducting interviews: Zaltman metaphor elicitation technique (ZMET). (•) Snowball sampling: 32 clients of luxury brands.	United Kingdom, Canada, France, and Italy	N/A	N/A
Hennigs et al. (2013)	(•) Financial value (np) (•) Functional value (np) (•) Individual value (np) (•) Social value (np)	N/S	Conscientious consumption and perceived consumer value typologies.	Conceptual study developing a framework on value-based sustainability excellence.	N/A	N/A	N/A
Ki and Kim (2016)	(•) Seeking personal style (+) (•) Environmental consciousness (ns) (•) Social consciousness (+)	SLFPs.	Self-determination theory.	(•) Quantitative study utilizing the online survey method: CB-SEM. (•) Judgmental sampling: 452 luxury consumers.	Caucasian (70.8%)	N/A	N/A
Ali et al. (2019)	(•) Happiness (ns) (•) Social recognition (ns) (•) Uniqueness (+) (•) Horizontal/vertical individualism and collectivism (+)	Green luxury sports car.	Costly signaling theory.	(•) Quantitative study utilizing the online survey method: CB-SEM. (•) Purposive sampling: 507 potential BMW customers.	China and Germany	Moderators: Materialism and cultural values.	(•) Age (•) Gender (•) Education (•) Income (•) Marital status (•) Country of origin
Jain (2019)	(•) Self-oriented values (self-directed, stimulation, hedonic, universalistic) (np) (•) Others-oriented values (power, achievement, security, conformity, tradition, benevolence) (np) (•) Economic value (np)	SLFPs.	Theory of planned behavior and Schwartz's theory of basic human values.	Conceptual study developing a framework to classify value-based factors related to purchase behavior of sustainable luxury.	N/A	N/A	N/A
Wang et al. (2021)	(•) Exclusivity value (ns) (•) Conformity value (ns) (•) Hedonic value (+)	N/S	Hofstede's cultural framework.	(•) Quantitative study utilizing the online survey method: CB-SEM. (•) Quota sampling: 677 luxury consumers.	China and the United Kingdom	N/A	(•) Age (•) Gender (•) Education (•) Income (•) Employment status (•) Price sensitivity
Sun et al. (2022)	(•) Conspicuous value (+) (•) Aesthetics value (+) (•) Quality value (+)	Luxury vegan leather products.	Theory: N/S.	(•) Quantitative study based on an online survey and linear regression analyses. (•) Non-probability sampling: 270 millennial consumers.	United Kingdom	N/A	N/A
Yang et al. (2022)	(•) Value for money (+) (•) Hedonic value (ns) (•) Social value (+)	SLFPs.	The theory of perceived value.	(•) Quantitative study utilizing the online survey method: PLS-SEM. (•) Convenience and snowball sampling: 935 luxury consumers.	China	N/A	N/A
Alghanim and Ndubisi (2022)	(•) Conspicuous value (+) (•) Unique value (+) (•) Quality value (+) (•) Social value (+) (•) Emotional value (-)	SLFPs.	Luxury-seeking consumer behavior framework.	(•) Quantitative study based on an online survey: Hierarchical regression and stepwise discriminant analyses. (•) Convenience sampling: 348 luxury consumers.	Qatar	Moderator: Monthly income.	N/A
The present research	(•) Functional value (+) (•) Social value (ns) (•) Emotional value (+) (•) Epistemic value (+) (•) Conditional value	SLFPs.	Theory of consumption values.	(•) Quantitative study utilizing the online survey method: PLS-SEM-ANN-IPMA approaches. (•) Purposive and quota sampling: 894 luxury fashion consumers.	United States	(•) Mediator: Conspicuous ethical self-identity. (•) Moderator: Green advertising receptivity.	(•) Age (generational disparities) (•) Gender (•) Education (•) Income (•) Employment status (•) Perceived social class

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	(+) (•) Green value (+)						
Note. SLFPs = Sustainable luxury fashion products; CB-SEM = Covariance-based structural equation modeling; N/S = Not specified; N/A = Not available; ns = Not significant; np = No prediction on the direction of influence; +/- = Positive/negative effect.							

2.2. Theory of consumption values (TCV)

Values have traditionally been regarded as quintessential, higher-order constructs in understanding the motivations behind behavioral responses and conceptualized as trans-situational goals that function as guiding doctrines in an individual's life, with varying degrees of importance and performance (Schwartz and Bilsky, 1987). Shifting consumers to behave sustainably necessitates cultivating their foundational value systems, as the choice to engage in philanthropic actions epitomizes the embodiment of consumption values (White et al., 2019). Sheth et al. (1991) introduced the TCV, which elucidates the rationale behind consumers' decisions to purchase or abstain from a specific product, product category, brand, or service. The TCV posits that consumer preferences revolve around five generic value typologies: (1) functional, (2) social, (3) emotional, (4) epistemic, and (5) conditional. These values indicate the degree to which consumer needs are fulfilled through the comprehensive evaluation of net utility or satisfaction related to a consumption situation.

Fundamentally, the TCV is grounded in three core propositions: (1) consumer choice is influenced by multiple consumption values, (2) the impact of each value varies significantly in any given consumption context, and (3) consumption values are independent of one another (Sheth et al., 1991). In agreement with the second proposition, this study focuses on the luxury fashion context. Indeed, sustainability practices are pertinent in luxury fashion, as evidenced by the assortment of its products, services, and movements (e.g., slow fashion) (Bendell and Kleanthous, 2007). However, the central emphasis of this paper is not to argue whether the luxury fashion sector can genuinely attain sustainability. What is of interest to this paper is to undertake a systematic examination of consumers' values towards sustainable luxury for fashion

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products, aligning with the relevant research trajectory to offer a more targeted measurement approach (see Table 1, product category domain).

Concerning the third proposition, research suggests that incorporating additional context-specific values can bolster the explanatory capacity of the TCV in sustainable consumption (Khan and Mohsin, 2017; Tanrikulu, 2021). As such, this study integrates Haws et al.'s (2014) green consumption value within the framework of the TCV, aiming to examine its predictive validity. The inclusion of GRV as a sixth value dimension is theoretically rigorous since Haws et al. (2014) position GRV within a broader nomological net that encompasses not only the preservation of environmental resources but also financial, psychological, and physical resources (e.g., sustainable luxury items). It is a conceptually distinct value from the other five values in the TCV and facilitates a more in-depth comprehension of luxury consumers' moral responsibilities and environmental concerns. We will fold up this construct in Sec. 3.6 thoroughly. Cogently, all consumption values will serve as independent variables in this study.

Taken together, we choose the TCV as a fitting theoretical lens for three reasons. First, luxury is a fuzzy concept that is often aggregated by multiple value dimensions: individual (e.g., emotional, hedonic), functional (e.g., quality, utilitarian), social (e.g., prestige, conspicuous), and financial (e.g., price) aspects (Apaolaza et al., 2022; Wiedmann et al., 2009). The value-based dimensions of the TCV largely encompass these aspects, capturing the perceived utility derived from both self and social considerations. Reflecting on the personal and interpersonal motivations for sustainable luxury consumption (e.g., Ali et al., 2019), it is reasonable to posit that different consumer groups would have varying perspectives on the consumption value of sustainable luxury brands and products. In this regard, the TCV allows us to thoroughly comprehend the differences in cognitive and affective behavioral responses to sustainable luxury choices.

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Second, the TCV is applicable to decisions involving a broad spectrum of product types (e.g., consumer durables and nondurables) (Sheth et al., 1991). It has proven its ability to predict choice behavior in over 200 consumption contexts, including low and high-involvement sustainable product categories such as organic foods (Chakraborty and Dash, 2023), plant-based meat alternatives (Bhattacharyya et al., 2023), green information technology products (Biswas and Roy, 2015), and green electric vehicles (Bhutto et al., 2022), among others. While the TCV predominantly predicts consumers' behavioral patterns, it would be an oversimplification to assert that the effects of value dimensions are consistent across all types of sustainable product categories. This demonstrates the relevance of applying the TCV to context-specific (high-end) sustainable consumption settings, thus motivating the current study to contextualize the value components of sustainable luxury fashion products (SLFPs). With our definition of sustainable luxury consumption in mind (revisit Sec. 1), we refer to SLFPs as luxury fashion goods that utilize eco-friendly raw materials and/or are created through socially responsible processes.

Third, albeit TCV constructs may act as precursors to sustainable consumption behaviors (e.g., Chakraborty and Dash, 2023; Srivastava and Gupta, 2023), researchers have not previously incorporated the TCV to predict sustainable luxury consumption. The preceding discourse suggests that the role of each value may undergo positive or negative alterations within the context of sustainable luxury. Therefore, it is imperative to discern their changing roles to understand the characteristics of sustainable luxury consumers. While other generic value typologies (e.g., Schwartz's theory of basic human values and Hofstede's cultural dimensions) (see Table 1) can be useful in understanding sustainable luxury consumer behavior from a broad perspective, they may not fully capture the nuances of product-based consumption values. This provides an additional rationale for employing the TCV as the foundational framework of our study.

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2.3. Inclusion of additional constructs in the TCV

Strictly speaking, TCV posits that the relationship between consumption values and behavioral intentions follows a causal chain (i.e., a direct link), in which consumers seek to maximize their utility during the decision-making process (Sheth et al., 1991). From this perspective, some sustainable consumption theorists view consumer values as closely correlated, if not wholly conterminous with behaviors (e.g., Peattie, 2010). However, it is also evident that sustainable purchase decisions are not solely determined by consumption values, which highlights the ubiquitous yet elusive value-behavior discrepancy (i.e., green gap phenomenon) (Chaihanchanchai and Anantachart, 2023). In the context of sustainable luxury consumption, this discrepancy transforms into an even more intricate value-behavior paradox. For instance, past research indicates that while many luxury consumers profess a staunch belief in sustainability, their purchase behaviors do not consistently mirror this commitment (Park et al., 2022). This inconsistency can largely be attributed to ideological distinctions in the notions of luxury and sustainability (see Sec. 2.1), resulting in situations where other factors (e.g., psychographic, contextual, social, and cultural) act in conjunction with consumers' intrinsic values.

Given this backdrop, TCV's linear interpretation does not encompass processing and boundary conditions that might alter the value-action link. To push the frontiers of TCV and understand psychographic factors by which value perceptions shape purchase intention, this study incorporates CES and GAR. These constructs may not only enrich the TCV framework but also help to navigate the complexities of sustainable luxury purchasing. While TCV rationalizes the question of "*why*" consumers opt for sustainable luxury, CES and GAR shed light on the "*how*" aspect, unraveling the interplay between conspicuous ethical stances, receptivity to external marketing stimulus, and value perceptions that guide purchasing decisions (Bailey et al., 2016a; Van der Werff et al., 2013). Therefore, this dual integration sets the stage for a more behaviorally precise model of sustainable luxury consumption.

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2.3.1. Conceptualization of conspicuous ethical self-identity (CES)

From a cognitive perspective, self-identity is a multifaceted concept that reflects an individual's self-perception and awareness (Sharma et al., 2020). It is per se contingent on aspects such as possessions, feelings, goals, and habits, among others (see Belk, 1988 for extended self-formulation). As seminally argued by the identity theory, consumers can possess multiple identities varying in scope and abstraction levels (e.g., behavior-specific vs. generic), depending on the consumption context (see Burke, 2003, Chapter 13). Focusing on behavior-specific identities (e.g., being an ethical luxury consumer) allows for a more nuanced understanding of identity-relevant sustainable actions (Chen, 2020). To wit, our conceptualization of CES is context-specific rather than generic identity, akin to Van der Werff et al.'s (2013) operationalization. We refer to it as the extent to which ethical considerations and environmental issues are part of consumers' self while making luxury consumption choices and the degree to which luxury consumers consider themselves to be ethically responsible.

Building on early TCV-based suppositions, we concur with Qasim et al. (2019) that consumption values are closely tied to consumers' sense of self, creating a foundation for understanding enduring ethical self-perception. Following the value-identity-behavior hierarchical pathway, research supports that consumers' ethical selves regarding the environment partially or fully mediate the influence of consumption values on sustainable behavior, as these ethical selves embody self-driven motivations and beliefs underlying such actions (Bhutto et al., 2022). Therefore, it is compelling to test CES as both a precursor to consumption values and a mediator between consumption values and PUI. We will open up this rationale in Sec. 3.7.

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2.3.2. Conceptualization of green advertising receptivity (GAR)

Marketers use green advertising strategies to engage in meaningful conversations with consumers and sustain brand loyalty (Rizomyliotis et al., 2021). Operating as an individual difference factor, GAR is conceptualized as "*the extent to which consumers pay attention to and are favorably disposed and*

responsive to advertising that uses green messages in the marketing of products or a company itself" (Bailey et al., 2016a, p.334). From an epistemological perspective, Sun et al. (2021) postulate that signaling theory enriches our comprehension of GAR. Grounded in the information economics literature, signals are used by one party to convey information to another, aiming to mitigate information asymmetry (Spence, 1973). When applied to green advertising, factors such as value-based green appeals or messages serve as signals, conveying information on a product's environmentally friendly attributes and helping consumers form inferences about the value of the product. These could potentially minimize product risk and lessen consumer ignorance if signals are deemed credible (Atkinson and Rosenthal, 2014).

Upon encountering green advertising cues (e.g., slogans), consumers are expected to form or activate feelings and judgments that shape their receptivity and behavioral reactions to the luxury brand (Mo et al., 2018; Rahman and Nguyen-Viet, 2023; Septianto et al., 2023). This receptivity, however, is not uniform across all consumers. To some, such signals represent authentic sustainability efforts, while to others, they might appear as mere corporate greenwashing. This subjectivity in consumer perspectives makes the epistemological grounding of GAR both vibrant and captivating, driving our interest to explore its significance in sustainable luxury consumption.

Transitioning to a methodological viewpoint, it is thus imperative to understand individual factors which GAR interacts with to encourage sustainable luxury purchases. Each consumer navigates the luxury market with a unique set of values and experiences that heavily shape their buying decisions (Shashi et al., 2021). Considering that not all advertising signals or cues are perceived uniformly (Atkinson and Rosenthal, 2014), their resonance might differ depending on consumption values. For instance, a consumer who places a strong emphasis on environmental conservation might react differently to the same advertising than someone who prioritizes immediate functional utility or emotional benefits. To reiterate, individual differences

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in affective and cognitive elaborations due to green luxury advertising are expected to shape the relationship between value perceptions and attitudinal responses to sustainable purchasing (Bailey et al., 2016b; Tewari et al., 2022). This points to GAR's propensity to moderate the link between consumption values and PUI, which will be further justified in Sec. 3.8.

3. Conceptual model and hypotheses development

Drawing on the background outlined above, the theoretical rationale for our conceptual framework is envisaged (see Fig.1). It builds on the TCV in the context of sustainable luxury fashion. In what follows, we propound the details of the constructs and the conceptual/empirical reasoning underlying their interconnections. For conceptual definitions of constructs, please see Web Appendix A.

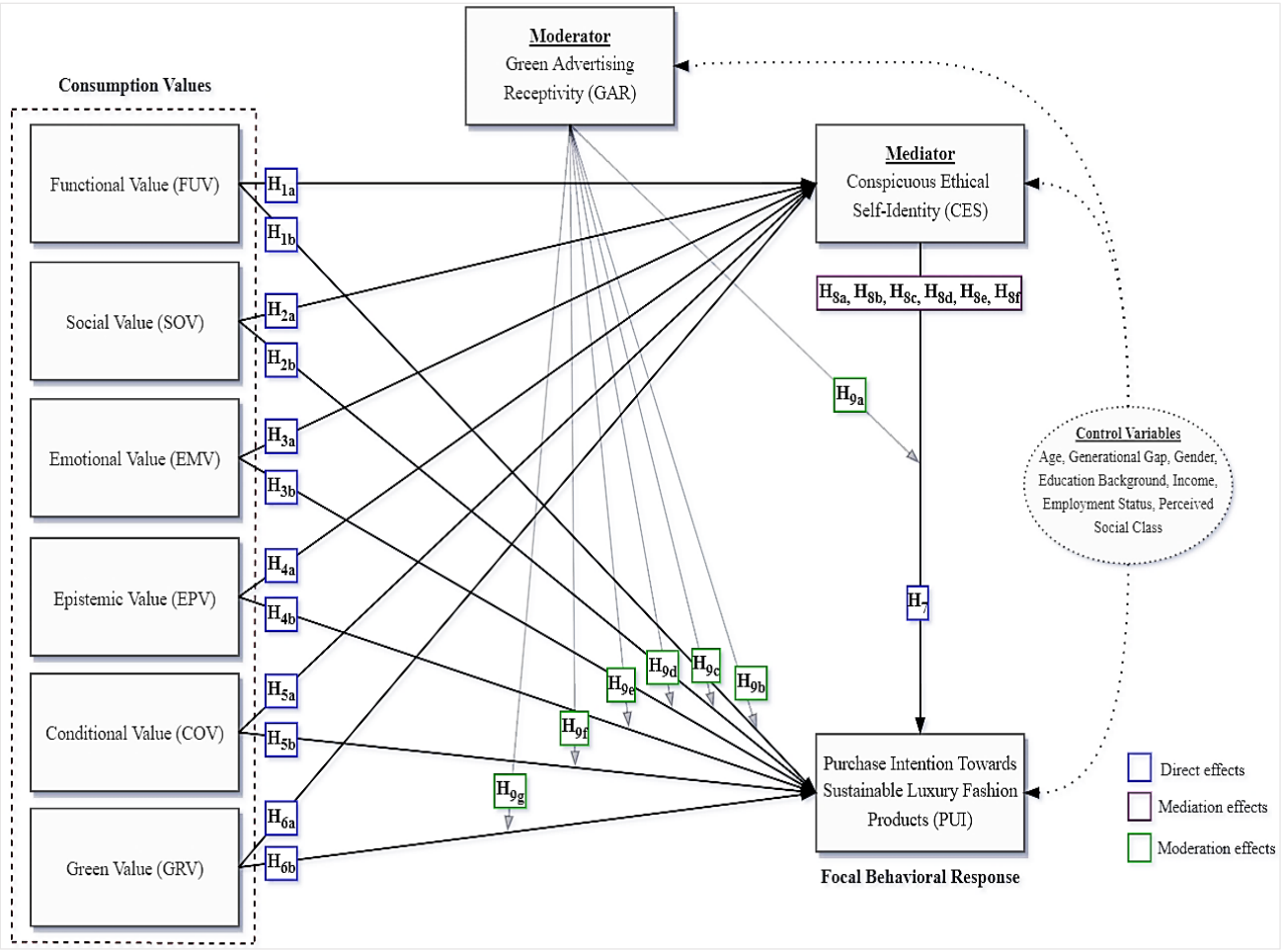

Fig.1. Essay 1: The theoretical conceptual framework and hypotheses.

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3.1. Functional value (FUV)

FUV relates to a consumer's perception of a product's or service's utilitarian (i.e., performance) and functional benefits (Sweeney and Soutar, 2001). It directly influences market demand and operates as the principal benchmark for consumers when evaluating sustainable product choices (Bhattacharyya et al., 2023). Within the luxury consumption literature, utilitarian factors such as superior quality, durability, craftsmanship, and rarity are identified as integral to luxury products, ultimately determining FUV (Jain, 2019; Wiedmann et al., 2009). Regarding sustainable luxury fashion, Hennigs et al. (2013) elucidated that sustainability excellence in luxury brands predominantly arises from consumers' subjective expectations of FUV. There is also evidence suggesting that exceptional quality in luxury goods can improve the perception of the luxury-sustainability fit. For instance, Park et al. (2022) recently demonstrated the positive influence of exclusiveness and perceived quality on the attitude-behavior relationship for sustainable luxury goods. Likewise, durability is a core component of both luxury consumption and sustainable development (Cervellon and Shammas, 2013). Matching this sentiment, Kelleci (2022) conceived that sustainable luxury fashion hinges on emotional durability, inheritability, and the vintage trend, emphasizing more contemplative processes that counteract "planned obsolescence"–a concept premeditated to make products less appealing over time or with a certain level of use.

Moreover, FUV impacts consumers' self-brand connection in luxury consumption, whereby consumers have sought to associate the importance of product quality with their self-identity (Lu and Ahn, 2022). From this perspective, we argue that consumers may utilize sustainable luxury fashion to integrate symbolic meaning into their ethical self-identity. This is consistent with past research suggesting that the functional attributes of sustainable products enable consumers to express their ethical selves and mirror their belief systems (Bhutto et al., 2022). This conjecture is plausible since sustainable luxury fashion incorporates premium craftsmanship, employs traceable materials, and adheres to sustainable development principles

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(Kunz et al., 2020). Such practices can resonate with consumers' self-appraisal and conspicuous ethical selves. Building on this past research, we extrapolate that as consumers value the functional utility of SLFPs, they will be more predisposed to nurture their ethical selves and exhibit favorable behavior towards purchasing sustainable luxury fashion. In sum, we formulate:

$H_{1(a-b)}$. *FUV positively relates to (a) CES and (b) PUI.*

3.2. Social value (SOV)

SOV pertains to the perceived utility that consumers derive from their affiliations with social, demographic, and cultural groups (Sheth et al., 1991). It is connected to the maintenance of a positive social image (i.e., prestige), and the degree to which a luxury product enhances social image significantly impacts sustainable consumer behavior (Peattie, 2010; Yang et al., 2022). Prior research advocates that social groups routinely influence aspirations and behavioral norms, with luxury consumers driven by the bandwagon effect often emulating the opinions of their reference groups or displaying collective actions to be recognized as part of the group (Alghanim and Ndubisi, 2022; Bearden and Etzel, 1982). In support of this contention, SOV can promote a shift towards more sustainable practices through processes of peer conformity and overt interpersonal interactions, which sustain reciprocal environmental consumer socialization (Essiz and Mandrik, 2022; Lissillour et al., 2024).

Within the context of this research, purchasing sustainable luxury is deemed socially acceptable and indivisibly allied to social well-being (Pai et al., 2022), conceivably motivating consumers to adhere to societal norms and seek social endorsement. Accordingly, when a specific social group adopts SLFPs, its members may be more prone to embrace the group's ethical stance on sustainability. However, this does not negate that social norms may differ based on one's ingroup. By openly purchasing SLFPs as valued material possessions, consumers can carve an extension of their selves, fostering their connection with the desired reference group (Belk, 1988). We deduce that this reference group effect could influence the choice of attributes (e.g.,

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sustainable features) primarily attached to the luxury product and subsequently transferred to the consumer. Ultimately, it helps to derive a socially constructed, conspicuous ethical self-concept that gives precedence to sustainable luxury consumption.

In this manner, reference group expertise may aid consumers in acquiring product knowledge and mitigating the perceived risk associated with their impressions and acceptance of SLFPs (Essiz et al., 2023). Previous research in the general sustainable fashion domain reinforces this stance, documenting the positive correlation between social norm identification and consumer buying behavior (McNeill and Moore, 2015). In light of the preceding review, SOV has the potential to cultivate a collective mindset that supports the development of CES and the acquisition of sustainable luxury fashion. Hence, we propose:

$H_{2(a-b)}$. *SOV positively relates to (a) CES and (b) PUI.*

3.3. Emotional value (EMV)

EMV designates the perceived utility gained from a product's or service's capacity to evoke feelings of elation or induce satisfaction in affective states (Sheth et al., 1991). It is linked to hedonic needs and serves as a powerful driving force for consumers to engage in sustainable consumption, as previous studies have demonstrated its positive influence on the choice of sustainable products (Chakraborty and Dash, 2023; Khan and Mohsin, 2017). Concurrently, prior luxury research has shown that consumers mostly seek affective benefits (e.g., hedonic motives) and sensory pleasures in luxury experiences (Han and Kim, 2020). Sustainable luxury fashion consumption ratifies these utilities. Within the framework of this study, it is predicated that SLFPs cause less harm to the environment and are often perceived as more authentic compared to traditional luxury fashion alternatives (Athwal et al., 2019). Therefore, the moral satisfaction of protecting the environment by purchasing SLFPs can assist consumers in deriving EMV. In parallel with this argument, past literature suggests that sustainable luxury fashion has the licensing power to absolve consumers from psychological costs (e.g., the feeling of guilt) (Wang

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et al., 2021) and provide added intangible emotional benefits (e.g., pride, gratitude, and joy) (Septianto et al., 2021).

Building on this discussion, we conceive that these emotional utilities have the capacity to enhance consumers' CES and PUI. By adopting SLFPs, consumers may be involved in a positive feedback loop that ties their EMV with CES and PUI. This effect is plausible to anticipate given that sustainable luxury brand communication often incorporates distinctive narratives and storytelling to craft emotional attachments between the product and the consumer (Kim et al., 2022). Arguably, EMV can play a role in alleviating pre-purchase dissonance and contribute to a deeper sense of conspicuous ethical identity, aiding consumers to more readily associate SLFPs with their favorable affective responses. Overall, sustainable luxury fashion purchases tend to promote positive emotions linked to self-appraisal and self-esteem (Pai et al., 2022), as consumers believe they contribute to mindful change by endorsing sustainable luxury brands. This feeling of empowerment should predispose consumers with a higher degree of EMV to hold stronger levels of CES and PUI. We thus hypothesize:

$H_{3(a-b)}$. *EMV positively relates to (a) CES and (b) PUI.*

3.4. Epistemic value (EPV)

EPV is inextricably linked to the perceived utility that consumers gain from a product's or service's ability to stimulate curiosity, offer novelty, and satisfy knowledge-seeking tendencies (Sheth et al., 1991; Tanrikulu, 2021). The inclination of consumers to fulfill their knowledge-seeking needs vis-à-vis product attributes, compatibility, and novelty positively influences their behavioral intentions to pay a green price premium (Biswas and Roy, 2015; Chakraborty and Dash, 2023). In recent studies, sustainable luxury consumption was positively correlated with uniqueness (Alghanim and Ndubisi, 2022) and innovativeness (Park et al., 2022). Intriguingly, Amatulli et al. (2021) found robust evidence that sustainable luxury products are perceived as more atypical (i.e., unusual) options vs. mass-market luxury products. This atypicality, associated

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with design features and sustainability-oriented communication, enhances consumers' perceived uniqueness and encourages high uptake of sustainable luxury. Accordingly, we deduce that consumers can derive a sense of novelty (i.e., EPV) from SLFPs by valuing their atypical characteristics (e.g., sustainable fabrics, non-toxic dyes) and communication aspects.

In a similar vein, inquisitiveness arises from consumers' interest in learning about the features of SLFPs (Bhattacharyya et al., 2023). Luxury brands that emphasize sustainability provide details about the product's history, manufacturing methods, and packaging in both digital and physical stores (Kelleci, 2022), which may foster high EPV among consumers, particularly when the information provided is perceived as transparent (Wang et al., 2021). In turn, this could result in an overlap between knowledge acquisition and ethical self-awareness, where concrete signals associated with sustainable luxury fashion can play a part in activating CES (Carranza et al., 2023). Spotting that CES is partially shaped by consumers' subjective knowledge with reference to morally acceptable, just, and right consumption habits (Essiz et al., 2023), the lack of sustainable luxury product information may result in value-behavior inconsistency. Concurring with Chen (2020) and White et al. (2019), we argue that consumers often construct personal narratives around their quest for knowledge and experiences. Therefore, the pursuit of new knowledge about sustainable luxury fashion can allow consumers to comprehend the self-benefits of SLFPs and offset self-threatening information, thereby narrowing the discrepancy between EPV and PUI. Simultaneously, this knowledge-seeking tendency may shape the cohesive core of CES, enabling self-congruent and self-reflective decisions. In light of this chain of reasoning, we put forth the ensuing postulates:

$H_{4(a-b)}$. *EPV positively relates to (a) CES and (b) PUI.*

3.5. Conditional value (COV)

COV represents the perceived utility obtained in specific circumstances confronted by the decision-maker (Sheth et al., 1991). Different from other consumption values, COV is derived

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only in specific situations, making it more variable and context dependent. Consumer research has long recognized that situational variables can significantly influence behavioral acts (Belk, 1975). Sustainable products exhibit subtle conditional associations (see Biswas and Roy, 2015; Khan and Mohsin, 2017 for details). Added benefits of SLFPs (e.g., well-being, positive environmental impact) over general luxury alternatives are likely to enhance their perceived COV (Kunz et al., 2020). In parallel with past conceptualizations of COV (Bhutto et al., 2022; Lin and Huang, 2012), we contend that multiple situational factors (i.e., product availability, promotional incentives, regulatory shifts, and deteriorating environmental conditions) can encourage sustainable luxury fashion consumption. This is reasonable to anticipate since SLFPs are often purchased for special occasions (e.g., to support the slow fashion movement) (McNeill and Moore, 2015).

Similarly, consumers may sensitize conditional benefits in accessing limited-edition, sustainably produced luxury fashion items. This limited availability can cater to their longing for rarity (Park et al., 2022). In recent research, COV has been shown to have a considerable positive effect on purchase intention for environmentally friendly products (Chakraborty and Dash, 2023). Since SLFPs broadly fall under the environmentally friendly product category, they are subject to similar buyer perceptions.

Whilst there is a scarcity of literature examining the connection between conditional factors and ethical self-identities, we argue that the aforementioned situational dynamics promoting COV will ultimately support consumers' CES in sustainable luxury fashion. This aligns with past research on moral identity centrality, which suggests that situational cues can activate or prime the ethical self-schema and modify identity functioning, as consumers typically react to external stimuli (e.g., promotions), in accordance with their overall self-conception (Aquino et al., 2009). Owing to the fact that regulations and subsidies evolve to promote sustainable practices in the U.S. luxury fashion industry (Vanhamme et al., 2023), consumers may

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also gain COV by aligning their purchase decisions with such changes. This can enhance their sense of social responsibility, thereby having a direct impact on CES. In a similar vein, opting for SLFPs in reaction to unsustainable and unstable circumstances (e.g., fast fashion conundrum) may bolster consumers' CES, as making responsible trade-offs in these situations can restore self-worth and provide means to facilitate self-improvement (Rustagi and Shrum, 2019). Overall, the stability of SLFPs, characterized by consistent quality and sustainable practices (Kelleci, 2022), ensures that consumers can rely on these products to meet their self-conditional needs effectively. Based on these grounds, we posit:

$H_{5(a-b)}$. *COV positively relates to (a) CES and (b) PUI.*

3.6. Green value (GRV)

GRV herein captures consumers' inclination to express the value of environmental commitment and protection through their consumption habits–akin to the generic operationalization of Haws et al. (2014). Previous research has shown that GRV aligns positively with overarching ethical principles such as environmental stewardship, intergenerational equity, and generativity, all of which are strongly linked to one's ethical self-perception (Essiz and Mandrik, 2022; Shiel et al., 2020). Additionally, consumers with a high level of GRV tend to be more conscientious users of physical resources and have a higher propensity to purchase sustainable products and services (Haws et al., 2014). These consumers demonstrate greater green value-behavior consistency, enhanced green brand trust, and communication responsiveness (Bailey et al., 2016b; Essiz et al., 2023). Upon closer examination, the positive effects of GRV are expected to persist in the setting of sustainable luxury fashion. A stronger GRV can lead consumers to process information about SLFPs at a more concrete level using motivated reasoning and signaling an active engagement in shaping a more sustainable world, which may stimulate self-growth and a sense of agency among luxury consumers–a supposition in parallel with Haws et al. (2014).

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In the relevant literature, Cervellon and Shammas (2013) have conjectured that eco-centric values and doing good for the environment, society, employees, and consumers are critical prerequisites for sustainable luxury fashion. Likewise, Ki and Kim (2016) stressed the importance of environmental consciousness in sustainable luxury fashion decisions. Vanhamme et al. (2023) contributed to the ongoing dialogue, highlighting that sustainable luxury purchases among U.S. consumers are primarily driven by altruistic motives and a genuine concern for resource conservation. These efforts give us the motivation to quantify the relative significance of GRV in the taxonomy of sustainable luxury fashion. Building on this review, we anticipate that GRV can both constitute a substantial component of consumers' conspicuous ethical identities and reinforce their decision to purchase SLFPs. Specifically, we advocate that if environmental protection is a guiding principle in a luxury consumer's life (i.e., the stronger one's GRV), the individual will be more driven to act upon his/her GRV in sustainable luxury fashion consumption. In turn, one should perceive himself/herself as a more ethically responsible consumer and predispose a higher likelihood of purchasing SLFPs. This leads to the following hypotheses:

$H_{6(a-b)}$. *GRV positively relates to (a) CES and (b) PUI.*

3.7. Roles of CES in sustainable luxury

Prior research suggests that ethical self-identity is a crucial determinant of sustainable actions, occasionally eclipsing the predictive power of the original elements of the TCV model (Bhutto et al., 2022; Sharma et al., 2020). In the fashion domain, Carranza et al. (2023) have recently confirmed the impact of so-called "green identity" as the central enabling factor of sustainability-luxury fit. This concurs with the identity theory (Burke, 2003), reckoning that consumers can utilize sustainable luxury purchasing as a means to articulate their self-defining principles. In this way, CES can be viewed as a behavioral stimulant, leading us to envisage that individuals with a stronger CES will likely have a positive inclination towards SLFPs.

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Fundamentally, we next anticipate that CES will play an anchoring role in sparking PUI. To wit, consumption values are more likely to result in sustainable luxury consumption when they align with the consumers' conspicuous ethical self-image. Qasim et al. (2019) and Bhutto et al. (2022) provide some preliminary support for our reasoning by documenting the mediating role of ethical self-identity within the TCV framework, although they mainly focused on less indulgent green choices (e.g., organic foods). Such interconnection between value perceptions, conspicuous ethical self, and sustainable luxury purchasing can be more broadly envisioned within the theoretical frame of value-identity-behavior consistency (Lavuri et al., 2023).

Delving into this logic in more detail, our argument for the mediation effect of CES draws from relevant works concerning the psychological understanding of the self (e.g., Chen, 2020; Sharma et al., 2020). This past research shows that our ethical self-identity, or how we label ourselves, allows us to reflect on our individual and product-related beliefs, which in turn influences sustainable purchasing decisions. Therefore, it is plausible that choosing a sustainable luxury product over a non-sustainable luxury alternative could enhance conspicuous ethical self-worth and heighten the impact of consumption values on PUI. The self-affirmation hypothesis provides supporting evidence for this expectation (Sherman and Cohen, 2006). In tandem, White et al. (2019) indicate that the affirmation of significant value perceptions translates into a greater endorsement of sustainable actions when self-integrity is guarded. This occurs because consumers seek to reinforce values that confirm their preexisting product-related views. In this regard, CES can be seen as a crucial mechanism of the value-behavior translation process.

It is also understood that if consumers perceive a strong correlation between a brand/product and their values, this alignment would lead to a more favorable self-view and actions towards that particular brand or product (see Sirgy, 1986 for the self-congruity theory). Supporting this perspective, our conceptual debate from Sec. 3.1 to 3.6 has previously highlighted how CES functions as a lens through which we evaluate SLFPs based on each consumption

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values. At its core, when SLFPs fulfill value perceptions–whether by directly or indirectly providing functional advantages, bestowing social prestige, satisfying inherent curiosity, evoking positive feelings, presenting situational advantages, or resonating with environmental protection motives–people are more likely to identify themselves as ethically conscious consumers. Based on the preceding discourse, we further propose that this heightened CES will serve as a mediator between consumption values and PUI.

H_7. *CES positively relates to PUI.*

$H_{8(a-f)}$. *CES positively mediates the relationship between consumption values ((a) FUV, (b) SOV, (c) EMV, (d) EPV, (e) COV, (f) GRV) and PUI.*

3.8. Roles of GAR in sustainable luxury

Earlier, research has delved into the impact of GAR as a direct determinant of sustainable consumption attitudes and behaviors (Tewari et al., 2022). In addition to directly encouraging sustainable purchasing, GAR may also serve as a moderator in the relationship between consumption values and purchase intention. Prior studies corroborate this argument by demonstrating that highly receptive consumers tend to be more attentive to green ad messages, leading to a positive shift in their values towards taking sustainable actions (Bailey et al., 2016a; Sun et al., 2021). However, the moderating influence of GAR in the sustainable luxury domain remains unexplored. It is evident that effective green advertising campaigns can assist luxury firms in molding the way their brands are perceived and the perceptions they create, fostering consumers' predisposition to think and act sustainably (Atkinson and Rosenthal, 2014). GAR can reduce promotion uncertainty and more effectively sway consumers' purchasing decisions by helping them to recognize the focal attributes of sustainable luxury goods when forming a consideration set.

Supporting this sentiment, recent research indicates that consumers with higher GAR are more likely to show green brand trust and perceive credible market signals (Rahman and Nguyen-

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Viet, 2023). In concert with this perspective, we foresee that green advertising should improve the perceived value of SLFPs, particularly for individuals with a high level of green receptivity, leading them to perceive a stronger alignment between sustainability and luxury. This is a reasonable prospect, considering that individuals with higher GAR (vs. lower GAR counterparts) may easily access and activate value-based product information stored in their memory (Essiz et al., 2023), thereby more readily translating their consumption values into PUI.

Moreover, previous research demonstrates that consumers' self-perception can be augmented through green advertising activities (Mo et al., 2018). In fact, consumers with a high level of GAR may be more likely to engage with luxury brand initiatives and gather more detailed information on sustainable luxury, as they hold higher brand trust and reflect more on their ethical selves–a postulation aligned with Bailey et al. (2016b) and Septianto et al. (2023). In contrast, consumers with low green receptivity may struggle to differentiate SLFPs from general luxury offerings, which could result in perceptions of greenwashing (Apaolaza et al., 2022; Chen, 2020). This may consequently lead to highly green-receptive luxury consumers being better equipped to manage self-threatening risks in sustainable luxury choices, reinforcing the congruence between their CES and PUI. Based on the foregoing discussion, the strength of value perceptions and CES will be contingent upon the level of GAR, where amplified receptivity to sustainable luxury brand advertising should expedite the conversion of consumption values and conspicuous ethical self-perception into PUI. Formally:

$H_{9(a-g)}$. *GAR positively moderates the relationship between (a) CES, (b) FUV, (c) SOV, (d) EMV, (e) EPV, (f) COV, (g) GRV and PUI.*

3.9. Differences between Gen Y and Gen X: A research question

Prior research underscores that Gen Y (born between 1980-1996) and Gen X (born between 1965-1979) display discrete consumption patterns towards luxury brands, prompting us to explore the differences between these cohorts in sustainable luxury fashion (e.g., Han and Kim,

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2020). From the standpoint of cultural transformation (Hofstede, 1984), our decision to concentrate on Gen Y and Gen X is grounded in the following rationale. Gen X grew up during a period of economic recession marked by a stronger emphasis on individualistic aspirations, traditional values, high uncertainty avoidance, and modest environmental protectionism (Lissitsa and Kol, 2016). Accordingly, Han and Kim (2020) demonstrate that this generation's luxury consumption behaviors could originate from the desire for functional reliability and be seen as a symbol of personal achievement and prestige. In contrast, Gen Y, growing up in the digital age, prioritizes collective experiences and shared cultural values, involving environmental sustainability (Essiz and Mandrik, 2022). While they continue to value conventional luxury, their consumption tendencies lean towards long-term idealistic values more than materialistic ones, with a heightened interest in ethical experiences rather than in unsustainable possessions (Vanhamme et al., 2023). Hence, they might favor luxury brands that are deeply engaged in sustainable initiatives, viewing such choices as a way to counteract potential environmental risks (Sun et al., 2022).

Against this backdrop and considering that individuals from separate periods and environments exhibit dissimilar patterns of perception, cognition, and behavior (see Casalegno et al., 2022 for the generational cohort theory), Gen Y, compared to Gen X, is anticipated to respond in a different way to green advertising messages and demonstrate distinct ethical self-concepts as well as purchase patterns. Ivanova et al. (2018) corroborate this line of reasoning by revealing specific cohort effects, in which Gen Y (vs. Gen X) demonstrated greater receptiveness to green communication and a willingness to pay more for sustainable products that resonate with their ethical selves. Nonetheless, would such expectations hold true in the domain of sustainable luxury?

Only a handful of empirical research has delved into this topic and produced fragmented findings. In the U.S. (from which our sample is drawn), one research shows a negative correlation

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between age and sustainable luxury consumption, suggesting that Gen Y retains greater sustainability knowledge and is more concerned about sustainability in luxury purchases compared to older cohorts (Rolling and Sadachar, 2018). Conversely, other research points out that Gen Y's sensitivity to the sustainability of luxury brands does not significantly differ from Gen X's (Kapferer and Michaut-Denizeau, 2020). Although no consensus has yet emerged regarding generational disparities, it is palpable that age differences carry significant conceptual weight from the lens of evolutionary consumption, functioning as a biological driver for sustainable luxury engagement (Vanhamme et al., 2023). To reconcile these incongruent findings across two generations, we raise the following exploratory research question (RQ):

RQ. *How do PUI, CES, and GAR vary between Gen Y and Gen X consumers?*

4. Research design and methodology

4.1. Research context

Regarding the research context, past sustainable luxury research has primarily focused on specific countries such as the United Kingdom, China, Italy, and France (see Table 1). As underlined by Athwal et al. (2019), the nationality and country base of researchers are possible reasons behind this constrained geographical representation. Needless to say, excluding other major luxury markets represents a research bias given that the behaviors of sustainable luxury consumers are wide-ranging, depending on cultural and institutional ecosystems. Against this backdrop, we chose to obtain data from the U.S. because it surprisingly remains an under-investigated country in the sustainable luxury sphere, as evidenced by Table 1.

Currently, the U.S. as the largest economy has an SDG achievement score of 74.55/100 and is ranked 41 out of 193 countries, raising awareness of accountable stakeholders on responsible consumption and cleaner production (Sustainable Development Report, 2023). Moreover, the U.S. luxury fashion goods industry is at the forefront of all other countries, generating more than 69 billion USD in yearly revenue with a large market potential for

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sustainable luxury goods (Statista, 2023b). Hence, the U.S. offers an intriguing setting for understanding the key components of sustainable luxury fashion patterns, which may cumulatively help to decelerate the overuse of natural resources by individuals.

4.2. Survey designs and operationalization of measures

In parallel with the method adopted by early research on the interplay of sustainable luxury and value perceptions (see Table 1), we adopted a deductive approach (quantitative-based method), including a structured online survey to empirically test the hypothesized relationships. The survey method was chosen, considering the multidimensionality of our proposed model and its suitability for multivariate analysis, which demands a simultaneous assessment of the interactions between several constructs. It helped us to concur with the theoretical underpinnings of the consumption values paradigm, analogous to the early survey-based TCV research (e.g., Khan and Mohsin, 2017).

We developed a screener survey and a main survey on Qualtrics®. Our screener survey was used to validate the eligibility of participants for the main survey by asking them if they had ever purchased luxury fashion products in the last two years, per the suggestion of Vanhamme et al. (2023). Only those who responded "yes" were able to state their most recent purchase based on purchase history, category, and price range. The screener survey served as a cross-filter to target only actual consumers of luxury fashion.

Our main survey contained questions pertaining to participants' opinions of sustainable luxury, their value perceptions, green advertising receptivity, conspicuous ethical self-identity, purchase intention, and demographic information. Following the approach of De Barnier et al. (2012), we explained the research agenda to help participants differentiate between several accessible, intermediate, and inaccessible luxury products and brand names at the beginning. Participants were told to indicate the level of agreement for a series of questions related to their sustainable luxury consumption habits, choose among alternative options, and provide short text

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answers, where suitable. To ensure that all participants understood the concept of sustainable luxury consumption by the same token, we further offered conceptual clarity in parallel with the definition provided in Sec. 1.

Overall, we measured responses for nine focal constructs and captured them with thirty-three manifest variables, satisfying conditions for latent construct measurement (Sarstedt et al., 2022). To preserve the psychometric properties of constructs, all measures were operationalized from validated multi-item metrics. Web Appendix A provided information regarding the operational descriptions and roles of each construct, along with the source of adoption and its relevant items. Notably, we measured our main dependent variable–PUI with the purchase intention scale of Dodds et al. (1991). It captured consumer's inclination to purchase SLFPs.

Our independent variables (six consumption values) were measured based on the perceived value scales of Sweeney and Soutar (2001) and Lin and Huang (2012) as well as the "GREEN" scale of Haws et al. (2014). Among six consumption values, (1) FUV captured the extent to which consumers will derive utility based on the expected performance and perceived quality of SLFPs, (2) SOV measured the extent to which consumers will enhance their social self-image through purchasing SLFPs, (3) EMV assessed the extent to which purchasing SLFPs will cause fulfillment in affective states and generate feelings of elation, (4) EPV covered the extent to which the purchase decision of SLFPs will arouse inquisitiveness, represent novelty, and fulfill the desire for knowledge, (5) COV represented the extent to which consumers will derive utility from SLFPs over general luxury alternatives based on certain extrinsic and situational circumstances, and (6) GRV measured the consumer's propensity to express the value of environmental protection through consumption patterns.

Finally, our mediator variable–CES was based on the ethical self-identity scale of Van der Werff et al. (2013). It measured the extent to which ethical considerations and environmental issues are part of consumers' sense of self while making luxury consumption choices, and the

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degree to which luxury consumers consider themselves to be "*ethical consumers.*" The moderator variable–GAR was adapted from the receptivity to green advertising scale of Bailey et al. (2016a) and measured the extent to which consumers are receptive and attentive to the green advertising activities of luxury firms. Overall, all construct measures were rated by participants based on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

4.2.1. Socio-demographics as control measures

Existing research has benignly neglected to operationalize the potential effects of socio-demographics on endogenous factors (see Table 1). Only a handful of studies have considered them as control parameters and reported a significant variance in sustainable luxury choices (e.g., Vanhamme et al., 2023). Early literature suggested that consumers' ethical self-identity and receptivity to green advertising may vary based on socio-demographics (Bailey et al., 2016a; Van der Werff et al., 2013). Against this backdrop, we controlled the effects of socio-demographic variables (age, gender, educational background, individual income, and employment status) on three endogenous factors (i.e., PUI, CES, and GAR), per Fig.1. Furthermore, past research documented the impact of perceived social class (lower vs. middle vs. upper) on general green choices (Yan et al., 2021) as well as showed its specific effect on preferences for sustainable (vs. regular) luxury (Kim et al., 2022). Consequently, we incorporated it as a final control measure and operationalized it based on the single-item subjective social class indicator of Yan et al. (2021) (see Web Appendix A).

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4.3. Pilot study

Prior to the main study, we carried out a pilot study to safeguard the face and content validity of measures. In line with the recommendation of Haws et al. (2023) for pilot testing, the initial draft of the survey was cross judged by two marketing faculty, two luxury industry professionals, and eight marketing Ph.D. scholars. They were invited to assess the quality of the survey and take note of potential issues related to conceptual representations of items, clarity of phrasings,

instrument length, and format. Based on their feedback, we improved the understandability of items, making them more concise in terms of wording to avoid terminology errors. Besides, we activated the Qualtrics® force-response function to rule out item nonresponse and inserted two attention-check questions (see Web Appendix A) in the different parts of the questionnaire to detect careless response patterns.

After the questionnaire was finalized, we conducted a pilot study on the crowdsourcing platform: Prolific® and recruited a purposive gender-balanced sample of 60 luxury fashion consumers[3] (M_{age} = 29.65, SD_{age} = 8.71), located in the U.S. to assess the preliminary internal consistency among measures. To select the right audience, we only admitted participants who passed our screener survey. The pilot testing yielded satisfactory reliability coefficients for all constructs, ranging from .76 to .91 (Hair et al., 2017); hence, it was deemed appropriate to launch the main investigation.

4.4. Sampling strategy, main data collection, and participants

We used Prolific® for the main study as well, targeting U.S.-based participants through nonprobability purposive and quota sampling methods. Prolific® has been recognized as a reliable data collection platform in recent sustainable luxury research (Carranza et al., 2023), allowing researchers to prescreen participants who have regular shopping habits related to fashion and luxury. To circumvent threats to external validity, purposive sampling was a suitable approach as it assisted us to draw a homogeneous sample based on the existing consumers of luxury fashion. The rationale for the quota sampling was to disseminate our study evenly between males/females and avoid female-dominated self-selection bias from which early research has suffered (Yang et al., 2022). To determine our lower bound requisite sample size, we performed an a priori power analysis utilizing Westland's (2010) software. The analysis yielded a minimum required sample of

[3] N=60 was sufficient and surpassed the lower bound of N=50 for performing Cronbach's α analysis (Haws et al., 2023). With regards to validity, we conducted a preliminary CFA, which yielded acceptable fit indices of GFI = .95, CFI = .96, RMSEA = .019, χ^2/df = 2.65 (Sarstedt et al., 2022).

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829 participants and was based on an effect size of .30 (Cohen, 1988), an alpha of .05, a statistical power of 90%, and 9 latent variables for linear multiple regression analysis. To meet this baseline and secure high power, we recruited 920 participants in exchange for the remuneration of $8,18/hr. Jointly, we preregistered these details on **https://aspredicted.org/C14_1BS**.

All participants were over 18 years of age, and only those who passed our screener survey and did not enroll in the early pilot were qualified. Following this, we checked the IP addresses of participants to make sure that no one enrolled in the study more than once. Twelve participants were filtered out for failing one or two attention checks and nine of them were excluded as potential "mischievous respondents" (Griffin et al., 2022) since they either spent less than 2 minutes (the average completion time was ≈6.05 minutes) or provided pattern answers. After further removing five outliers based on the Mahalanobis distance (D^2/df) analysis (Hair et al., 2017), the final sample consisted of 894 valid responses. As a follow-up test, we ran a post-hoc power analysis using the G*Power 3.1 (Faul et al., 2009) to observe whether we attained the predetermined power level of .90. The analysis generated a power of .98 for correlations, confirming that our sample size was satisfactory to obtain high statistical power. The demographics and luxury fashion consumption habits of our sample are detailed in Table 2. Our sample characteristics appear to be fairly representative of the U.S. population[4] and bear similarities with the recent U.S.-based sustainable luxury research which employed online panel data (Vanhamme et al., 2023), giving us further confidence in the validity of our sample.

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[4] For the breakdown of the U.S. population, see: https://www.census.gov/quickfacts/fact/table/US/

Table 2. Essay 1: Sample characteristics and consumption habits.

Variable	Category	Participants (%)
Gender	Male	49.9
	Female	50.1
Age	18-29	39.9
	30-39	30.8
	40-49	14.5
	50-59	8.4
	60 and over	6.4
Education background	High school	23.9
	Trade certificate/vocational	8.7
	Bachelor's	42.9
	Master's	15.6
	PhD	3.2
	Other	5.7
Employment status	Full-time employed	65.0
	Part-time employed	17.4
	Homemaker	4.8
	Retired	3.8
	Seeking work	3.2
	College student	2.9
	Other	2.9
Annual personal income	Less than $25,000	26.0
	$25,000 to $49,999	27.1
	$50,000 to $74,999	18.5
	$75,000 to $99,999	13.7
	$100,000 or more	14.7
Perceived social class	Lower class	10.3
	Lower-middle class	25.2
	Middle class	45.0
	Upper-middle class	15.5
	Upper class	4.0
Purchase category	Apparel	25.4
	Footwear	22.2
	Accessories	18.3
	Wristwatches	17.3
	Handbags	14.7
	Other	2.1
Last purchase experience	In the last year	65.7
	Between 1-2 years	34.3
Product price range	$200 to $500	49.6
	$500 to $999	35.1
	$1000 to $4999	13.1
	Above $5000	2.2
Familiarity with sustainable luxury fashion	More than a year	55.3
	Less than a year	38.9
	Not familiar	5.8
Note. The ethnicity of our sample is as follows: White (69%), Black or African American (11%), Hispanic (17%), and Asian (3%).		

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4.5. Social desirability bias

Self-administrated online surveys (as in this study) tend to yield fewer social desirability concerns than interviewer-administrated surveys as they reduce the salience of interviewer bias to some extent (Kreuter et al., 2008). Compared to other platforms (such as MTurk), a recent work confirmed that Prolific® participants were found to be more attentive to instructions, and displaying more honest responses (Peer et al., 2022). Given that sustainable luxury fashion is an ethical consumption domain, participants might still exaggerate their responses to form a socially desirable image irrespective of the surveying technique or platform's reliability.

Against this possibility, we implemented several *ex-ante* strategies. First, we prescreened participants with at least a 99% Prolific® approval rate to recruit reliable members and allowed them to run the study only on desktop devices in a more private setting. Next, participants read the informed consent form and were aware of anonymity/confidentiality ethics, along with the rights of withdrawal and the estimated completion time (Podsakoff et al., 2012). Participants were also informed that there were no right or wrong answers. As a more sophisticated practice, we counterbalanced the order of scale items by positioning dependent and independent variables on different sections. This helped us to eliminate the order effect, inhibiting participants from extrapolating direct causal reasonings among constructs. Wholly, these practices minimized the risk of receiving socially desirable responses.

5. Data analysis and results

The data were analyzed using SPSS®$_{28.0}$ and SmartPLS®$_{4.0.8.3}$. The PLS-SEM approach estimates inter-relationships between constructs through a bootstrapping procedure to determine significant path coefficients (Hair et al., 2017). PLS-SEM was a better fit for this research due to two reasons–akin to Sarstedt et al. (2022). First, it is a more robust choice for the evaluation of highly complex structural models with large samples and non-normal distribution (see also Hair et al., 2020). Second, it performs better while testing theoretical extensions to the prevailing

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structural theory (TCV herein) thanks to its causal-predictive orientation, all of which characterize this study. Based on this tangent, the complexity of our prediction-oriented model emanates from its number of constructs (9) and the estimation of direct, indirect, and interaction effects among latent variables. It is notable that we triangulated linear PLS-SEM outputs with the IPMA and the non-linear ANN models in the final stage of analysis to reconcile the predictive accuracy of Fig.1 and determine the relative importance of each predictor variable.

5.1. Descriptive analysis

We first performed a descriptive analysis analogous to that of Wang et al. (2021), intending to offer an initial outlook into participants' understanding of sustainable luxury, wherein we asked participants to select five from a list of eleven keywords. As reported in Fig.2 via frequency analysis, the top five keywords chosen by participants were: (1) environmentally friendly, (2) ethical, (3) guilt-free pleasure, (4) high quality, and (5) durable. Comparable to Wang et al. (2021), this outcome signified that the perceived meaning of sustainable luxury for our sample primarily derived from environmental, emotional, and functional aspects. Next, participants rated the importance of several sustainable practices employed by luxury brands. As presented in Fig.3, (1) fair treatment of stakeholders, (2) the use of no child labor, and (3) greenhouse gas reduction were some of the most advocated topics by our sample.

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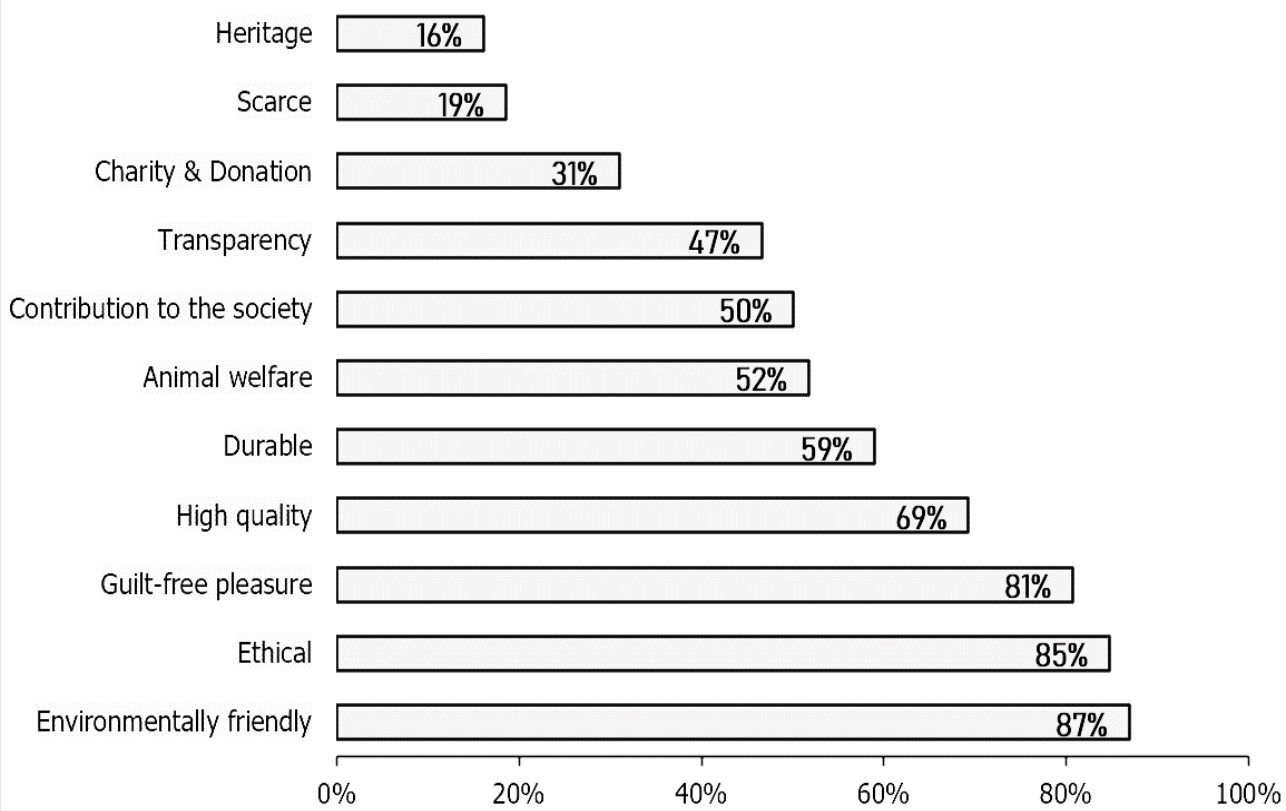

Fig.2. Essay 1: Participants' perceptions of sustainable luxury.

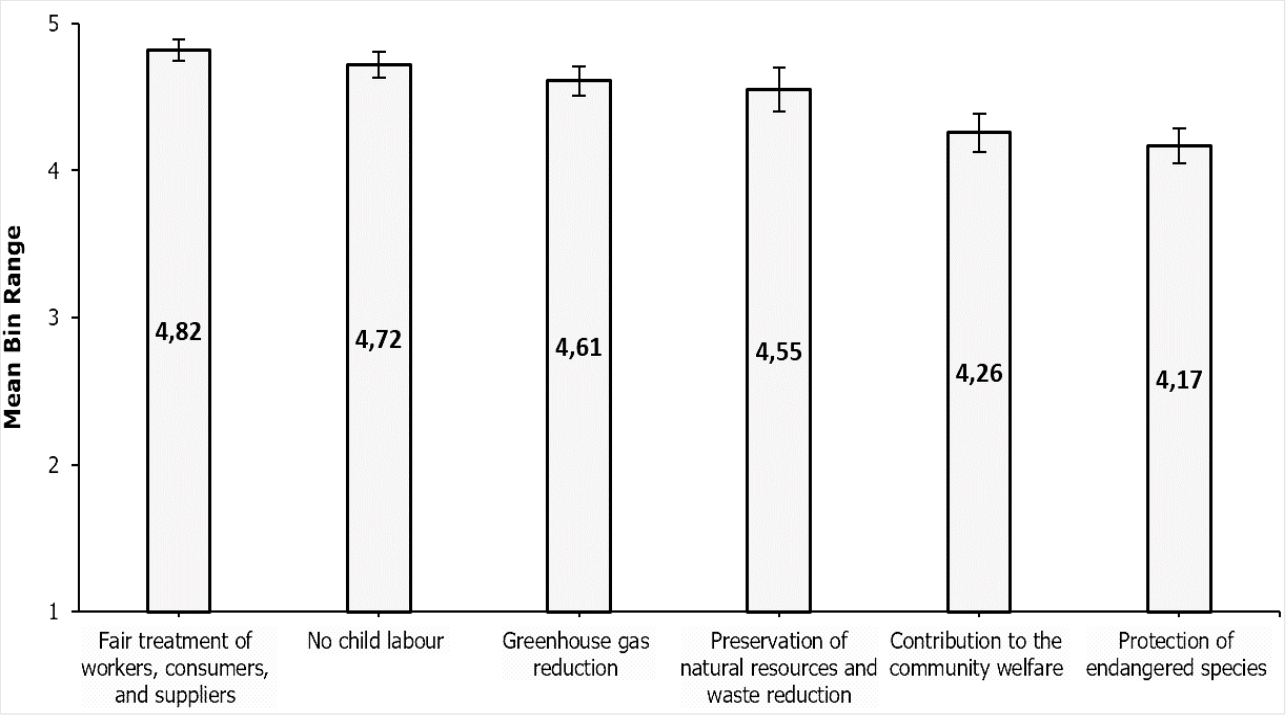

Fig.3. Essay 1: Participants' perceived importance of sustainable practices (±Error bars: standard deviations).

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Participants were also asked to name a luxury brand that they purchased earlier and indicate their belief in the sustainability of the purchased brand. In total, 87 different valid brand names were specified. Among those, 65 brands fell on the "*Global Powers of Luxury Goods*" list of Deloitte (2023). In Table 3, we reported the most purchased luxury brands and their perceived sustainability. Based on the opinions of our sample, Stella McCartney, Louis Vuitton, Chanel, Coach, and Gucci were the top five sustainable luxury brands. This result is sensible for the U.S. market given that these brands have introduced eco-friendly versions of their products and built robust sustainability programs in recent years (Park et al., 2022), leading to some degree of awareness among consumers. These rankings also show similarities with the sustainable luxury brand index released by Altiant GLAM (2021). This section provided initial insights into perceptions of sustainable luxury consumers. Keeping these descriptive insights in mind, we turn our focus to preliminary assessments.

Table 3. Essay 1: Perceived sustainability of top 10 luxury brands.

Top 10	Brand name	Purchased brand (%)	Sustainable (%)	Not sustainable (%)	Not sure (%)
1	**Gucci**	17.1	52.4	24.2	23.4
2	Michael Kors	10.8	32.7	20.0	47.3
3	**Coach**	9.2	59.1	22.8	18.1
4	**Louis Vuitton**	7.3	62.8	21.6	15.6
5	Ralph Lauren	6.1	22.2	16.7	61.1
6	**Chanel**	5.5	61.2	20.3	18.5
7	**Stella McCartney**	4.4	83.3	2.5	14.2
8	Prada	3.9	23.5	11.8	64.7
9	Calvin Klein	3.0	40.1	22.1	37.8
10	Burberry	2.6	23.1	15.4	61.5

Notes. (†). Out of 894 participants, 624 of them purchased one of the above-listed luxury brands. The top 5 sustainable brands are highlighted with a descending green color.
(‡). The top 10 rankings are based on the percentage of participants (%) purchasing the specified brand.

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5.2. Common method variance

Common method variance (CMV) may possibly lead to Types I and II measurement errors since our research design is cross-sectional. To statistically control this possibility, we conducted a post-hoc Harman's single factor test through exploratory factor analysis by loading all variables

into a single solution, in which the single unrotated factor accounted for only 37.83% of the observed variance. This was significantly below the cutoff value of 50% (Podsakoff et al., 2012), providing evidence for the absence of CMV.

To achieve a more robust assessment, we employed a common latent factor technique, where we ran confirmatory factor analysis (CFA) with and without the presence of common latent factors and evaluated differences in standardized regression weights. A single factor CFA did not present acceptable fit index results (χ^2/df = 5.79; GFI = .72; CFI/IFI = .76; RMSEA = .14). Likewise, all differences in regression weights remained insignificant and were below the threshold of .20 (Cohen, 1988), thus posing a decreased risk of CMV.

5.3. Multivariate statistical assumptions

PLS-SEM relaxes the demands pertaining to the data distribution as it is a nonparametric approach; however, four assumptions (normality, multi-collinearity, homoscedasticity, and linearity) must still be checked to ensure data rigor (Sarstedt et al., 2022). First, we conducted the Kolmogorov-Smirnov test and noted that the data were non-normally distributed since *p*-values for all constructs were lower than .05 and skewness/kurtosis indices did not stay within acceptable limits of normality: ±1 (Kline, 2011), rendering it well-suited for the PLS-SEM examination. Second, constructs did not suffer from multi-collinearity given that all the variance inflation factor (VIF) values varied between 1.76 and 2.69, not violating the set value of 3.3 (Hair et al., 2020). Web Appendix A documented descriptive statistics of constructs along with normality and multi-collinearity assessments.

Third, we established homoscedasticity by examining standardized residual scatter plots and noticed that all residuals were scattered around a diagonal line, designating no major concerns. Later, we performed an analysis of variance (ANOVA) test of linearity and found that some factorial relationships between constructs exhibited significant deviation from the linearity (see Web Appendix B). This outcome justifies the utilization of the non-linear ANN in the

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following parts. Aside from that, no anomalies were observed with respect to multivariate assumptions.

5.4. The outer measurement model analysis

We assessed the unidimensionality of the measurement model along with reliability and validity indices. Internal reliability was evaluated based on Cronbach's α, composite reliability (CR), and Dijkstra Henseler's rho (ρ_A). Table 4 demonstrated that all α, CR, and rho (ρ_A) values satisfied the minimum tolerance of .70 (Hair et al., 2017), safeguarding internal reliability. We then judged the convergent validity via standardized factor loadings (SFLs) and average variance extracted (AVE) scores. As presented in Web Appendix A, SFLs for thirty-three indicators ranged from .74 to .92, exceeding the lower bound of .708 (Hair et al., 2017). Meanwhile, AVE values were above the .50 cap (Sarstedt et al., 2022) for all constructs, ascertaining the convergent validity.

To determine that measurement constructs are discrete from each other, we next evaluated the discriminant validity. Using Fornell and Larcker's (1981) criterion, Table 4 showed that the square roots of AVE for each construct were higher than the inter-constructed correlations, and maximum shared variance (MSV) scores remained lower than the AVE values, supporting the discriminant validity. We further confirmed discriminant validity through an improved criterion: the heterotrait-monotrait ratio of correlations (HTMT) analysis and verified that all HTMT ratios were below the upper limit of .90 (Henseler et al., 2015). Overall, our measurement model is represented with satisfactory reliability and validity.

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Table 4. Essay 1: Reliability and validity analyses.

Construct	α	rho (ϱ_A)	CR	AVE	MSV	Fornell-Larcker & HTMT criterions								
						(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1). FUV	0.88	0.90	0.92	0.74	0.36	**0.86**	0.36	0.47	0.44	0.51	0.39	0.53	0.54	0.51
(2). SOV	0.89	0.91	0.93	0.83	0.22	0.31	**0.91**	0.57	0.37	0.33	0.25	0.42	0.41	0.35
(3). EMV	0.90	0.91	0.94	0.83	0.29	0.42	0.52	**0.92**	0.49	0.71	0.53	0.62	0.61	0.62
(4). EPV	0.87	0.89	0.92	0.79	0.26	0.39	0.33	0.44	**0.89**	0.52	0.46	0.56	0.59	0.55
(5). COV	0.82	0.84	0.89	0.73	0.42	0.43	0.29	0.62	0.45	**0.85**	0.57	0.58	0.50	0.68
(6). GRV	0.87	0.89	0.91	0.73	0.37	0.35	0.31	0.47	0.41	0.48	**0.86**	0.73	0.79	0.81
(7). GAR	0.84	0.86	0.91	0.77	0.41	0.45	0.37	0.54	0.48	0.49	0.63	**0.88**	0.80	0.78
(8). CES	0.84	0.87	0.90	0.75	0.36	0.46	0.37	0.54	0.51	0.43	0.62	0.67	**0.87**	0.73
(9). PUI	0.86	0.88	0.91	0.78	0.48	0.44	0.31	0.55	0.48	0.58	0.69	0.64	0.62	**0.89**

Note. The diagonal values represent the square root of AVE; whilst values below the diagonal are inter-construct correlations. The above diagonal values are HTMT ratios. All correlations are significant at p<.01.

5.5. The analysis of the inner structural model and its comparison with early descriptive results

Following the primer of Sarstedt et al. (2022), we performed a path analysis by running 10,000 bias-corrected bootstrap iterations (two-tailed) to explore direct, indirect, and interaction effects. Fig.4 reported standardized effect sizes along with coefficients of determination (R^2) and predictive relevance (Q^2) values, whilst Table 5 detailed the results of hypotheses testing. The structural model explained 59% of the variance in CES and 68% of the variance in PUI, displaying moderate to high explanatory power. Both Q^2 values were substantially higher than zero ($Q^2_{CES} = .45; Q^2_{PUI} = .52$), indicating a large predictive relevance of the model (Hair et al., 2017). The standardized root mean square residual value of .043 (<.08) and normed fit index of .94 (>.90) verified the estimated model fit (Hair et al., 2020).

As simultaneously presented in Fig.4 and Table 5, all six consumption values had a direct positive influence on CES with the following effect sizes: FUV (H_{1a}: β = .19, p < .001), SOV (H_{2a}: β = .14, p < .001), EMV (H_{3a}: β = .35, p < .001), EPV (H_{4a}: β = .31, p < .001), COV (H_{5a}: β = .17, p < .001), and GRV (H_{6a}: β = .53, p < .001). Regarding the PUI, FUV (H_{1b}: β = .16, p < .001), EMV (H_{3b}: β = .30, p < .001), EPV (H_{4b}: β = .25, p < .001), COV (H_{5b}: β = .13, p < .001), and GRV (H_{6b}: β = .41, p < .001) had a direct positive influence, yet the effect of SOV (H_{2b}: β =

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.05, p = .17) remained insignificant. Besides, CES (H_7: β = .20, p < .001) was positively associated with PUI. All 1st cluster hypotheses contemplating direct effects[5] were supported, except for H_{2b}.

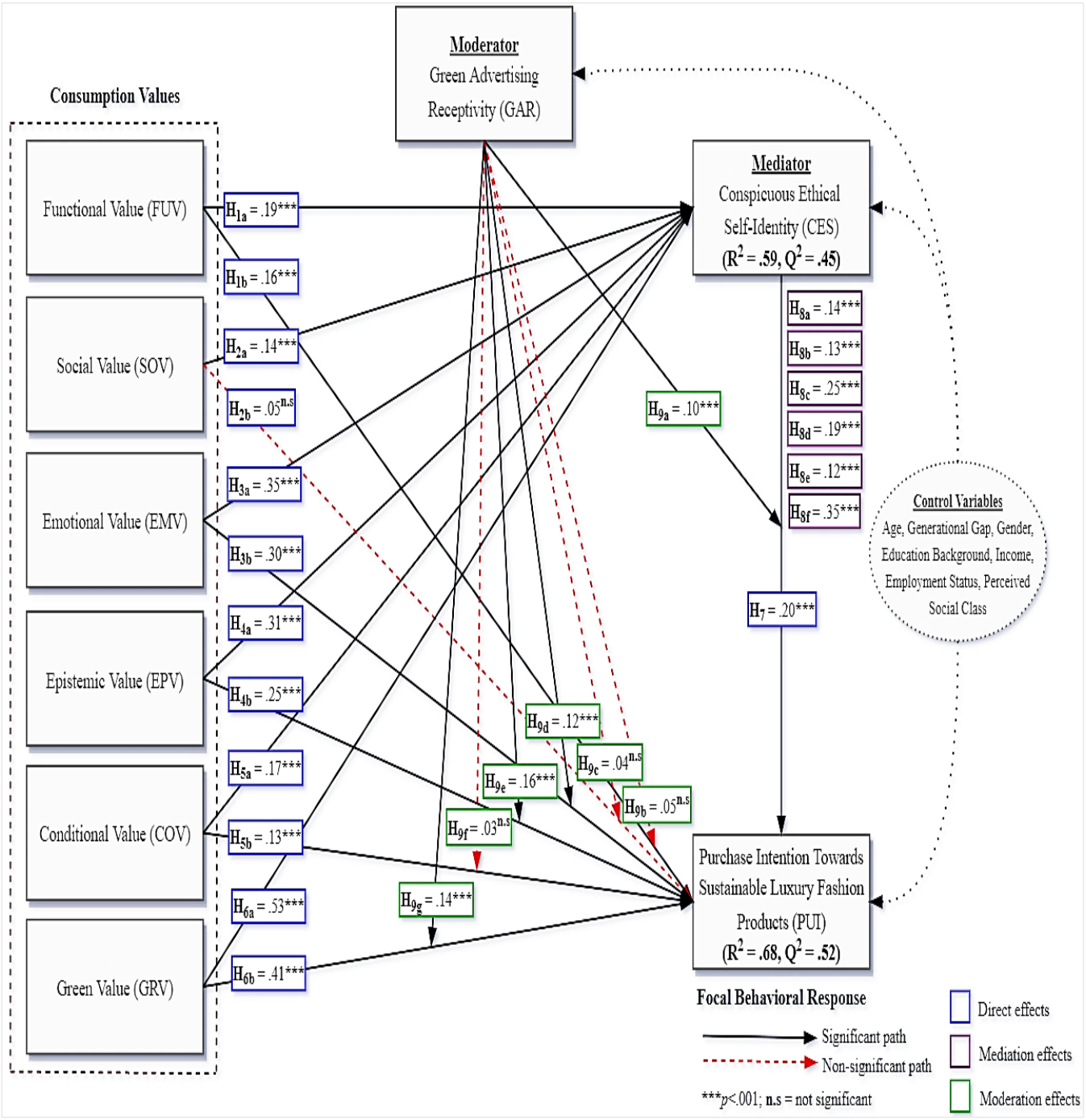

Fig.4. Essay 1: Results of the predicted model with path coefficients.

[5] Although not hypothesized earlier, GAR (β = .18, p<.001) was positively associated with PUI during the path analysis. Hence, it is further included as a predictor in the ANN and IPMA modeling.

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Table 5. Essay 1: Hypotheses testing results.

Structural paths	Standardized estimates	LLCI	ULCI	*t*-values	Sig.	Remarks
1st cluster (Direct effects)						**Supported (✓/✗)**
H_{1a}: FUV → CES	0.19 (0.02)	0.15	0.23	9.75	***	✓
H_{1b}: FUV → PUI	0.16 (0.02)	0.12	0.20	8.40	***	✓
H_{2a}: SOV → CES	0.14 (0.03)	0.08	0.19	4.97	***	✓
H_{2b}: SOV → PUI	0.05 (0.03)	0.00	0.10	1.61	$0.17^{n.s}$	✗
H_{3a}: EMV → CES	0.35 (0.02)	0.31	0.39	17.60	***	✓
H_{3b}: EMV → PUI	0.30 (0.02)	0.24	0.36	14.57	***	✓
H_{4a}: EPV → CES	0.31 (0.02)	0.27	0.35	15.85	***	✓
H_{4b}: EPV → PUI	0.25 (0.02)	0.19	0.30	12.14	***	✓
H_{5a}: COV → CES	0.17 (0.01)	0.13	0.21	8.85	***	✓
H_{5b}: COV → PUI	0.13 (0.02)	0.09	0.17	6.80	***	✓
H_{6a}: GRV → CES	0.53 (0.04)	0.46	0.60	25.67	***	✓
H_{6b}: GRV → PUI	0.41 (0.02)	0.35	0.47	16.72	***	✓
H_{7}: CES → PUI	0.20 (0.02)	0.16	0.24	10.25	***	✓
2nd cluster (Indirect effects)						**Mediation (✓/✗)**
H_{8a}: FUV → CES → PUI	0.14 (0.01)	0.10	0.18	6.13	***	✓ (Partial)
H_{8b}: SOV → CES → PUI	0.13 (0.02)	0.09	0.17	5.74	***	✓ (Full)
H_{8c}: EMV → CES → PUI	0.25 (0.02)	0.21	0.29	10.91	***	✓ (Partial)
H_{8d}: EPV → CES → PUI	0.19 (0.03)	0.13	0.25	5.85	***	✓ (Partial)
H_{8e}: COV → CES → PUI	0.12 (0.03)	0.06	0.18	4.13	***	✓ (Partial)
H_{8f}: GRV → CES → PUI	0.35 (0.02)	0.31	0.39	14.08	***	✓ (Partial)
3rd cluster (Interaction effects)						**Moderation (✓/✗)**
H_{9a}: CES × GAR → PUI	0.10 (0.02)	0.06	0.14	5.15	***	✓
H_{9b}: FUV × GAR → PUI	0.05 (0.04)	-0.02	0.12	1.28	$0.27^{n.s}$	✗
H_{9c}: SOV × GAR → PUI	0.04 (0.03)	-0.01	0.09	1.40	$0.23^{n.s}$	✗
H_{9d}: EMV × GAR → PUI	0.12 (0.01)	0.10	0.14	12.30	***	✓
H_{9e}: EPV × GAR → PUI	0.16 (0.02)	0.12	0.20	8.21	***	✓
H_{9f}: COV × GAR → PUI	0.03 (0.02)	0.00	0.06	1.54	$0.19^{n.s}$	✗
H_{9g}: GRV × GAR → PUI	0.14 (0.02)	0.10	0.18	7.15	***	✓
Significant effects of control variables						**Direction (+/-)**
Age → CES	-0.11 (0.02)	-0.15	-0.07	-5.60	***	-
Age → PUI	-0.06 (0.02)	-0.10	-0.02	-2.33	*	-
Age → GAR	-0.06 (0.02)	-0.09	-0.02	-2.38	*	-
Gender → CES	0.09 (0.02)	0.05	0.13	4.60	***	+
Gender → PUI	0.06 (0.02)	0.04	0.08	2.56	*	+
Gender → GAR	0.07 (0.02)	0.05	0.09	3.12	**	+

Notes. (†). LLCI/ULCI = 95% lower (upper) limit confidence intervals. Standard errors are presented in parentheses.
(‡). Gender (male = 0, female = 1), in which positive direction signifies higher female influence on three endogenous variables.
(§). ***p<.001 (t-value ± 3.29); **p<.01 (t-value ± 2.58); *p<.05 (t-value ± 1.96); n.s = not significant.

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Upon closer examination, these empirical results demonstrate a marked alignment with our descriptive keyword analysis (see Fig.2) concerning participants' perception of sustainable luxury. Notably, the two predominant keywords, "environmentally friendly" and "ethical" mirror the significant relationship of GRV→PUI, highlighting participants' commitment to

environmental and ethical practices when determining PUI. Similarly, the keyword "guilt-free pleasure" resonates with the heightened path relationship of EMV→PUI, underscoring the importance of emotional satisfaction in purchasing SLFPs. Concomitantly, the keywords ("high quality" and "durable") associate with the salient FUV→PUI path, reinforcing the value of functional attributes of SLFPs in the decision-making process.

5.6. Mediation and moderation effects

Two variants of mediation are partial and full. Partial mediation occurs when both direct and indirect effects are significant, whereas full mediation takes place if only indirect effects are significant (Rucker et al., 2011). Concentrating solely on direct effects might lead to an oversimplification of the relationships between constructs, thereby omitting a more thorough interpretation of the structural model (Hair et al., 2017). As such, it is essential to carry out a mediating analysis of CES, which can illuminate the partial or full pathway through which consumption values exert influence on the PUI. As shown in Table 5, CES partially mediated the relationship between FUV and PUI (H_{8a}: β = .14), EMV and PUI (H_{8c}: β = .25), EPV and PUI (H_{8d}: β = .19), COV and PUI (H_{8e}: β = .12), GRV and PUI (H_{8f}: β = .35); moreover, it fully mediated the relationship between SOV and PUI (H_{8b}: β = .13) (*ps* < .001). All 2nd cluster hypotheses ($H_{8(a-f)}$) on indirect effects were supported.

The moderator determines the strength of the relationship between independent and dependent variables (Baron and Kenny, 1986). GAR positively moderated the relationship between CES and PUI (H_{9a}: β = .10), EMV and PUI (H_{9d}: β = .12), EPV and PUI (H_{9e}: β = .16), GRV and PUI (H_{9g}: β = .14) (*ps* < .001). However, it did not significantly interact with FUV (H_{9b}: β = .05), SOV (H_{9c}: β = .04), and COV (H_{9f}: β = .03) in explaining PUI (*ps* ≥ .19) (see Table 5). Among the 3rd cluster hypotheses on interaction effects, H_{9a}, H_{9d}, H_{9e}, and H_{9g} were supported, whilst H_{9b}, H_{9c}, and H_{9f} were rejected. Following the simple slope approach (Dawson, 2014), we plotted significant two-way interaction effects. Fig.5 demonstrated that consumers with higher

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GAR more swiftly translated their three values (EMV, EPV, and GRV) as well as CES into PUI vs. their low receptive counterparts.

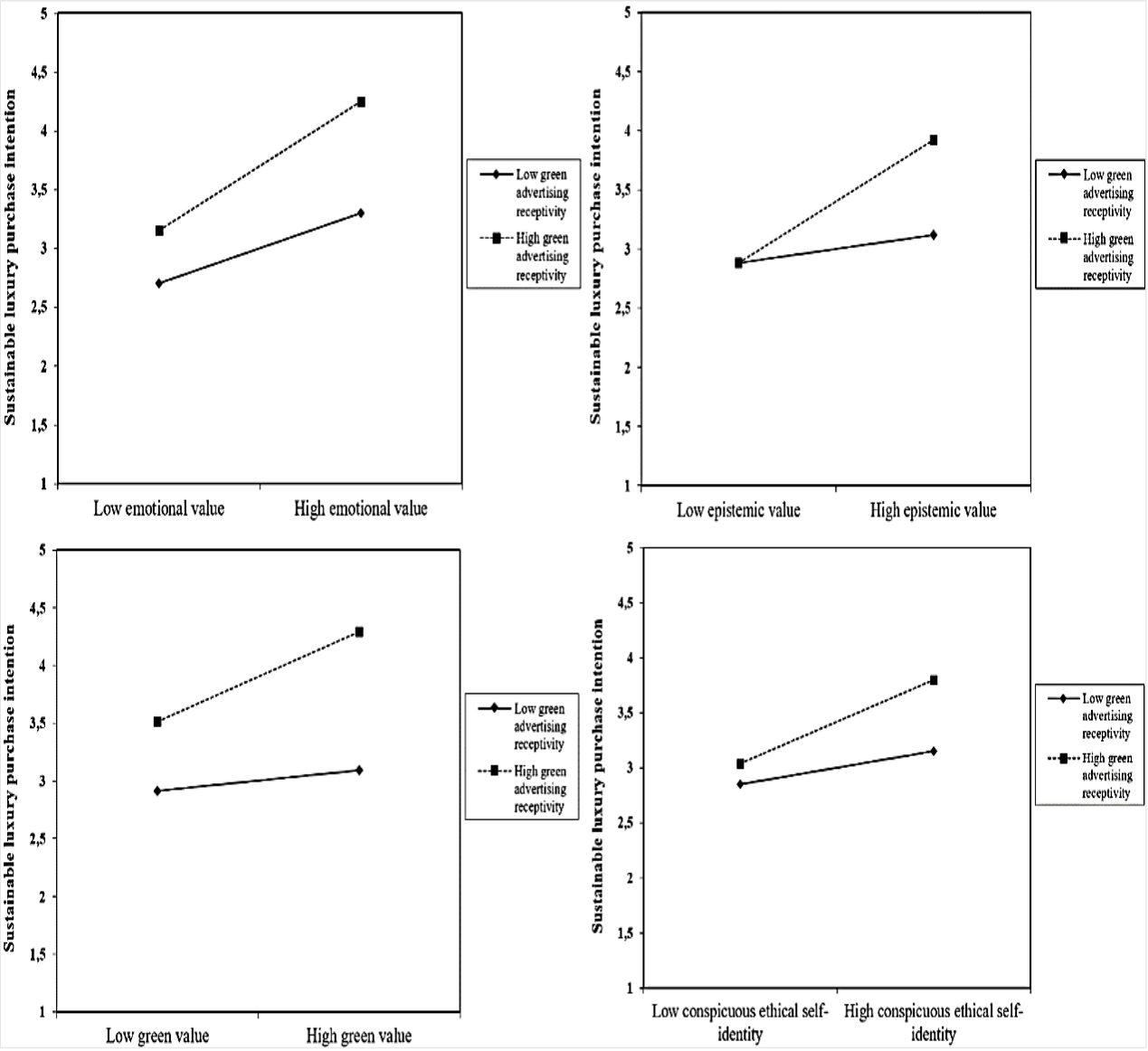

Fig.5. Essay 1: Multiple moderation effects of green advertising receptivity.

5.7. Control variables and generational discrepancies: Gen Y vs. Gen X

To fully dissect our structural model, four dummy-coded (gender, education, employment status, perceived social class) and two continuous (age, income) indicators were incorporated into the analysis, per the advice of Sarstedt et al. (2022). Significantly, age was negatively related to CES (β = -.11), GAR (β = -.06), and PUI (β = -.06) while gender was positively associated with CES (β = .09), GAR (β = .07), and PUI (β = .06) (*ps* < .05). This indicates that younger consumers,

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especially females are more sensitive to sustainable luxury fashion and hold higher levels of ethical self-identity as well as advertising receptivity. However, perceived social class (β = .03), income (β = .04), education (β = .02), and employment status (β = .03) posed no significant confounding effects (*ps* ≥ .11).

To test our RQ concerning discrepancies between Gen Y and X, non-parametric ANOVAs with Games-Howell post-hoc tests were performed by splitting our data based on specific age boundaries[6]. As visualized in Fig.6, we found consistent differences between Gen Y and X appertaining to their CES ($F(1,751) = 11.74$, $p<.001$, $\eta_p^2 = .08$), GAR ($F(1,751) = 8.71$, $p<.003$, $\eta_p^2 = .04$), and PUI ($F(1,751) = 9.11$, $p<.003$, $\eta_p^2 = .05$). Gen Y consumers (vs. Gen X) showed a higher level of sensitivity to these constructs, providing support to RQ.

To expand upon our findings in a post-hoc manner, we conducted an alternate non-parametric significance test, the PLS permutation multigroup analysis (PLS-MGA). Our goal was to probe potential variations in path coefficients among two generational groups. After establishing the partial measurement invariance of composites (MICOM) (Henseler et al., 2016) (see Web Appendix C), the PLS-MGA findings indicated that there were significant differences in the relationships among (GRV→PUI), (EMV→PUI), (SOV→CES), and (EMV→CES), with Gen Y holding higher path coefficients. On the other hand, Gen X manifested stronger effect sizes in the associations between (FUV→PUI) and (FUV→CES) (see Web Appendix D). Overall, the structural model accounted for 71.8% (vs. 62.4%) of the PUI and 64.5% (vs. 54.3%) of the CES for Gen Y (vs. Gen X) consumers.

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[6] In line with Kapferer and Michaut-Denizeau (2020), Gen Y participants were constructed from participants who were between 18-34 years old. Gen X participants were between 35-49 years old. 85.2% of participants in our sample fall within these two cohorts.

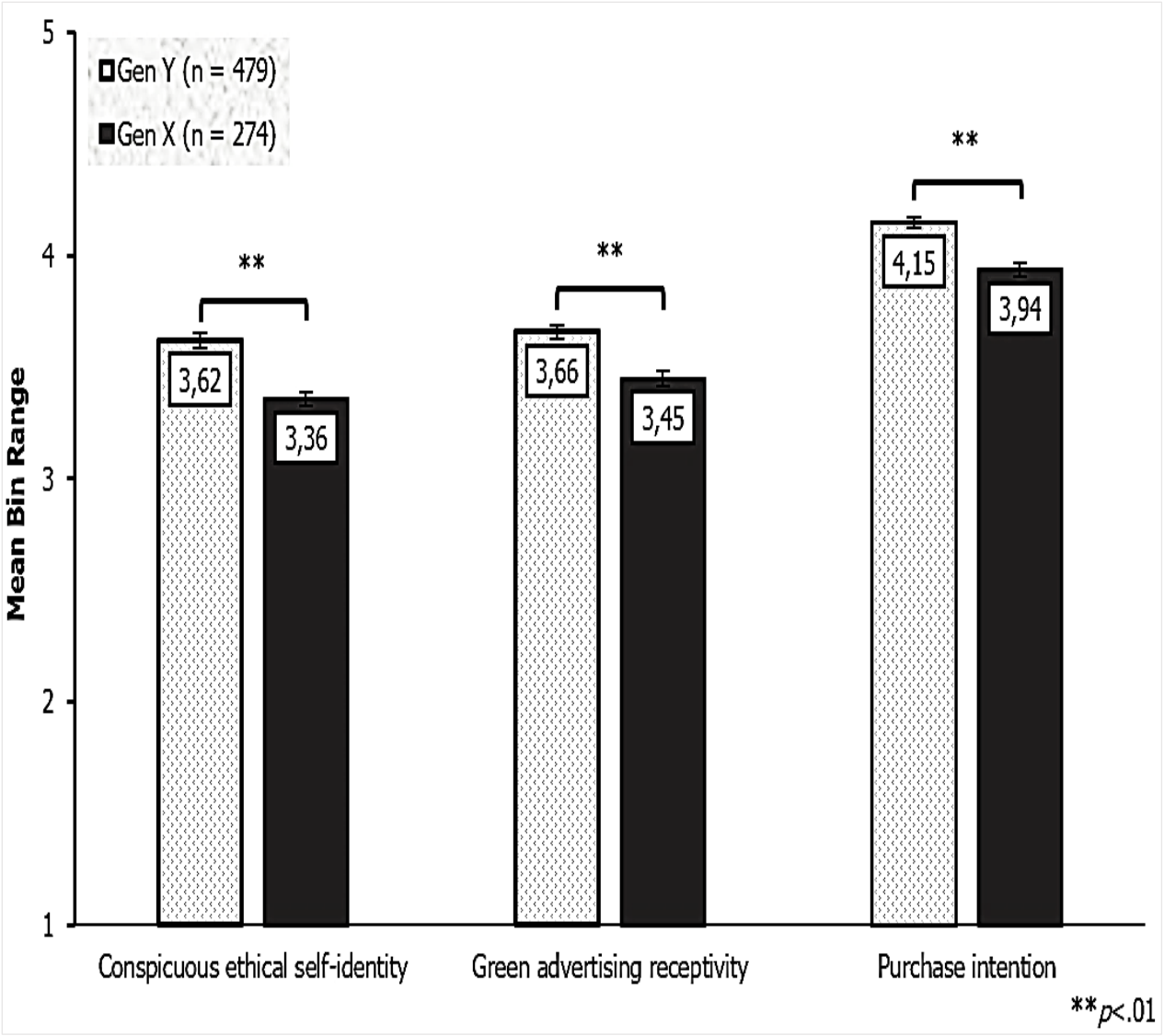

Fig.6. Essay 1: A comparison among cohorts: Gen Y vs. Gen X (±Error bars: standard errors).

5.8. Artificial neural network and importance-performance map analyses

PLS-SEM can only evaluate linear relationships which may result in the oversimplification of sustainable luxury fashion decisions (Hair et al., 2017). To rule out this concern and achieve the twin goals of hypothesis testing and prediction, we employed the complementary ANN technique. ANN was originally depicted as a computational network consisting of simple processing units, namely, nodes that are numerical replicas of the biological neurons in the human brain (Haykin, 2009). It outperforms conventional regressions thanks to its robust deep

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learning ability from the data, enabling us to diagnose complex linear and non-compensatory associations (e.g., Dadhich and Hiran, 2022).

We quantified the relationship between constructs by deploying two multilayer perceptron (MLP) feed-forward ANN models with backpropagation algorithms. The MLP architecture is one of the most commonly employed ANN classes in literature, offering high structural flexibility (Dadhich and Hiran, 2022). Both ANN models[7] (see Fig.7) consisted of three hierarchical layers (an input, a hidden, and an output) as well as synaptic weights, representing connections between neurons. In line with the original proposition of Haykin (2009), the input layer in this research received initial data, with each neuron representing an independent variable. The multiple hidden layers performed computations and transformations on the input layer, enabling the network to model non-compensatory relationships. The output layer produced the final predictions, with the number of neurons depending on the nature of the output. Each connection between neurons had a weight, adjusted during the training process using backpropagation, which iteratively updated the weights to minimize the difference between predicted and actual outputs (see Haykin, 2009 for further consideration of the ANN method).

Hidden neurons were produced automatically by SPSS® and the sigmoid function was used to activate both hidden and output layers. We set up 90% of the data for training and the remaining 10% for testing by merely opting for input neurons based on significant independent variables obtained from the priori PLS-SEM–paralleling with Tewari et al. (2022). Our first network, namely, *Model A* had the output neuron as CES, and the second network: *Model B* had the output neuron as PUI.

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[7] Our training sample of 805 (90% of 894) was sufficient to model two ANNs, as it surpassed the 50-times rule of thumb criteria of Alwosheel et al. (2018). That is, the minimum sample size for the ANN should be no less than 50×the number of parameters: Model A (350) and Model B (400).

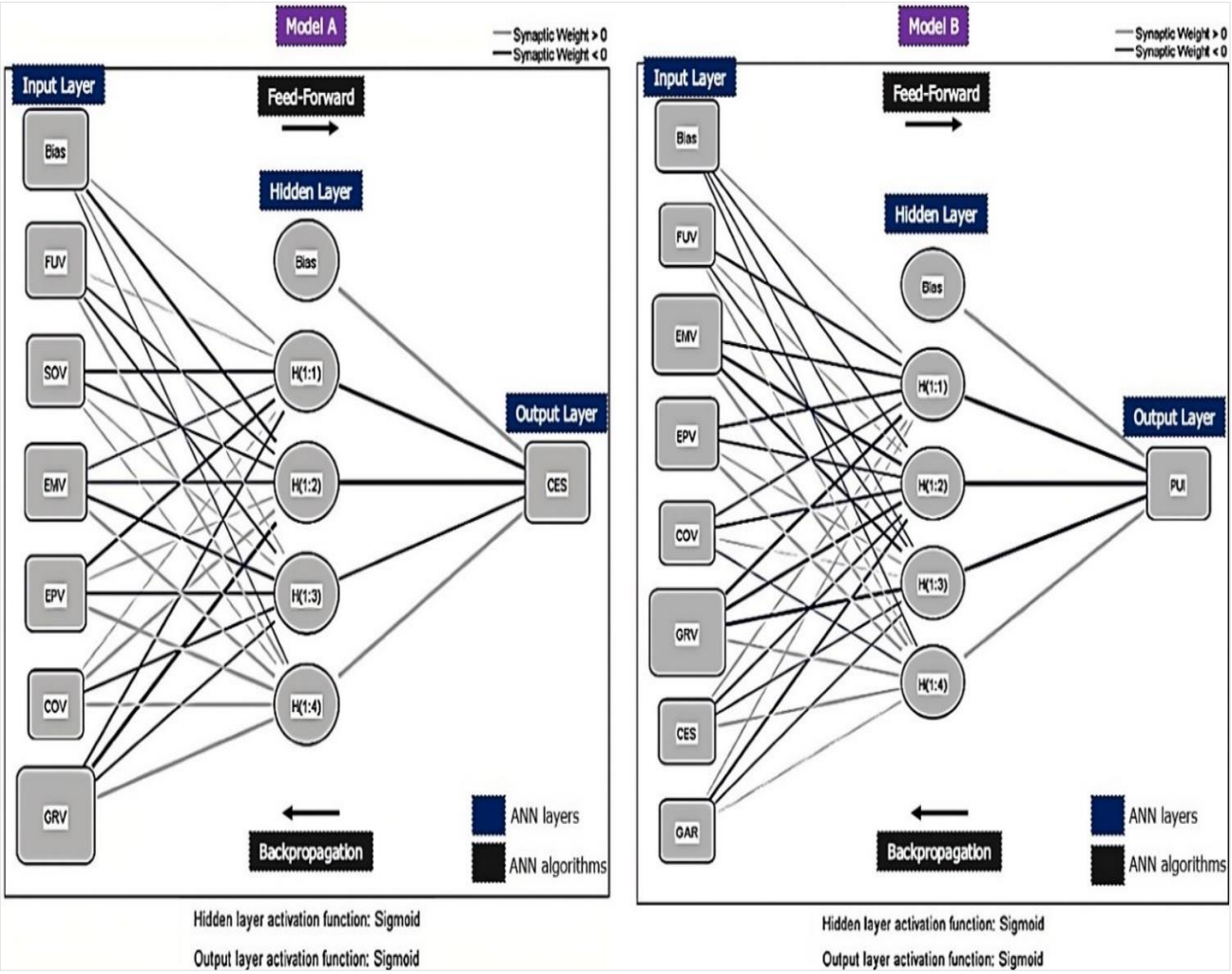

Fig.7. Essay 1: Artificial neural network diagrams (FUV: functional value, SOV: social value, EMV: emotional value, EPV: epistemic value, COV: conditional value, GRV: green value, CES: conspicuous ethical self-identity, GAR: green advertising receptivity, Bias: the constant term, Larger input node sizes (boxes) represent stronger connection weights to output neurons).

As shown in Table 6, we assessed the predictive accuracy of models through the root mean square error (RMSE) values, following a 10-fold cross-validation to avoid over-fitting problems. For Model A, the average RMSE values for training and testing stages were .095 and .076, whilst for Model B, these were .074 and .086 which remained comparably small. The lower average RMSEs in combination with high R^2 values ($75.77\%_{\text{Model A}}$–$81.94\%_{\text{Model B}}$) demonstrated the predictive accuracy of models (Tewari et al., 2022). We then performed a sensitivity analysis to rank input neurons based on their normalized relative importance to output neurons.

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Markedly, the top three predictors of PUI and CES were: (1) GRV, (2) EMV, and (3) EPV (see Table 7 for all normalized scores and rankings). To validate this analysis with advanced PLS-SEM inferences, we additionally performed two benchmark tests: IPMA[8] (see Fig.8), in which PUI and CES served as target variables for the same predictors. As compared in Table 7, IPMA rankings were consistent with sensitivity analysis, providing triangulated support to the validity of ANN results.

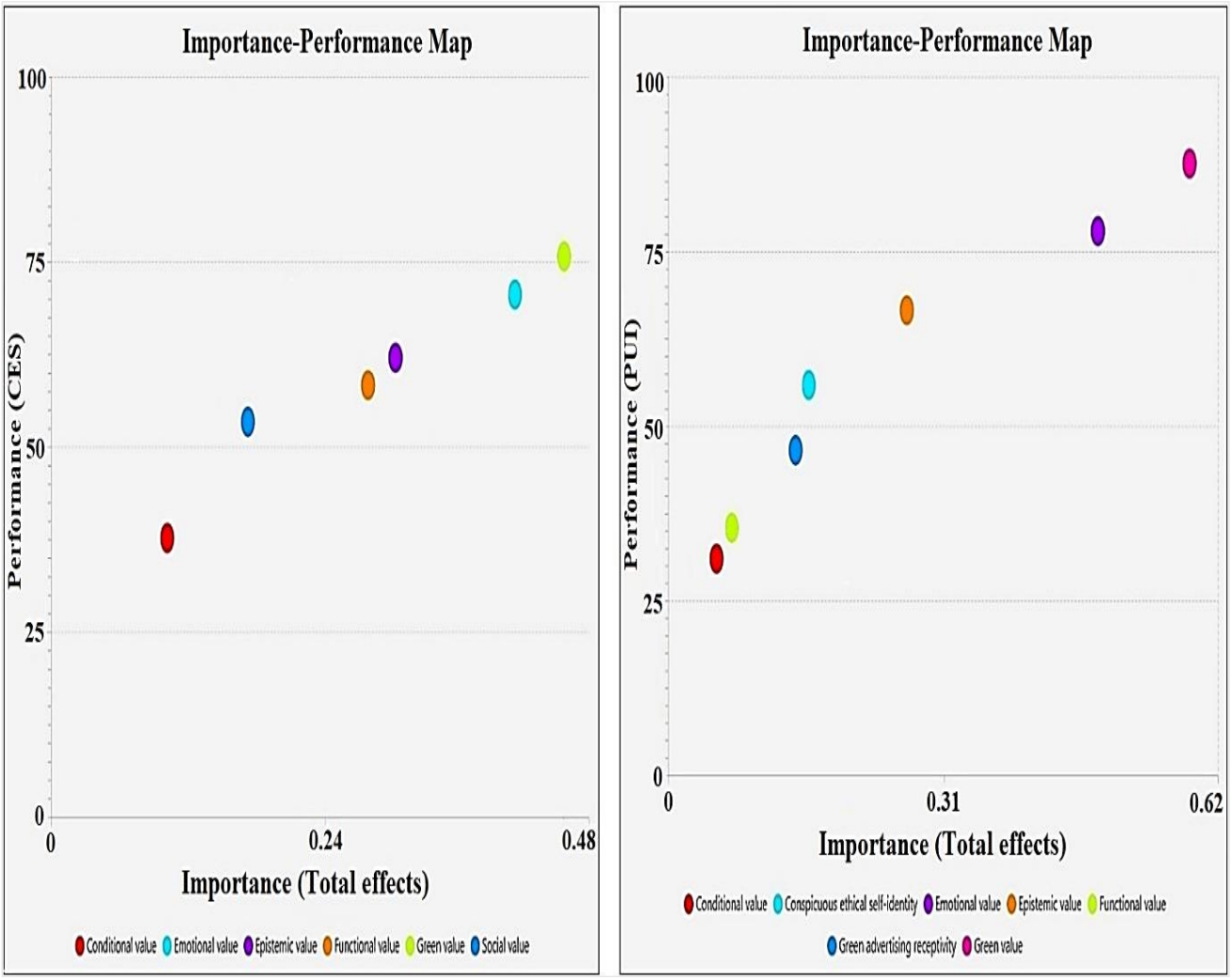

Fig.8. Essay 1: Importance-performance map analyses.

[8] IPMA complements PLS-SEM and ANN findings by seeking to determine the importance–performance effects of each predictor for the dependent (target) variable. The reader is further directed to Ringle and Sarstedt (2016) for a tutorial on the principles of IPMA.

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Table 6. Essay 1: Root mean square error values for artificial neural networks.

Neural network	**Model A** (R^2 = 75.77%) Input neurons: FUV, SOV, EMV, EPV, COV, GRV; Output neuron: CES						**Model B** (R^2 = 81.94%) Input neurons: FUV, EMV, EPV, COV, GRV, GAR, CES; Output neuron: PUI						Total N
	Training			Testing			Training			Testing			
	N	SSE	RMSE	N	SSE	RMSE	N	SSE	RMSE	N	SSE	RMSE	
1	804	7.66	0.098	90	0.75	0.091	804	5.01	0.079	90	0.71	0.089	894
2	800	7.82	0.099	94	0.90	0.098	799	3.90	0.070	95	0.95	0.101	894
3	799	7.41	0.096	95	0.53	0.075	809	4.57	0.075	85	0.67	0.088	894
4	806	6.90	0.093	88	0.39	0.067	792	4.32	0.074	102	0.74	0.085	894
5	802	8.01	0.100	92	0.64	0.083	796	3.89	0.070	98	0.66	0.082	894
6	797	6.51	0.090	97	0.26	0.051	803	4.69	0.076	91	0.52	0.076	894
7	801	7.91	0.099	93	0.71	0.088	805	3.91	0.071	89	0.77	0.093	894
8	805	6.65	0.091	89	0.84	0.097	803	4.95	0.079	91	0.74	0.090	894
9	803	6.70	0.091	91	0.41	0.067	806	5.24	0.081	88	0.59	0.082	894
10	798	8.04	0.101	96	0.20	0.045	802	4.10	0.072	92	0.63	0.083	894
Mean		7.36	**0.095**		0.56	**0.076**		4.45	**0.074**		0.69	**0.086**	
SD		0.61	**0.004**		0.24	**0.018**		0.50	**0.004**		0.11	**0.006**	

Notes. (†). SSE = Sum square of errors; RMSE = Root mean square of errors; N = Sample size; SD = Standard deviation.

(‡). $R^2 = 1 - \frac{RMSE}{S_y^2}$, where S_y^2 is estimated based on the SSE in the testing stages of ANNs.

Table 7. Essay 1: Artificial neural network sensitivity analyses and rank comparisons.

Output neuron/Target variable: CES						
Predictors	ANN average relative importance	ANN normalized relative importance	ANN rankings	IPMA importance effects	IPMA rankings	ANN vs. IPMA (✓/✗)
• GRV	0.418	100%	1	0.462	1	✓
• EMV	0.232	46.2%	2	0.394	2	✓
• EPV	0.141	33.8%	3	0.291	3	✓
• FUV	0.133	31.7%	4	0.268	4	✓
• SOV	0.092	21.9%	5	0.166	5	✓
• COV	0.055	13.1%	6	0.115	6	✓
Output neuron/Target variable: PUI						
• GRV	0.340	100%	1	0.601	1	✓
• EMV	0.249	73.1%	2	0.518	2	✓
• EPV	0.160	47.0%	3	0.293	3	✓
• CES	0.079	22.8%	4	0.209	4	✓
• GAR	0.065	18.1%	5	0.192	5	✓
• FUV	0.059	17.3%	6	0.083	6	✓
• COV	0.057	16.7%	7	0.067	7	✓

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6. Discussion of main findings

6.1. Value perceptions and sustainable luxury

Building upon the TCV of Sheth et al. (1991), our multi-analytical findings jointly confirm that high-value perceptions explain consumers' strong interest in sustainable luxury fashion. First, GRV was the most important predictor of PUI. This suggests that consumers primarily purchase SLFPs because they are concerned about the potential environmental impacts of their actions. This outcome fortifies the findings of previous research (Essiz et al., 2023; Haws et al., 2014; Kelleci, 2022) and is prudent, suggesting that GRV creation can result in motivated reasoning and guide consumers to process information about SLFPs in a positive light that unites with their CES. The strong effects of GRV on both ANN and IPMA outputs might indirectly suggest that consumers with high GRV are more inclined to be involved in tangible actions and perform larger-scale sustainable behaviors. Congruently, one alternative explanation for this effect is that stronger GRV can ignite a sense of empowerment and a high degree of environmental citizenship, exhorting consumers to focus on the well-being of future generations in luxury purchase decisions (Vanhamme et al., 2023).

Next, we anchor the fit between EMV and sustainable luxury fashion. This fit can be partially attributed to the guilt-free mindset propounded by sustainable luxury (see Fig.2), in which the inclusion of green practices into luxury might lead guilt-laden consumers to enact reparative actions towards society and send value-expressive signals about themselves, so as to ameliorate their ecological well-being. However, this assumption should be tested empirically in future research. Corroborating the findings of early research (Khan and Mohsin, 2017; Wang et al., 2021), we surmise that this effect is retained since consumers who view sustainable luxury as a way to protect the environment are more likely to gain hedonic benefits and experience fulfillment in affective states such as moral satisfaction, emotional attachment, pride, and warm glow feelings.

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Subsequently, the significance of EPV in explaining PUI is in line with other TCV-based works (Biswas and Roy, 2015; Lin and Huang, 2012). This result designates that SLFPs can arouse inquisitiveness and novelty among consumers by satisfying their desire for knowledge. Considering our proposed literature, the atypical characteristics of SLFPs, particularly their distinctive design and sustainability-centered communication elements might be the underlying reason behind this observed effect (Amatulli et al., 2021). Indeed, consumers who seek epistemic benefits seem to be more prone to choosing them over routine alternatives, as this might enable them to form better cognitive risk assessments, potentially stimulating curiosity while seeking these new options (Essiz et al., 2023).

Additionally, the importance of FUV in encouraging PUI validates early conceptual works (Hennigs et al., 2013; Jain, 2019), ratifying that consumers expect sustainable luxury fashion to be valuable in terms of quality, performance, and price. Consistent with Dangelico et al. (2021), the findings indicate that if consumers perceive SLFPs as lacking in utilitarian features, they may be hesitant to buy them, as it could diminish the luxury dimension of sustainable luxury brands. This is a logical ultimatum because functionality-oriented consumers may more swiftly observe a match between conspicuous and sustainable dimensions of luxury, thus reckoning them as both enduring and symbolic commodities that are worth money (Achabou and Dekhili, 2013).

Our results regarding the positive effect of COV substantiate existing TCV research (e.g., Bhutto et al., 2022) by expounding that extrinsic situations such as the availability of sustainable luxury fashion along with subsidies and deteriorating environmental conditions encourage consumers to place more weight on conditional benefits while making a trade-off between sustainable (vs. standard) choices. This outcome is logical and aligns with the findings of Park et al. (2022), supporting that perceived product scarcity may enable consumers to become more aware of the conditional benefits associated with accessing limited-edition SLFPs. Compellingly,

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SOV played an insignificant role in predicting PUI. This did not side up with the inferences of Yang et al. (2022) and was contrary to our expectancies that sustainable luxury fashion might contribute to building social prestige.

Further, a recent integrated TCV framework by Srivastava and Gupta (2023) articulates that subjective norms and social groups can stimulate a habitual inclination towards conventional green purchasing within a non-Western culture (India). However, our empirical examination challenges the validity of this direct correlation in the context of sustainable luxury fashion, indicating potential variability in its generalizability. At first glance, one explanation for this divergence might be the effect of product category and individualistic nature of our U.S. sample (Hofstede, 1984). Paralleling the findings of Wang et al. (2021), our sample regards social groups as second-order artificial constructs, thereby pursuing more idiosyncratic decisions and showing a lower tendency to fit interpersonal (e.g., peer group) opinions.

Another plausible account is that consumers may choose to forego "showing off" to others in this domain to safeguard against inequalities that come with social stratification and the self-enhancement (e.g., power, prestige) aspect of conventional luxury purchases (Han and Kim, 2020). Taken together, these findings corroborate the positive perspective of sustainable luxury (as elaborated in Sec. 2.1) and delineate that consumers are not merely purchasing a product but are investing in a diverse range of consumption values, such as environmental protection and emotional satisfaction. This resonates positively with the shared understanding of both luxury and sustainability, thereby reinforcing the proposition by Osburg et al. (2021) that these two concepts can exist synergistically within the marketplace.

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6.2. CES and sustainable luxury

Athwal et al. (2019) noted that our understanding of the influence of consumer identity on sustainable luxury choices remains constrained. This research has sought to fill this gap by investigating the prominence of CES, thereby enhancing our knowledge of the identity-related

facets of sustainable luxury. Our data indicate that CES has a positive direct impact on purchase intention. In the ambit of sustainable consumption, this is in parallel with recent works on self-congruity and identity theories (Carranza et al., 2023; Pai et al., 2022). From our findings, it would be sensible to presume that luxury consumers who view themselves as environmentally conscious and have salient identity goals are more likely to make self-congruent choices, as this has a high potential to indulge their self-affirmation and self-completion needs. One may expect such consumers to realize a closer fit between luxury and sustainability when the prominence of CES is elevated. Our research further lends credence to the position of Athwal et al. (2019) that consumers' self-identity propels them towards more enduring sustainable luxury actions. Along the same lines, we enrich the findings of Bhutto et al. (2022), suggesting that ethical self-identity, when combined with TCV variables, can generate a model with greater behavioral predictability, as opposed to when it is examined in isolation.

Next, we show that the association between six consumption values and PUI is mediated by CES. This concurs with the findings of Lavuri et al. (2023) and Qasim et al. (2019), as consumers' inner moral beliefs and values chronically reflect their ideal ethical selves–that is, their self-sacrifice in protecting the environment, emotional and inquisitive involvement, along with positive functional, situational, and social value-expressive functions towards sustainable luxury fashion can have the power to allure their conspicuous ethical selves. When these consumption values reflect consumer's aspiration to be perceived as ethically conspicuous, it demonstrates a potent predictive relevance ($75.77\%_{\text{ANN-Model A}}$) and echoes the new school of thought on the harmonious relationship between sustainable luxury and consumer behavior (e.g., Amatulli et al., 2021; Vanhamme et al., 2023). This result also resonates with the recent research on the motivation-identity-behavior hierarchy (e.g., Chaihanchanchai and Anantachart, 2023; Tewari et al., 2022) by clarifying that value perceptions not only serve as a motivation to purchase SLFPs but also contribute to the formation of ethical self. From the opposite angle, these mediations

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manifest a negative spillover effect at the personal level, in which consumers can choose to withdraw their purchases when SLFPs do not align with their ethical selves–a conjecture in line with White et al. (2019).

Intriguingly, we found that SOV can still indirectly influence PUI if perceived utilities derived from this construct inform the ethical identity. Keeping context differences aside, this lines up with the observations of Lu and Ahn (2022), wherein the social capital of consumers can contribute to the enhancement of self-luxury brand connection. As a result, a socially shaped personal identity may still serve as a psychological linkage in leading to the purchase decision. However, alternative accounts for this finding exist pondering that the magnitude of social conformity differs between consumers with high vs. low prestige sensitivity (Bao and Mandrik, 2004).

6.3. GAR and sustainable luxury

Bailey et al. (2016a) called for investigations on potential psychographic differences between consumers with high vs. low receptivity to green advertising. In response, we showed that consumers with high ad receptivity (vs. low counterparts) tend to espouse stronger GRV, EMV, and EPV as well as CES, which ultimately magnifies their purchase decisions. These significant moderations are consistent with the correlated literature on signaling theory (Atkinson and Rosenthal, 2014; Sun et al., 2021), as green luxury ads can signal feelings of affinity towards the environment through nature imagery or moral primes and arouse curiosity among high-receptive consumers by supplying epistemic benefits on products, which in turn reinforces PUI.

Likewise, it is conceivable that concrete and trustworthy hedonic appeals used in green communication might stimulate positive affective responses and assist our high-receptive sample to favorably realign their conspicuous ethical selves (Van der Werff et al., 2013). Although recent research indicated that some luxury consumers are skeptical of green advertising and hold ambivalent views related to the luxury-sustainability relationship (Septianto et al., 2023), our

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findings affirm that for high-GAR consumers, the act of purchasing sustainable luxury serves as a way to signal their consumption values and conspicuous identity. A potential explanation for this could be GAR's proximal influence on both personal and system trust of consumers, which subsequently shapes green purchasing decisions, a sentiment evidenced by Sun et al. (2021). Building upon the insights of our proposed literature (e.g., Bailey et al., 2016b; Rahman and Nguyen-Viet, 2023), these findings highlight the pivotal role of green advertising in elevating luxury consumers' awareness of environmental practices and understanding of SLFPs.

On the other hand, the non-significant moderating effects of GAR on the relationships between FUV, COV, and SOV with PUI were surprising and designated that the link between these values and PUI did not increase as consumers moved towards high receptivity. At first glance, this finding can be conferred to the view that perceiving functional, conditional, and social value appeals in green luxury ads may seem perplexing because they are often subtle and not immediately visible cues (Atkinson and Rosenthal, 2014). This is in tandem with the contention that consumers may not necessarily be familiar with the specific utilitarian or situational signals used in different types of green ads, making it harder for them to characterize the appeal types being made (Schmuck et al., 2018). In addition, our sample appears to rely less on peripheral routes provided by reference groups when forming PUI and this might explain the insignificant interaction term between SOV and GAR given that green messages do not routinely induce a bandwagon effect (Pittman et al., 2021). Collectively, these results add to the lively debate on the complexities of consumer response to green marketing communications (Amatulli et al., 2021; Bailey et al., 2016a; Tewari et al., 2022), refining the need to decipher the dynamic nature of value propositions in order to shape consumers' receptivity towards sustainable luxury.

6.4. Generational disparities and sustainable luxury

Our study found that younger consumers, those in Gen Y, exhibit a higher inclination towards sustainable luxury fashion purchases compared to their Gen X counterparts. This result mostly

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aligns with prior research, which suggests that Millennials place a greater emphasis on sustainability in luxury choices as opposed to other cohorts and do not perceive such goods as paradoxical (Rolling and Sadachar, 2018; Sun et al., 2022), yet it partially contrasts with the findings of Kapferer and Michaut-Denizeau (2020). Setting aside cultural differences, one possible explanation for this disparity is that the millennial participants in our sample had a stronger sense of CES and were more responsive to green luxury ads, hypothetically leading to a higher likelihood of purchasing from sustainable luxury brands. Even though not hypothesized explicitly, our Millennials also scored significantly higher on three consumption values (GRV, EMV, and EPV) than Gen X. This could offer an alternative account for this incongruity.

Furthermore, PLS-MGA results show that Gen Y places a higher significance on green and emotional values for PUI, while Gen X finds functional value more pivotal to their PUI and CES. This aligns with Septianto et al. (2021), who posit that Millennials are inclined towards procuring sustainable luxury items due to ecological and affective reasons (e.g., self-transcendence, authentic pride). It also resonates with Dangelico et al. (2021) who suggested that constructs such as value for money and quality–representing functional utilities–are crucial in determining green purchase satisfaction among the Gen X cohort. In line with the generational cohort theory, such differences in value orientations of generations can partially be attributed to their diverse cultural transformation background and socio-economic levels (Casalegno et al., 2022). Among other things, U.S. Millennials as trendsetters are known to possess a high proclivity towards altruism and a heightened level of consciousness regarding the CSR efforts of luxury brands (Sun et al., 2022) and this might explain the more favorable disposition towards sustainable luxury fashion among this generational cohort when contrasted with Gen X.

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7. Implications, limitations, and future directions

7.1. Theoretical and methodological implications

On a theoretical basis, this research advances the sustainable luxury literature in several ways. Admittedly, previous research has largely focused on the perceived sustainability-luxury discrepancy at the macromarketing level (e.g., Pai et al., 2022), with scant theoretically grounded attention given to micro-underlying mechanisms influencing consumers' engagement with sustainable luxury. As such, researchers gradually called for the development of multidimensional models to test value perceptions in sustainable luxury (Jain, 2019; Kunz et al., 2020). Answering these calls, our conceptual framework, illustrated in Fig.1, is the first attempt to broaden the scope of the TCV paradigm to the domain of sustainable luxury. This operationalization helps us to channelize how multiple value dimensions influence sustainable luxury choices and contribute to the advancement of TCV by enhancing the predictive power of the theory in a hitherto underexplored consumption setting.

In our conceptual framework, we have incorporated the GRV as a sixth value dimension. This addition enhances the explanatory power of the TCV and places the "GREEN" construct of Haws et al. (2014) within a broader nomological network, illustrating how it can be used in the taxonomy of sustainable luxury consumption. To that end, this research is the first to incorporate the GRV into a comprehensive theoretical structure that encompasses luxury consumers' perceptions, identities, and intentions. To understand the conspicuous ethical selves of consumers and their reactions to green luxury brand communications, it is crucial to grasp the nature of their GRV.

On top of that, we have incrementally unified the TCV with a mediator (CES) and a moderator (GAR) that have not previously been studied in this domain. This work thus adds to the contemporary TCV literature (Tanrikulu, 2021 for a review) by encompassing these mediating and moderating effects in one holistically integrated model. As the existing literature produced

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mixed results across generations (e.g., Kapferer and Michaut-Denizeau, 2020), we also pinpointed divergences in the level of sensitivity towards sustainable luxury among generations Y and X. These conceptualizations advance findings of recent works on the widely reported value-action gap and sustainable luxury fashion paradox (e.g., Carranza et al., 2023; Essiz et al., 2023) by elucidating the theoretical pathway through which individual difference factors influence consumers' ability to translate their value perceptions into purchasing decisions. At the macro-scale, our integrated TCV model goes beyond generic TCV applications (Biswas and Roy, 2015; Lin and Huang, 2012; Srivastava and Gupta, 2023) and adds to the latest movement on transformative luxury research (Kim et al., 2022; Pai et al., 2022), echoing the positivistic sentiment that sustainability and luxury can have a common future in fostering social-environmental change among U.S. consumers.

Besides augmenting the theory, this research makes two main methodological contributions. First, previous studies have often relied on convenience samples with diverse backgrounds (e.g., most composed of students) who had little or no consumption experience with luxury products (e.g., Sun et al., 2022). As condemned by Athwal et al. (2019), this sampling method does not accurately represent the luxury consumer market. To address this shortcoming, we used a balanced representative sample that helped us to derive context-specific results with a lower margin of sampling error. Second, this research is the first to employ a combination of multi-trait approaches: PLS-SEM, ANN, and IPMA in this literature, whereas previous works have merely used single SEM or simple logistic regressions (Ali et al., 2019; Wang et al., 2021; Yang et al., 2022). The single-analytical method often leads to an overestimation of effect sizes and jeopardizes the reliability of early results. Alternatively, our tri-stage approach provides a prevailing perspective on TCV modeling and contributes to the methodological development of this pertinent literature by controlling linear and non-linear associations between constructs. Particularly, the deep-learning powered ANN models allow us to prioritize the most important

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drivers of outcome variables with higher predictive accuracy and cross-validate significant effects obtained through PLS-SEM, therefore minimizing measurement errors.

7.2. Practical implications

This research offers several practical implications for luxury marketers on how to align their sustainable positioning strategy with the perceived values of U.S. consumers. Primarily, our results suggest that marketers cannot rely on only one value dimension in promoting sustainable luxury, as focusing on a single value is not sufficient to explain purchase decisions. Instead, we recommend marketers to prime and cater multiple value propositions into their communication efforts.

In particular, our results indicate that positioning SLFPs by using bandwagon appeals is not the most effective way to target all consumers because one's PUI is not directly driven by the desire to signal status. Moreover, it is essential for marketers to convey factual information about labor practices, transparency in the production process (e.g., materials recycled), and environmental safety (e.g., carbon footprint) of SLFPs–as alluded by our descriptive findings (see Fig.2 and Fig.3). Understanding such practices would enable consumers to make more informed decisions, helping them to derive additional EPV.

As our sample largely associated sustainable luxury consumption with guilt-free licenses, marketers are recommended to relate these purchases with the idea of doing good for the environment. They could highlight the ways in which sustainable luxury products help preserve environmental resources. By enhancing the salience of GRV among consumers, they may reduce cognitive dissonance and lead to positive spillover effects on other green domains. To help seed the market, another area for improvement can be increasing the accessibility and visibility of sustainable luxury fashion across different behavioral segments without compromising the quality. This will let the majority of consumers derive extra conditional benefits from their purchases and add to the long-term circularity of luxury brands.

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Building on the ANN and IPMA outputs, we further sensitize that consumption values vary in their importance and performance. In cases where it is not feasible to foster multiple values, marketers are recommended to concentrate on cost-benefit analysis and prioritize managerial actions around the most salient determinants of sustainable luxury fashion. As such, marketers need to focus more on changing the attitudes of consumers who hold weaker GRV, EMV, and EPV since those with stronger value perceptions are already self-motivated to engage on their own. This could be done by featuring testimonials from satisfied luxury consumers to create emotional connections or offering detailed videos and interactive demos to highlight innovative green features of SLFPs. Additionally, we underscore that consumers still have doubts about whether luxury brands are truly sustainable (see Table 3). In practice, low CES consumers are expected to hold greater doubts and they require more persuasion from marketers while making purchase decisions. Ideally, ad campaigns can concentrate on featuring green, emotional, and epistemic appeals via associative priming tools to attract the attention of this segment, as these values positively interact with ad receptivity. For instance, leveraging celebrity endorsers who are coupled with green consumption values might lead low-receptive consumers to procure higher self-congruity in sustainable luxury branding. However, endorsers need to be cognizant about not making false claims in their promotions, as this can elicit product perception biases, potentially leading to negative word of mouth among consumers (Acuti et al., 2022).

Another practical suggestion is that marketers can target various demographic segments of consumers simultaneously, such as those who differ in age and gender while promoting sustainable luxury fashion. As aforementioned, Millennials (vs. Gen X) and females (vs. males) had a higher level of receptivity, self-identity, and purchase intent. In light of this information, it is critical to consider using pull marketing and buzz marketing strategies by featuring Gen Y and females to attract the attention of Gen X and males (Essiz and Mandrik, 2022). To boost

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perceived readiness among the latter group, marketers may consider crafting personalized experiences (e.g., early access to limited editions of SLFPs).

Recalling our PLS-MGA findings (see Web Appendix D), it is possible that sustainable luxury brands would benefit significantly from adopting a multi-dimensional marketing strategy across generations. For Gen Y, emphasis can be placed on warmth, hedonic, and collective ecological message frames (e.g., Dai and Sheng, 2022; Rizomyliotis et al., 2021) to leverage their amplified sensitivity to green, emotional, and social values, given these aspects exert greater influence over their PUI and CES enhancement.

Conversely, Gen X are more swayed by the functional value when forming their PUI and CES. To fortify purchases among this group, we encourage marketers to accentuate competence-based utilitarian advertising appeals, signaling that SLFPs match the perceived superior quality linked with general luxury goods. Portraying them as a desirable alternative to general luxury equivalents can aid marketers in highlighting the longevity and unique craftsmanship associated with sustainable luxury (Pai et al., 2022). Moreover, marketers might consider designing visually expressive meta-sustainability labeling schemes for both cohorts to nudge specific value-expressive benefits associated with SLFPs (Torma and Thøgersen, 2023). Ultimately, it is imperative for marketers to delve into the contexts under which different categories of sustainable luxury products are more susceptible to influence, whether from Gen Y to Gen X, or vice versa. Such efforts may assist them in discerning the appropriate weight to be placed on emotional versus rational appeals in developing sustainable marketing strategies.

Next, as the consumer journey has become a multi-sensory experience (Laukkanen et al., 2022), we recommended marketers to utilize sensory cues and virtual reality technologies to promote significant value perceptions identified in this study. This will nudge consumers towards sustainable luxury fashion in the physical store, aiding them to internalize sustainable product information more effectively. For the online environment, one long-term positioning strategy can

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be related to the metaverse because it has a large potential to transform the way consumers and brands interact (Dwivedi et al., 2023). As time evolves, we suggest luxury brands to ramp up their digital sustainable product lines within the metaverse and explore ways to optimize metaverse sensory inputs through personalized avatar-based marketing strategies, which in turn can generate receptivity among users and assist the digital value creation.

Apart from liabilities of luxury brands, other stakeholders such as policymakers and educational institutions should also actively promote sustainable luxury practices (Srivastava and Gupta, 2023). In a broader context, our research finally suggests policymakers to implement stricter ethical standards in luxury production by adopting extended producer responsibility policies and enhancing supply chain transparency using blockchain technology. In addition, they should incentivize the transition to circular luxury fashion through tax breaks and by offering support for sustainable R&D activities. Meanwhile, educational institutions can take the initiative in promoting the cultivation of ethical self-identity, green receptivity, and consumption values via knowledge instillation methods (e.g., curriculum development, awareness campaigns, and seminars). This would enhance the social desirability of sustainable luxury products and guard against potential negative perceptions related to sustainable luxury consumption.

7.3. Limitations and future research directions

This research, while contributing to the literature, has certain limitations that influence the generalizability of its findings. First, our data were gathered directly from the actual luxury consumers, providing a realistic snapshot of sustainable luxury consumption and adding credence to our results. Nevertheless, the cross-sectional nature of our data means we captured a static snapshot, missing out on dynamic variations in consumption values. Given that our sample comes exclusively from the U.S., our findings are inherently tethered to its market maturity as well as economic, cultural, institutional, and demographic characteristics. Therefore, extrapolating these results to other luxury markets without consideration of their unique structures might risk

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misinterpretation. To avert this threat of ethnocentrism, longitudinal (e.g., quasi-natural experiments) and controlled experiments will assist future research to establish causality. Also, cross-national comparisons on diverse set of potential luxury consumers will add to the external validity of our proposed model. Next, while this research identified six consumption values facilitating sustainable luxury fashion, it is critical to recognize that consumption values are multidimensional (Sheth et al., 1991). There are other potentially influential constructs such as aesthetic, experiential, and zero-moment-of-truth values which could hold significance in sustainable luxury brand consumption (Han and Kim, 2020). Thus, our results might not be generalizable to specific contexts where these unexplored values are pivotal.

Moreover, we focused solely on the fashion domain and pre-purchasing stage, hence generalizing our conclusions to other consumption domains or all sustainable luxury purchases might not be straightforward. To broaden the applicability of our findings, one promising avenue would be to study the subtle differences of value perceptions in product-category variations and other service-dominant sustainable luxury areas (e.g., technology, tourism, and the vintage market) with a particular focus on post-purchasing stage variables such as word of mouth intentions and product recommendations (Shashi et al., 2021).

Apart from theoretical reasonings, the limited representation of baby boomers and Gen Z consumers in the dataset led this study to primarily concentrate on Gen Y and Gen X consumers. While our focus on these generations allows for an in-depth exploration, it also hinders the immediate relevance of our results to baby boomers and Gen Z. Given that these cohorts display interest in sustainable consumption (Arora and Manchanda, 2022), understanding their values and perceptions regarding sustainable luxury consumption may warrant more generalizable insights.

Last but not least, the value-action gap in sustainable consumption was found to be more prominent for luxury goods compared to convenience products (Park et al., 2022). Although this

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research studied mediating (CES) and moderating factors (GAR) enhancing the value-intention consistency, future research can quantify the presence of others such as self-related affective states (e.g., awe), psychographics (e.g., lay rationalism), contextual (e.g., brand anthropomorphism), social (e.g., romantic relationship formation), and cultural (e.g., masculinity vs. femininity) constructs that will ideally strengthen or weaken the value-action translation in the context of sustainable luxury (e.g., Kunz et al., 2020). Ergo, it would be equally intriguing to trace potential intergenerational connections at the dyadic level and realize how families as collective decision units may hold similar or different sustainable luxury preferences.

Finally, on methodological fronts, future studies can explore other non-linear activation functions (e.g., softmax and hyperbolic tangent) in ANN modelling to further fine-tune the predictive capability of our model. Alternatively, researchers can combine the PLS-SEM with other machine learning methods such as random decision forests, gradient boosting, and asymmetric fuzzy-set qualitative comparative analyses to causally characterize specific value configurations that can conjointly lead to a high level of sustainable luxury purchases, thereby enriching the present model's vigor (e.g., Bhattacharyya et al., 2023).

8. Concluding remarks

Originally employing a multi-analytical approach, this research provides a rigorous empirical assessment of value-based determinants of sustainable luxury and unravels exogenous factors affecting this link (i.e., CES and GAR). It also focuses on illuminating cross-generational disparities between Gen Y and X. Unitedly, these findings contribute to a better understanding of the psychographic, behavioral, and demographic characteristics of sustainable luxury consumers. By initiating this line of inquiry, our study is the first to delineate the applicability of the integrated TCV model in this sphere, hence adding to the positive school of thought in better theorizing research on sustainable luxury (Athwal et al., 2019; Kunz et al., 2020; Osburg et al., 2021).

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At this critical point, we contend that the exclusive benchmark of sustainable luxury should not be the accountability of a few firms. As a matter of fact, this transformative movement necessitates collective actions from multiple stakeholders in private and public spheres during the value delivery process. To this end, understanding the multifaceted nature of sustainable luxury via individual value perceptions is a vital first leg for satisfying the changing needs of consumers and normalizing the perceived fit between sustainability and luxury. We thus look forward to seeing more conscientious luxury production and consumption practices on the market side and hope that this investigation may serve as a springboard for future research, especially from high-impact markets to safeguard the long-term sustainable development agenda in the luxury industry.

List of Abbreviations

ANN, artificial neural network; ANOVA, analysis of variance; AVE, average variance extracted; CES, conspicuous ethical self-identity; CFA, confirmatory factor analysis; CMV, common method variance; COV, conditional value; CR, composite reliability; CSR, corporate social responsibility; EMV, emotional value; EPV, epistemic value; FMCG, fast-moving consumer good; FUV, functional value; GAR, green advertising receptivity; GRV, green value; HTMT, heterotrait-monotrait ratio of correlations; IPMA, importance-performance map analysis; MGA, multigroup analysis; MICOM, measurement invariance of composite models; MLP, multilayer perceptron; MSV, maximum shared variance; PLS-SEM, partial least squares structural equation modeling; PUI, sustainable luxury (fashion) purchase intention; RMSE, root mean square errors; RQ, research question; SDG, sustainable development goal; SFL, standardized factor loading; SLFPs, sustainable luxury fashion products; SOV, social value; TCV, theory of consumption values; U.S., United States; VIF, variance inflation factor.

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Supplementary Materials: Web Appendices

Appendix A. Construct measures, definitions, and related statistics.

Construct measures & operational definitions (# of items adapted, source)	Main role	M	SD	SFLs	VIF	Skewness	Kurtosis
Functional value (FUV) (4) (Sweeney and Soutar, 2001): The extent to which consumers will derive utility based on the expected performance and perceived quality of sustainable luxury fashion products.	IV	**3.78**	**1.01**		1.76	-0.92	1.08
(•) I would purchase sustainable luxury fashion products because I think they offer consistent quality.		3.75	1.02	0.88			
(•) I would purchase sustainable luxury fashion products because I think they are well-made and would perform consistently.		3.93	0.97	0.90			
(•) I would purchase sustainable luxury fashion products because I think they have acceptable standards of durability and longevity.		3.97	0.95	0.91			
(•) I would purchase sustainable luxury fashion products because I think they offer value for money.		3.49	1.14	0.74			
Social value (SOV) (4) (Sweeney and Soutar, 2001): The extent to which consumers will enhance their social self-image through purchasing sustainable luxury fashion products.	IV	**3.10**	**1.14**		2.34	-1.03	-0.79
(•) Buying sustainable luxury fashion products would help me to feel accepted among my friends.		3.05	1.14	0.90			
(•) Buying sustainable luxury fashion products would make a good impression on other people such as reference groups.		3.27	1.15	0.92			
(•) Buying sustainable luxury fashion products would help me to gain social approval and a positive social image.		3.08	1.21	0.91			
(•) Buying sustainable luxury fashion products will improve my overall social status.		3.02	1.06	0.89			
Emotional value (EMV) (3) (Lin and Huang, 2012): The extent to which purchasing sustainable luxury fashion products will cause fulfillment in affective/moral states and generate feelings of elation.	IV	**3.73**	**1.13**		2.69	-0.98	0.19
(•) Buying sustainable luxury fashion products would feel like making a good personal contribution to something better.		3.75	1.10	0.92			
(•) Buying sustainable luxury fashion products would feel like the morally right thing to do.		3.60	1.17	0.91			
(•) Buying sustainable luxury fashion products would arouse positive emotions and make me feel like a better person.		3.86	1.12	0.91			
Epistemic value (EPV) (4) (Lin and Huang, 2012): The extent to which the purchase decision of sustainable luxury fashion products will arouse inquisitiveness, represent novelty, and fulfill the desire for knowledge.	IV	**3.81**	**1.06**		2.01	-0.87	0.39
(•) I would prefer to check certifications and eco-labels on sustainable luxury fashion products before making a purchase decision.		4.07	0.98	0.88			
(•) Before buying a sustainable luxury fashion product, I would obtain substantial information about the different makes and models.		3.84	1.08	0.84			
(•) I am inclined to seek novel information about sustainable luxury fashion products.		3.58	1.14	0.90			
(•) I am inclined to search for new and different product information when buying sustainable luxury fashion products.		3.76	1.07	0.92			
Conditional value (COV) (4) (Lin and Huang, 2012): The extent to which consumers will derive utility from sustainable luxury fashion products over general luxury alternatives based on certain extrinsic and situational circumstances.	IV	**4.14**	**0.97**		1.76	-1.30	1.88
(•) I would buy sustainable luxury fashion products instead of general luxury fashion products under deteriorating environmental conditions.		3.95	1.11	0.85			
(•) I would buy sustainable luxury fashion products instead of general luxury fashion products when they are available and accessible.		4.10	0.96	0.90			
(•) I would buy sustainable luxury fashion products instead of general luxury fashion products when they are offered at subsidized rates or with promotional incentives.		4.28	0.95	0.81			
(•) I would change my current luxury fashion consumption style towards sustainable luxury fashion if there will be government subsidies and regulatory changes.		4.25	0.89	0.84			
Green value (GRV) (4) (Haws et al., 2014): The consumer's propensity to express the value of environmental protection through luxury fashion consumption patterns.	IV	**4.02**	**0.94**		2.16	-1.17	1.61
(•) It is important to me that luxury fashion products I use do not harm the environment.		4.11	0.85	0.88			
(•) I consider the potential environmental impact of my actions when making many of my luxury fashion consumption decisions.		4.31	1.06	0.86			
(•) I am concerned about wasting the resources of our planet.		3.76	0.89	0.84			
(•) I am willing to be inconvenienced in order to take actions that are more environmentally friendly.		3.90	0.99	0.83			
Green advertising receptivity (GAR) (3) (Bailey et al., 2016a): The extent to which consumers are receptive and attentive to the green advertising activities of luxury firms.	Moderator	**3.58**	**1.10**		1.89	-1.13	0.97
(•) I tend to pay attention to green advertising messages from luxury brands that talk about the environment.		3.46	1.13	0.88			
(•) I am the kind of consumer who responds favorably when luxury brands use environmentally friendly messages in their ads.		3.70	1.11	0.90			
(•) Green advertising activities of luxury firms are a necessary form of advertising.		3.58	1.08	0.85			
Conspicuous ethical self-identity (CES) (3) (Van der Werff et al., 2013): The extent to which ethical considerations and environmental issues are part of consumers' sense of self while making luxury consumption choices, or the degree to which luxury consumers consider themselves to be "ethical consumers."	Mediator	**3.61**	**1.06**		1.95	-0.57	1.12
(•) As a luxury consumer, I think of myself as an ethically responsible (green) consumer.		3.76	0.96	0.84			
(•) As a luxury consumer, I make significant changes in my lifestyle for environmental reasons.		3.51	1.12	0.88			
(•) Purchasing sustainable luxury fashion products would reflect who I am.		3.56	1.11	0.87			
Purchase intention towards sustainable luxury fashion products (PUI) (4) (Dodds et al., 1991): The consumer's inclination to purchase sustainable luxury fashion products.	DV	**4.04**	**0.96**		2.17	-1.01	1.09
(•) If I were going to purchase a luxury fashion product, I would consider buying a luxury brand with a sustainable policy.		4.21	0.88	0.87			
(•) My willingness to buy a luxury fashion product will be high if it has sustainable features.		4.02	1.02	0.89			
(•) I would prefer a sustainable luxury fashion product than a general luxury fashion product.		3.87	1.06	0.88			
(•) I would make a special effort to buy luxury fashion products that are environmentally friendly.		4.05	0.87	0.90			
Perceived social class (PCS) (1) (Yan et al., 2021): Consumers' self-perceptions of their relative social rank that is shaped by the material resources that they possess.	CV	**2.62**	**0.91**		NA	-0.14	-0.33
(•) Which of the following social classes do you feel you belong to? (1=Lower class, 2=lower-middle class, 3=middle class, 4= upper-middle class, 5=upper class).		2.62	0.91	NA			

Notes. (†). M = Mean; SD = Standard deviation; IV = Independent variable; DV = Dependent variable; CV = Control variable; NA = Not applicable; All factor loadings are significant at $p<.001$.
(‡). Attention check: "Please select "strongly disagree" to show you are paying attention to this statement.
(§). A higher mean score corresponds to a stronger agreement for the respective scale (5-Point Likert Scale).

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Appendix B. ANOVA test of linearity.

Factors	MS	F-values	Sig.	Deviation from linearity
PUI*FUV	1.23	2.05	*	✓
PUI*SOV	1.27	1.86	*	✓
PUI*EPV	2.17	3.81	**	✓
PUI*COV	1.05	2.09	*	✓
PUI*GRV	0.92	2.47	**	✓
CES*FUV	1.47	2.24	**	✓
CES*SOV	1.61	2.20	*	✓
Note. MS = Mean squares and **p<.01; *p<.05.				

Appendix C. Permutation test of measurement invariance (MICOM).

Constructs	Configural invariance (Same algorithms for both groups)	Compositional invariance assessment			Full measurement invariance assessment						
		Original correlation (C = 1)	CI	Partial measurement invariance established	Mean (Dif.)	CI	Equality of means	Variance (Dif.)	CI	Equality of variance	Full measurement invariance established
CES	Yes	1	[1; 1]	Yes	.208	[-.147; .145]	No	-.232	[-.204; .211]	No	No
GAR	Yes	1	[.999; 1]	Yes	.178	[-.144; .148]	No	-.290	[-.201; .214]	No	No
PUI	Yes	1	[1; 1]	Yes	.166	[-.142; .151]	No	-.286	[-.252; .267]	No	No
FUV	Yes	.997	[.995; 1]	Yes	-.113	[-.146; .148]	Yes	-.059	[-.257; .261]	Yes	Yes
SOV	Yes	.992	[.989; 1]	Yes	.079	[-.204; .211]	Yes	-.113	[-.169; .179]	Yes	Yes
EMV	Yes	1	[1; 1]	Yes	.032	[-.113; .127]	Yes	-.089	[-.213; .225]	Yes	Yes
EPV	Yes	.998	[.996; 1]	Yes	.081	[-.104; .139]	Yes	-.110	[-.215; .232]	Yes	Yes
COV	Yes	.999	[.997; 1]	Yes	.163	[-.142; .153]	No	-.166	[-.275; .288]	Yes	No
GRV	Yes	1	[1; 1]	Yes	.057	[-.092; .144]	Yes	-.186	[-.271; .289]	Yes	Yes
Note. (†). CI = Confidence interval [2.5%; 97.5%], Dif. = Differences. Following Henseler et al. (2016), establishing partial measurement invariance is sufficient for proceeding with multi-group comparisons between Gen Y and Gen X. The results are based on a two-tailed test type with 5000 permutations.											

Appendix D. PLS multigroup analysis between Gen Y and Gen X.

Relationships	Path coefficients		Path coefficient differences (Gen Y—Gen X)	Permutation p-value
	Gen Y	Gen X		
GRV → PUI	.548	.315	.233	**
EMV → PUI	.364	.147	.217	**
FUV → PUI	.078	.279	-.201	**
SOV → CES	.222	.056	.166	*
EMV → CES	.386	.191	.195	**
FUV → CES	.093	.265	-.172	*
Note. (†). **p<.01; *p<.05. The results are based on a two-tailed test type with 5000 permutations. To enhance clarity and focus on the most meaningful relationships, only significant path coefficient differences are reported.				

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ESSAY 2 CHAPTER | The dark side of a big smile: Detrimental effects of smile intensity on luxury brand advertising effectiveness in the United States and China

Abstract

The expresser's smile is a ubiquitous nonverbal communication cue used to elicit favorable impressions among consumers. However, does the expresser's smile exert persuasive power in luxury advertising, where exclusivity often outweighs approachability? Integrating multi-theoretical insights from social psychology, we explore how, why, and when the intensity of a smile can negatively impact the effectiveness of luxury advertising. Employing a multi-method approach, we demonstrate that a neutral expression (vs. a broad smile) leads to higher levels of actual brand engagement, ad attitudes, and purchase behaviors. This effect is driven by a serial processing mechanism: enhanced competence judgments and perceived ad credibility that emerge when the expresser features a neutral expression. Our analysis further elucidates two boundary conditions: lay rationalism level of consumers and eye gaze direction of the expresser. Specifically, the detrimental effect of smile intensity on competence perceptions is attenuated for low-lay rationalistic consumers, who base their decisions on feelings, while the neutral expression facilitates higher ad effectiveness when paired with a direct gaze (vs. an averted gaze). Five preregistered studies using different luxury products, fictitious, and real brands support these findings. Empirical evidence comes from field analysis of Instagram ads (N = 435), two large-scale field experiments on Facebook (i.e., Meta) (N_{total} = 233,301), and two controlled online experiments (N_{total} = 590). Theoretically, this research advances literature on the nonverbal communication of emotions and the psychology of luxury consumption. It also offers implications for luxury brand marketers on how to leverage the psychophysical characteristics of facial expressions in their ad design and positioning strategies.

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Keywords: ad credibility, competence perceptions, eye gaze, lay rationalism, luxury advertising, luxury brand engagement, smile intensity, visual marketing.

Research Highlights

• As a nonverbal communication signal, broad smiles have a detrimental impact on the effectiveness of luxury brand advertising.

• Neutral expressions lead to higher ad engagement scores, click-through rates, ad attitudes, and purchase intentions.

• Consumers tend to perceive ad models with neutral expressions as more competent, which leads to positive judgments of ad credibility.

• Smile intensity interacts with the lay rationalism tendency of consumers and the eye gaze direction of the model in determining luxury brand advertising effectiveness.

Essay Information

• This research has not been published in any academic journals, conference proceedings, or other platforms as of the current date.

1. Introduction

"*A smile is the chosen vehicle of all ambiguities.*"–*Herman Melville, The Piazza Tales (1856)*

The personal luxury goods market (i.e., fashion accessories, apparel, bags, jewelry, watches, and eyewear) is projected to reach a staggering valuation of €570 billion by 2030, with the total market capitalization poised to achieve €2.5 trillion (D'Arpizio et al., 2024). Among other elements, nonverbal communication strategies are vital instruments that luxury firms can leverage to achieve this projection and bestow their brands with meaning (Puccinelli et al., 2010). In every luxury advertisement featuring expressers (i.e., models), so-called "*human brands*" (Ilicic and Brennan, 2020), consumers detect and decode nonverbal signals. These signals transmit information about models' interaction intents without using words and include expressive

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emotions such as smiles, eye contact, touching, interpersonal spacing, gestures, and postures in ads to influence consumer behavior (DePaulo, 1992; Kidwell and Hasford, 2014).

Among these signals, smiles—the omnipresent facial emotion—are often the initial stimuli that draw consumers' attention (Kulczynski et al., 2016). For instance, consider actress Léa Seydoux, the face of Louis Vuitton's Spell on You perfume campaign. Could the intensity of her smile play a role in enhancing consumer engagement? Is her smile intensity merely a spontaneous artistic choice, or a strategic decision to align with the brand image, product theme, and target audience of Louis Vuitton?

The intensity of a smile, as conveyed through contextualized facial expressions, reflects the valence of its strength (Abel and Kruger, 2010). Based on this view, it can be classified into three types: (1) a neutral expression, which displays minimal facial muscle activity without showing the teeth and no positive/negative expression; (2) a slight smile, characterized by a partial upward turn of the mouth without raising the cheeks; and (3) a broad smile, marked by a full positive expression, an open mouth, and lifted cheeks (Chen and Wyer, 2020; Kim and Read, 2022; Kraus and Chen, 2013; Wang et al., 2017). Conceptually, the current research aligns with the view of Hareli et al. (2009), suggesting that there is a distinct conceptual difference between neutral expressions, slight smiles, and broad smiles. Neutral expressions serve as the baseline in a measurement system, enabling researchers to distinguish between faces that convey basic emotions and those that do not (see also Yoon et al., 2009). Concurrently, this research posits that neutral faces represent a distinct and specific category of expression. That is, a neutral face is not merely indicative of low emotionality but is recognized as a separate facial expression category by observers (for seminal consideration of this issue, see Carrera-Levillain and Fernandez-Dols, 1994).

Consistent with Adams Jr. et al. (2012), this research acknowledges the importance of accurately recognizing a neutral face just as much as recognizing an expression of basic positive

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emotion. Misinterpreting a neutral face as a positive or negative emotional expression (such as slight smiles) should be viewed as a significant conceptualization error. It is thus crucial to recognize that the concept of a neutral expression is fundamental to understanding emotion recognition through facial displays. This is because the conclusions of smile intensity research are largely dependent on the definition of what constitutes an emotionally neutral condition (Adams Jr. et al., 2012). As described above, this research maintains a clear distinction between neutral expressions, slight, and broad smiles to uphold conceptual rigor.

Keeping the above clarifications of smile intensity construct in mind, a dominant finding in the wide swath of social psychology literature is that smiles positively impact social perceptions and affect a wide range of interpersonal assessments. Research has long shown that individuals who display broad smiles are viewed as kinder (Thornton, 1943), more trustworthy (Johnston et al., 2010), more pleasant (Mueser et al., 1984), and warmer (Warren et al., 2018) compared to those who seldom smile. Along these lines, the mounting service marketing literature suggests that sales personnel who exhibit stronger smiles enhance consumer interest in the service (Pugh, 2001), increase encounter satisfaction (Barger and Grandey, 2006), and improve service quality appraisal (Choi et al., 2020).

In parallel with these findings, former marketing communications research has indicated that the presence of a smiling expresser positively affects observers' attitudes toward the advertisement, mainly attributing this effect to the contagious nature of positive emotions (Berg et al., 2015; Kulczynski et al., 2016; Trivedi and Teichert, 2019). Ostensibly, the existing findings highlighting the advantages of smiling could lead to the biased inference that smiles always diffuse positive social signals. Nonetheless, as condensed in the opening quote, not all smiles are alike or perceived identically. On a surface level, they can be wielded strategically to evoke different meanings, and the conclusions drawn from these previous studies do not seamlessly

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apply to the notion of luxury[9]. This is because the evolutionary morphological traits of smiles (e.g., strength, duration) are context-specific, and their interpretation varies depending on the particular occasion on which they are displayed (Darwin, 1872; Ekman, 1993; Ekman and Oster, 1979). Therefore, the effects of smile intensity could be contingent on various exogenous factors, including but not limited to the model's gender (Chen and Wyer, 2020), personality traits of consumers (Lee et al., 2018), product type (Kim and Read, 2022), and the industry setting (Min and Hu, 2022).

From this perspective, daily observations within the luxury market raise doubts about the positive effects of smiling. Ironically, recent articles in the New York Times (Friedman, 2023) and The Guardian (Bramley, 2023) have highlighted that sales staff in high-end stores and models for luxury brands frequently adopt a more enigmatic presentation and wear stoic blank facial expressions, creating a sense of psychological distance from the mass market. In line with this, field analysis of two leading luxury brands (details reported later in Sec. 3) finds that a higher percentage of models display neutral expressions (45.7%) instead of slight (20.1%) and broad smiles (34.2%) in promoting luxury products.

This yields the inquiry: What is the nature of these choices, and why do these real-world experiences appear to contradict early scholarly inferences? At first glance, it intuitively seems that some idiosyncratic aspects of luxury brands (e.g., exclusivity) might make the conventional "*service with a smile*" mantra (Pugh, 2001) less trivial in marketing luxury products. Perhaps the absence of a smile might project a sense of higher expertise or prestige, thus reducing ambiguity associated with the expresser's motivation. Alternatively, luxury brands could opt for neutral expressions to better engage consumers in the narrative storyline of the product, ensuring the focus remains on the product rather than on the expresser.

[9] Past luxury marketing research jointly spotlights that luxury is a subjective and multidimensional construct. Therefore, defining it requires a holistic understanding of the value propositions of luxury brands (Oc et al., 2023; Wiedmann et al., 2009). In this paper, we echo this sentiment and define the *luxury concept* in tandem with the holistic view of Eastman et al. (2020) as the notion of sensuality, opulence, extravagance, premium quality, premium pricing, characteristics of uniqueness and innovation, along with its symbolic importance for consumers.

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Despite these empirical and anecdotal linkages, there is a dearth of research on the nexus of facial expressions and consumer behavior, exclusively in the ambit of luxury consumption (see Web Appendix A for a bibliometric analysis; Web Appendix B for a systematic review and the knowledge gap that our research endeavors to address). From this review, it is clear that existing smile intensity research has largely focused outside the realm of advertising. Accordingly, Chen and Wyer (2020) made a call for future investigations to determine the effectiveness of using smiling and non-smiling expressers in actual advertising contexts for prestigious brands. To date, only one exploratory study by Zhu et al. (2022) has divulged how smiling less in retail settings might positively affect price estimations for luxury products, yet they did not focus on advertising reactions.

Broadly, what is known from prior luxury communication research is that factors like verbal message appeals (Amatulli et al., 2020), the visual portrayal of products (e.g., cold temperature cues, immersive art objects) (Park and Hadi, 2020; Wang et al., 2023), the physical attractiveness of expressers (Hudders et al., 2014), and the positioning of their cheeks (Park et al., 2021) are salient displays, as are the social impressions they project (e.g., status, self-enhancement). What remains unexplored and the focus of our investigation in this research is the persuasive power of smile intensity as a visual element in luxury advertising. Bridging this critical gap is both theoretically and practically pertinent to successfully grasp the mindset of contemporary luxury consumers regarding nonverbal marketing displays.

Against this backdrop, the current research aims to conclusively understand the following inquiries: (1) Do less intense smiles from expressers improve the effectiveness of luxury ads? (2) If so, what are the underlying causes? and (3) What factors interact with smile intensity to enliven the effectiveness of luxury ads? Across five preregistered studies conducted in both real-world and hypothetical settings, we propose and empirically unearth the downstream effects of smile intensity on actual brand engagement, ad attitudes, and concomitant purchase behaviors. By

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integrating the social-functional account of emotions (Fridlund, 1992; Keltner and Kring, 1998; Keltner and Haidt, 1999) with the stereotype content perspective of social judgments (Fiske et al., 2002; Judd et al., 2005), our research demonstrates that the underlying mechanisms of this effect are rooted in the varying assessments of competence judgments and perceived ad credibility. To endow a more fine-grained understanding of how the persuasive role of smile intensity might be inferred differently based on complementary nonverbal cues and consumer-level factors, we introduce two boundary conditions with theoretical and practical importance: lay rationalism (LR) level of consumers and eye gaze direction of the model.

LR is the potent individual difference variable that reflects consumers' inclination to base their decisions on reasons versus feelings (Hsee et al., 2015). Given that all communications are inherently bidirectional (Cheng et al., 2020) and facial expressions can evoke diverse cognitive and affective responses in individuals (Buck, 1980; Shuqair et al., 2024; Strack et al., 1988), our research shows that the relative weight consumers place on reasons versus feelings in decision-making influences their interpretation of smile expressions, subsequently resulting in varied evaluations of luxury ads. As for gaze direction, it has been conceptualized in the literature as either direct (facing the observer) or averted (looking away from the observer)[10] (Kleinke, 1986). Recognizing the importance of the model's gaze direction in comprehending the social meaning of smiles (Adams and Kleck, 2003) and shaping ad receptivity (To and Patrick, 2021), our argument posits that the effects of smile intensity are predicated on its congruence with the gaze direction. Specifically, we propose that a neutral expression tends to be more impactful when it is paired with a direct gaze (vs. an averted gaze).

This research offers theoretical, methodological, and practical contributions. Theoretically, our empiricism takes a comprehensive approach and deepens the conceptual understanding of facial expressions of basic emotions. It adds to the luxury marketing literature

[10] See the following examples from Prada® featuring direct (**instagram.com/p/CyTEgozsLIx/**) and averted (**instagram.com/p/CyQftGPuB5H/**) gaze in luxury marketing campaigns.

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by theorizing smile intensity as a nonverbal disabler of luxury advertising effectiveness, along with the processing mechanisms and boundaries of this effect. Methodologically, we present a rigorous testing approach for assessing smile intensity, through a multi-method triangulation that includes Instagram field data, Meta field experiments, and controlled online experiments. Practically, our findings would accommodate luxury brand marketers in devising compelling facial expression management strategies. We articulate actionable insights on how to capitalize on different smile intensity levels based on their congruence with the gaze direction and LR tendencies. In the following sections, we first set the theoretical ground and conceptualize our predictions. Then, we present five empirical studies to test our theorizing. Finally, we discuss the implications, limitations, future avenues, and deliver concluding remarks.

2. Theoretical background and conceptual development

2.1. The social-functional account of emotions

From an epistemological perspective, the roots of the debate concerning the connection between facial behavior and the social-functional account of emotions can be traced back to Darwin's (1872) ground-breaking piece, "*The Expression of the Emotions in Man and Animals.*" Contemplating the evolutionary origins and uses of emotional expressions (e.g., for survival, adaptation), Darwin was among the first to recognize the significant functional value of emotions in human interaction, particularly in evaluating the hospitality and friendliness of others. Moving forward, contemporary research on this perspective has depicted emotions as discrete, multichannel responses that empower individuals to adaptively tackle social challenges and seize social opportunities within the framework of continuous interactions (see Fridlund, 1992; Keltner and Kring, 1998; Keltner and Haidt, 1999; Van Kleef, 2009 for a theoretical exposition). In a nutshell, this view is grounded in the premise that emotions provide structure to social interactions via three core accounts: (1) evocative, (2) incentive, and (3) informative.

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Principally, an individual's positive or negative emotional expression impacts the behavior of others by triggering emotions that are either assimilative or complementary—the evocative function. For instance, a happy spokesperson in a charitable organization's ad increases donations through psychological proximity and the contagion of happiness among observers (Baek et al., 2022). In addition, eliciting emotions shapes an observer's reaction towards specific behaviors—the incentive function. An example of this would be utilizing influencers to convey environmental emotions, which can incentivize consumers to engage in prosocial behavior (Gerrath et al., 2024). And importantly, emotions communicate social information about the expresser through inference-making and affective reactions—the informative function. Facial behavior research upholds this informative role of emotions in conveying the expresser's well-being (Abel and Kruger, 2010), self-enhancement motives (Kraus and Chen, 2013), level of warmth (Choi et al., 2020), and expertise (Min and Hu, 2022), among other attributes.

Nonetheless, this past literature has produced fragmented conclusions due to certain contextual and methodological limitations, which we will describe in Sec. 8.1. It has also offered quite limited insights into the domain-specific subjectivity of facial emotions within the advertising field (for more details, revisit Web Appendix B). In view of this, the current research focuses on the informative function because facial expressions of emotions have evolved to shape social interactions by signaling fine information about the person displaying them (Keltner and Haidt, 1999; Van Kleef, 2009). This research expands upon this line of inquiry by suggesting that smiles and gaze direction, as strategic facial expressions of emotions, inform the observer and lead to consequential impacts on the social perceptions of the expresser in luxury advertising evaluations.

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2.2. The deliberate regulation of facial expressions

Facial expressions are a vital aspect of the social-functional account, providing an informative channel for expressing emotions and intentions, which in turn shapes the way individuals engage

with each other (Chen and Wyer, 2020). Among their other roles, facial expressions change according to strategic settings (Kim and Read, 2022) and internal states (Shuqair et al., 2024). As in, facial expressions of emotions are not merely reflexive responses; they are modulated by bendable display rules learned through socialization and the process of regulating emotions (see Ekman and Friesen, 1975 for a seminal review).

Existing neuroimaging research supports this regulatory role, demonstrating that exposure to facial expressions triggers brain activity in the dorsomedial prefrontal cortex and superior temporal sulcus, causal regions in the formation of social impressions from faces (Ames et al., 2011; Ferrari et al., 2016). This evidence, interpreted from a social-psychological angle, underscores the prevalence of deliberate regulation (i.e., strategic display) of facial expressions for self-presentational purposes in both everyday interactions and marketing communications. The core feature of these strategic displays is that the expresser is aware of the signal being sent and is also cognizant that the signal is being observed (see DePaulo, 1992 for a detailed theoretical exposition of such displays). Although this practice may occasionally elicit doubt regarding the persuasive intent of expressers (Ketelaar et al., 2012), it is crucial to note that such effortful displays are not necessarily indicative of deception or insincerity.

To be explicit, they are employed to alter how consumers perceive the brand, ensuring that the posed expression maintains a degree of authenticity. Given that one of the key social roles of facial expressions is to communicate motivational competencies (Cheng et al., 2020), advertisers deliberately exert control over models' expressions, especially in still images, through constant feedback to manage the emotions conveyed for their advantage (To and Patrick, 2021).

Unsurprisingly, this effort to control expressions does not always lead to increased consumer engagement. Yet, its usage remains pervasive, especially in luxury consumption settings, where nonverbal displays are purposefully operated to signal social distance (Zhu et al., 2022). Here, we hone in on two basic facial expressions of emotions—smiles and gaze

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direction—not only due to their decisive role in coordinating interpersonal exchanges but also because they are usually regarded as diagnostic sources for social inference-making, owing to their potency to shape first impressions (DePaulo, 1992), hardwired nature (Ekman, 1993), and adaptive functions (Macrae et al., 2002). These aspects allow expressers to deliberately adjust the smile intensity[11] and gaze direction for strategic uses by tapping into hardwired systems that are in place for the spontaneous expression of those emotions. This leads us to probe: How effective are these deliberate displays in luxury advertising?

2.3. Smiling and luxury advertising effectiveness

Key to our question above, we view the effectiveness of luxury advertising as the ability of its verbal and nonverbal components to persuasively engage observers and their role in fostering a positive predisposition towards the brand and its products, ultimately affecting purchase decisions. Our view suggests that lower smile intensity in luxury ads are likely to empower observers, endowing them with a heightened sense of competence. This premise rests on the status-related benefits associated with luxury ads—that is, their potential to signal prestige and power (Wiedmann et al., 2009; Zhu et al., 2022). In this vein, the informative function of facial expressions assists us to establish connections between smiling and status perceptions.

Principally, Darwin's (1872) seminal observations on smiles were the first to suggest that they could disclose information about the social status of the expresser. Darwin's proposition is confirmed in naturalistic conditions, coinciding with the competition hypothesis of smiling and laughter, which posits that smiles assist in structuring social hierarchies and signal a low motivation to compete for status (Mehu and Dunbar, 2008). Similarly, prior research in social psychology has found that smiling correlates with lower levels of dominance and prestige in fashion models (Ketelaar et al., 2012). Warren et al. (2018) also argue that the coolness associated

[11] Note that past literature has largely focused on the valence-based contrasts between neutral expressions and broad smiles when quantifying smile intensity. These two facial cues provide clearer conceptual distinctions and are more readily discernable in terms of their pronounced cognitive and emotional impacts on observers (Kulczynski et al., 2016; Trivedi and Teichert, 2019; Wu et al., 2020). Although we plan to control the roles of slight smiles, our conceptual focus revolves around the dichotomy between neutral expressions and broad smiles.

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with fashion models derives from their emotional inexpressiveness, implying that status is a relatively cold cognition, not easily swayed by the direct impact of smiling. These studies offer preliminary indications of the possible downstream consequences of smiling in status-oriented settings. Synthesizing these findings, it is highly plausible that smiling in luxury advertising may indicate a disinclination to modify or improve the status quo; thus, the present research proposes that more intense smiles may not serve well in promoting luxury products.

Turning the focus to the evolving body of sales literature, the above proposition is also aligned with recent affect intensity research in service marketing. Notably, overly intense smiles from service providers can be counterproductive and repulsive. Supporting this sentiment, previous studies have underscored that excessive smiling could negatively impact sales. For instance, research by Andrzejewski and Mooney (2016) demonstrated that customers respond more favorably to Duchenne (authentic) smiles than to non-Duchenne (nongenuine) smiles. It was shown that inauthentic smiles can reduce customer satisfaction and perceptions of service quality by diminishing perceived competence. Furthermore, recent studies by Bharadwaj et al. (2022), Cheshin et al. (2018), and Du and Huang (2023) have repeatedly supported the notion that intense emotional displays can have adverse effects, particularly in live streaming within retail settings.

In detail, Cheshin et al. (2018) explored the complexities of emotional intensity in customer service interactions, demonstrating that authenticity in emotional displays can enhance customer trust and satisfaction. However, displays of intense happiness or sadness can result in mistrust and dissatisfaction. Similarly, Bharadwaj et al. (2022) utilized secondary data and machine learning techniques to identify a U-shaped effect on sales by examining the impact of six emotional expressions (happiness, sadness, surprise, anger, fear, and disgust). Their findings suggest that not all positive emotional displays lead to increased sales, where they may actually reduce consumer purchase intentions. Concurrently, Du and Huang (2023) analyzed archival

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video data from TikTok and employed propensity score matching tests to discover a parallel inverted U-shaped relationship between the intensity of influencer facial expressions of happiness and audience purchases. They indicate that there exists an optimal level of emotional expression that, when exceeded, can negatively affect sales.

These results suggest that intense facial expressions may be perceived as insincere and could backfire by interrupting the perceived social distance between expressers and observers. While this established research stream has offered valuable preliminary insights into interactive e-commerce scenarios, it did not focus on the impact of smile intensity in still images within the context of luxury advertising. Also, this area of research has mostly overlooked neutral expressions, thereby restricting a comprehensive understanding of how distinct emotional inexpressiveness influence judgments of perceived competence. To quantify the exact influence of each emotional expression on the perception of models, it is essential to compare how expressions like slight and broad smiles differ in impact from emotionally neutral expressions (e.g., Hareli et al., 2009). This paper advances this neglected aspect of past research.

What is more, in contrast to the correlational methods used in these earlier studies, this paper utilizes a mixed-method approach to deepen the understanding of the emotional dynamics and psychological mechanisms that contribute to the boomerang (i.e., backfiring) effect of smile intensity. Additionally, such past research has not explored nonverbal and individual-level boundary conditions that might positively or negatively affect smile intensity, except gender, leading to incomplete assessments of the boomerang effect due to omitted variables. The present paper's emphasis on the neutral and intense emotional displays of expressers also responds to an earlier call by Warren et al. (2018) for more focused research on emotional interactions in the context of luxury engagement decisions.

Keeping these insights in mind, it is reasonable to state that purchasing luxury products is ultimately more than a mere transaction; it embodies an experience that reflects personal success

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and discernment (Wang et al., 2023). We hence foresee that a neutral expression, characterized by its emotional composure, epitomizes the calm confidence and achievement that luxury consumers want to associate with themselves. By adhering to normative expectations and avoiding overly exaggerated expressions of happiness, a neutral expression is anticipated to set realistic expectations about the promoted luxury product. This can be particularly effective in luxury advertising, as consumers are skeptical of bold claims (Septianto et al., 2023). Considering that consumers often leverage nonverbal signals to articulate their self-defining principles (Essiz and Senyuz, 2024), we surmise that the expresser's lower smile intensity aligns with the allusive image and aesthetics both luxury consumers and brands aim for, thereby more accurately reflecting the portrayal of prestige displays in luxury ads. Our initial reasoning in Sec. 1, together with this comprehensive literature review, leads us to deduce that featuring broader smiles will inversely impact the effectiveness of luxury ads. Given that there has been no direct test of how smile intensity impacts luxury ad effectiveness, our first hypothesis deals with the presence of the detrimental smile intensity effect.

> **H_1.** *The expresser's smile intensity will be detrimental to the effectiveness of luxury ads. Specifically, luxury ads that consist of a broad smiling expresser will be less effective than one's without a smile.*

2.4. Perceived competence and ad credibility as underlying mechanisms: A stereotype content perspective

The discourse up to this point compels us to investigate: Through what factors does smile intensity impact the success of luxury advertisements? Pertaining to this query, one might focus on stereotypes, which serve as simplified beliefs for categorizing and streamlining information about the expresser's characteristics (Judd et al., 2005). Initially developed by Fiske et al. (2002) to dissect the differing perceptions among social groups, the stereotype content model (SCM) has since been adapted to evaluate brand-level perceptions (Septianto et al., 2022) and probe into individual perceptions, specifically how the intensity of facial expressions results in distinct social

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judgments (Min and Hu, 2022). Simply put, the SCM highlights that social judgments are anchored in two core dimensions: warmth and competence. Warmth relates to the expresser's perceived social intentions, reflecting communal assessments of kindness, courtesy, friendliness, and helpfulness, whereas competence allows observers to gauge the expresser's abilities, involving agentic traits related to expertise, self-confidence, power, and achievement orientation. Together, these two dimensions are highly predictive in explaining how people categorize others and aid observers in regulating their behavioral responses (Fiske et al., 2007).

While it is conceptually possible to be perceived as high in both warmth and competence, earlier research has shown the weight of these dimensions often varies according to nature and type of consumption (Chen and Wyer, 2020). Although it could be true that emotions are commonly tied to the warmth component of the SCM (Fiske et al., 2002), the context of luxury branding necessitates a different approach. From this perspective, Septianto et al. (2022) suggest that luxury brands embody the stereotype of competence since observers generally associate luxury with augmenting one's status and regard it as a testament to expertise. This prospect is plausible, given that luxury products demand careful consideration before purchase and the marketer's competence in promoting the product's features is warranted to minimize potential purchasing risks. Building upon Fiske et al.'s (2002) observation that status stereotypically predicts high competence, we aver that the expresser's perceived competence can more vividly articulate the benefits and selling propositions of luxury products, though it may come at the cost of diminished warmth[12].

Accordingly, while brand-level perceptions play a significant role in the SCM literature (Fiske et al., 2007; Judd et al., 2005), our focus is on individual-level perceptions, specifically the perceived competence of the expresser in luxury advertising. This focus aligns with previous research on smile intensity (Chen and Wyer, 2020; Min and Hu, 2022) and is pertinent for two

[12] Even though our primary interest lies in analyzing competence judgments, we will still account for the potential effect of warmth conferrals in our research designs.

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key reasons. First, luxury advertising heavily relies on human expressers—whether models, celebrities, or brand ambassadors—to convey the brand's message (Friedman, 2023). These expressers act as the immediate point of contact between the brand and consumers, with their nonverbal cues, such as facial expressions, crucially shaping initial impressions and attitudes toward both the advertisement and the brand (Shuqair et al., 2024). Our focus aligns with the source credibility hypothesis, which posits that a message's effectiveness is largely determined by the source's perceived credibility (Lee et al., 2017). In advertising, the expresser represents the brand's message. Research indicates that facial expressions significantly influence social judgments and behavioral intentions (Warren et al., 2018). In this context, the expresser's ability to project competence through nonverbal cues can directly impact consumer perceptions of the brand's quality and exclusivity (Ketelaar et al., 2012). This nonverbal communication sets the tone for the consumer's interaction with the ad, making it a critical factor in the advertisement's overall effectiveness.

Second, the perceived competence of the expresser can serve as a proxy for the brand's competence in the eyes of consumers (Septianto et al., 2022). This is supported by the halo effect, where the positive attributes of the expresser are transferred to the brand they represent (Nicolau et al., 2020). Based on this rationale, we suggest that when an expresser exhibits a neutral expression (vs. a broad) smile, it communicates expertise—a trait that consumers may attribute to the brand itself. This transference is particularly relevant in luxury advertising, where associating the brand with high competence is essential (Shimul and Phau, 2022).

Furthermore, in the present research, focusing on the expresser's competence over brand-level perceptions is pivotal in luxury advertising due to its reliance on personal engagement and emotional resonance (Wiedmann et al., 2009). Building on the insights from Cheshin et al. (2018), this research expects that the expresser's competence will influence perceptions of credibility in the advertisement. This focus on individual attributes aligns more closely with Van

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Kleef's (2009) emotion as social information framework and the principles of the social-functional account of emotions (Keitner and Haidt, 1999), which suggest that observer's emotional responses and judgments are primarily driven by interpersonal dynamics rather than abstract brand-level perceptions.

In view of this backdrop, how then can competence be nonverbally conveyed in luxury advertising? Integrating the informative function of emotions with the SCM, we propose that the lower emotional intensity displayed through contextualized facial expressions provides competence-based informational cues for observers to form social appraisals about the expresser, which subsequently shapes their behavioral intentions toward the luxury ad and promoted product. Corroborating our proposition, past consumer research offers some initial evidence regarding the detrimental effect of smile intensity on competence judgments during service encounters (Wang et al., 2017; Yao et al., 2022). Likewise, prior research in impression formation has connected broad smiles (vs. neutral expressions) with reduced levels of aggression, dominance, and performance (Kraus and Chen, 2013)—traits pivotal for securing status and power.

In addition, broad smiles (vs. neutral expressions) are associated with low achievement motivation, elevated levels of sociability, and signify the availability to form social relationships, projecting an image of a carefree, happy-go-lucky attitude (Wu et al., 2020). Such dispositions are at odds with the power-oriented mindset of luxury consumers (Dubois et al., 2021) and the traits associated with competence—exclusivity, determination, and seriousness—that are integral to the essence of luxury (Oc et al., 2023). Connecting these observations with our preceding discussion in Sec. 2.3, we suggest that the broad smile would signal a non-agentic orientation, attenuating perceptions of competence in the absence of additional nonverbal cues. As such, the neutral expression is expected to bolster competence judgments.

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To further underpin this proposition, it is essential to elaborate on the distinction between agentic and communal traits and how these traits influence perceptions of competence, particularly in the context of luxury advertising. Agentic traits are associated with self-assertion and goal achievement, including characteristics such as assertiveness, power, and control. Conversely, communal traits are related to the welfare of others and social harmony, encompassing warmth, friendliness, and cooperation (Abele, 2003). Research has shown that agentic traits are strongly linked to success and competence perceptions (Ramsey, 2017). In professional and advertising contexts, individuals displaying agentic traits are often perceived as more capable and effective in achieving goals (Kraus and Chen, 2013; Shuqair et al., 2024). This is particularly pertinent in luxury advertising, where the status augmentation and expertise demonstration are paramount concepts (Wiedmann et al., 2009). While communal traits, such as those conveyed through broad smiles, enhance perceptions of warmth (Chen and Wyer, 2020), they can inadvertently signal a lack of agentic focus. Given these dynamics, we suggest that the neutrality of the expression prevents the dilution of agentic traits and maintains the luxury ad's focus on the expresser's competence.

Furthermore, we postulate that this heightened sense of competence will manifest a positive spillover effect, augmenting the ad's credibility and its aggregate persuasive impact, as the expresser's competence lends more authenticity to the luxury ad content (Goor et al., 2020) and diminishes skepticism (Septianto et al., 2023). Perceived competence is expected to enhance the ad's credibility because competent expressers are seen as reliable sources of information (Yao et al., 2022). In the present context, we conceptualize ad credibility as the degree to which observers find the visual and verbal displays in luxury ads to be meaningful, credible, realistic, and persuasive. This is consistent with past generic operationalizations of the construct (Sarofim and Cabano, 2018). In the present context, our proposed serial mediation model is pertinent under two broad theoretical frameworks concerning the effects of expressers: the affect transfer

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hypothesis (Stewart et al., 2018), which suggests that emotional responses to an expresser are transferred to the endorsed product, and the source-credibility model (Tormala and Petty, 2004), which posits that the expresser is perceived to have expertise or knowledge about the product. This additionally rationalizes our focus on individual-level perceptions.

Based on this viewpoint, we posit that if observers do not perceive manipulative intentions, their stereotypic judgments will more closely resemble the expresser's intended message. We expect this to occur because observing facial expressions induces mimicry behaviors, increasing the chances of passive facilitation (e.g., forming associations) with those deemed competent (Isabella and Vieira, 2020). When observers mimic the facial expressions they see, such as a neutral expression, they unconsciously align their attitudes and emotions with those expressed, facilitating a higher acceptance of the ad's nonverbal message (Min and Hu, 2022).

In addition,, our serial mediation expectation aligns with the social comparison theory, which posits that individuals assess themselves in relation to others (Festinger, 1957; Gerber et al., 2018). In the context of luxury advertising, consumers often compare themselves to the competent expresser, aspiring to embody the qualities and status that the expresser represents (Zhu et al., 2022). This social comparison can enhance the ad's credibility, as consumers view the expresser as a reliable source of information that can help them attain similar status. Given the role of ad credibility as a key indicator of consumer engagement (To and Patrick, 2021) and reflecting on the totality of the literature discussed, we argue that expressers who maintain neutral expressions will be viewed as more competent sources of information. This impression, in turn, will amplify the ad's credibility and enhance its effectiveness. Formally, we hypothesize:

H_{2a}. *The perceived competence of the expresser will positively impact the perceived credibility of luxury ads.*

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H_{2b}. *The impact of smile intensity on luxury ad effectiveness will be serially mediated by perceived competence and ad credibility. Specifically, the expresser's neutral expression (vs. broad) smile will lead to higher ad effectiveness through enhanced competence judgments and ad credibility.*

2.5. Boundary condition of lay rationalism

Many consumer decisions, including judgments towards luxury advertising, necessitate balancing the feeling (affect-based) inferences against rational (cognition-driven) observations, termed as heart and mind conflicts in the literature (Shiv and Fedorikhin, 1999). Phenomenologically, dual process theory expounds that some consumers heavily rely on intuitive thinking characterized by implicit, automatic, and emotionally laden responses, while others engage in deliberate, analytical, and articulated evaluations (Kahneman, 2003). Grounded in the tenets of dual process theory, the lay notion of rationality is conceptualized as a personality trait that renders how consumers prioritize logical reasoning over feelings, or vice versa, in constructing their decision-making[13] (Hsee et al., 2015, 2003).

Hitherto, a small yet growing body of research demonstrates that LR functions as a moderating force in the relationship among several consumption-related variables, specifically decisions regarding pricing presentations (Cui et al., 2021), the design of visually dynamic imagery (Fennell and Schneider, 2023), and the socio-psychological patterns of luxury purchases (Wang et al., 2020). In operationalizing this construct, this research stream classifies consumers' lay level into two groups: high or low LR, a dichotomy that our paper incorporates. Markedly, consumers with high LR inclinations favor logical thinking, whilst those with low LR are more swayed by their emotions. Germane to our research, Hsee et al. (2015) conjecture that consumers with high LR are more receptive to central-route persuasion in advertisements, which emphasizes factual

[13] It is noteworthy that this definition does not treat reason and feelings as mutually exclusive or antagonistic factors. In certain decision-making situations, consumers may simultaneously rely on reason and feelings; however, the relative utility placed on these factors is expected to differ from one person to another.

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information. In contrast, those with low LR are more drawn to peripheral-route persuasion, predisposing them to select alternatives that provoke affective experiences.

Analogously, we argue that judgments of neutral expressions and broad smiles will likely interact with consumers' LR levels in shaping the effectiveness of luxury ads. Guided by the informative function of facial expressions, this reasoning is plausible as the ability of consumers to balance cognitive processes and emotional reactions hinges on how they observe and decode nonverbal displays (Kidwell and Hasford, 2014; Van Kleef, 2009). Our argument is also coherent with the facial feedback hypothesis (Buck, 1980; Shuqair et al., 2024), which posits that facial expressions causally impact the regulation and activation of consumers' affective responses. Contemplating that each person navigates the luxury market with a unique set of consumption values and personality traits (Essiz and Senyuz, 2024), it would be misleading to assume that nonverbal cues in luxury ads are interpreted uniformly by everyone. To reiterate, a consumer with a strong preference for analytical reasoning might interpret the same smile differently, resulting in distinct social judgments, compared to someone who prioritizes immediate emotional gratification. This subjectivity in consumer judgments makes the epistemological foundation of LR radiant, prompting an exploration of its importance vis-à-vis smile intensity.

More central to our conceptual reasoning, high LR consumers are purported to excessively concentrate on rationalistically superior attributes and cognitive efficiency while processing facial expressions. Congruently, we foresee that a neutral expression that symbolizes competence-grounded utilities such as prestige and professionalism in luxury ads might be more appealing to their evaluative standards. This prediction is consistent with the self-justification view of Hsee et al. (2003, p.266). As such, it is sensible that the logical disposition of these consumers heightens their propensity to meticulously evaluate the risks associated with nonverbal displays and favor self-justifiable options that lessen the likelihood of negative consequences. Hence, they may be less prone to develop favorable judgments about the warmth conveyed

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through broad smiles, potentially viewing it as a deceptive persuasive attempt (cf. Wang et al., 2017) and questioning its alignment with the luxury brand's values and the key attributes of the advertised product. Conversely, we envisage that consumers with low LR will focus on the positive aspects of a broad smile and overlook potential drawbacks tied to it, including the perceived lack of competence and credibility. This is because they possess a greater ability to decipher emotional expressions and tend to interpret nonverbal signals strenuously, attracted to them on an intuitive level (Johnston et al., 2010). For these consumers, the positive feelings (e.g., approachability, excitement) and emotional contagion induced by a model's broad smile may operate as a simple heuristic, encouraging them to establish a positive connection with the luxury ad. Building on the prior discourse, we predict:

> **H_{3a}.** *LR level of consumers will interact with smile intensity in predicting luxury ad effectiveness. Specifically, for high LR consumers, a neutral expression (vs. broad) smile will result in higher ad effectiveness; for low LR counterparts, the effects will be reversed.*

> **H_{3b}.** *The moderating role of LR in the relationship between smile intensity and luxury ad effectiveness will be serially mediated by perceived competence and ad credibility. Specifically, high (vs. low) LR consumers will perceive higher competence and ad credibility when the expresser displays a neutral expression (vs. broad) smile.*

2.6. Boundary condition of eye gaze direction

It is well established that any complete account of smile judgments requires considering additional nonverbal facial properties (Willis et al., 2011). This ultimately encourages us to inquire: Which other nonverbal signals may interact with smile intensity to influence consumer responses to luxury ads? The direction of the model's eye gaze stands out as one critical signal, given the role eyes play as communicative channels for the exchange of information between individuals (Mason et al., 2005). By signaling the locus of attention in visual processing, eyes take precedence over other facial cues in terms of perceptual importance (Hutton and Nolte, 2011),

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while the gaze direction provides contextual information about the expresser's attitude and temperament (To and Patrick, 2021). Additionally, eye gaze emits social signals that align or diverge from the behavioral intentions communicated by a smile expression (Macrae et al., 2002). In this regard, an observer might interpret the same smile differently depending on the direction in which the expresser is looking. Despite the prominence of this factor, the interaction between gaze direction and smile intensity in influencing advertising reactions has remained an uncharted area of inquiry, a void we plan to fill.

In this paper, we conceptualize eye gaze, in line with the central view of Kleinke (1986), as the direction in which one looks at another's face and classify it as direct gaze (looking directly at another's face) or averted gaze (looking away from another's face). Hitherto, the literature regarding gaze direction has primarily centered on its implications for interpersonal interactions and social perceptions. Previous social psychology research has revealed a preference for direct gaze over averted gaze in interpersonal communication, as direct eye contact is associated with positive characteristics, including increased credibility (Hemsley and Doob, 1978), visibility, openness (Mason et al., 2005), competence (Kaisler and Leder, 2016), and authenticity (Ilicic and Brennan, 2020). Similarly, neuropsychology studies have found that direct gaze amplifies perceptions of facial attractiveness by activating the brain's central reward systems (Kampe et al., 2001) and intensifies the functioning of elements associated with social cognition, such as face recognition (Farroni et al., 2007). On the other hand, averted gaze has been identified as a marker of disengagement, avoidance (Adams and Kleck, 2003), and correlates with negative consequences in social interactions, such as reduction of intimacy, and lower interpersonal power (Lochman and Allen, 1981), lower self-esteem, and dishonesty (Puccinelli et al., 2010). Integrating these findings with our previous discussion in Sec. 2.4, it emerges that both direct gaze and neutral expressions transmit comparable social signals.

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Against this background, we argue that displaying gaze direction and smile intensity in a coherent manner can establish a sense of engagement between the observer and the expresser, thereby enhancing the persuasive power of the luxury ad. Our reasoning is consistent with the shared signal hypothesis, which stresses the significance of receiving uniform signals from gaze direction and smiles to explicitly interpret facial expressions (Adams and Kleck, 2003). Considering that establishing high-power distance and social status are cardinal for luxury brands (Dubois et al., 2021), it is expected that combining a direct gaze with a neutral expression could more accurately project a picture of confidence, prestige, and social presence.

In conjunction with research on the match-up effect of facial expressions (Ilicic and Brennan, 2020; Wang et al., 2018), this congruity is surmised to amplify the expresser's perceived expertise by aligning with the expectations consumers hold for luxury brands. Contrary to a broad smile paired with an averted gaze, which could come across as overly manifested and inauthentic (Goor et al., 2020; Shen and Rao, 2016), a direct gaze coupled with a neutral expression is likely to consolidate the central route of persuasion, resulting in a more accurate, deliberate, and consistent processing of facial displays, thereby increasing ad's perceived credibility. In summation, we extrapolate that the detrimental smile intensity effect will be contingent upon the expresser's gaze direction in expediting the effectiveness of luxury advertising. Hence, we conjecture:

> **H_{4a}.** *The expresser's gaze direction will interact with smile intensity to influence luxury ad effectiveness. Specifically, the expresser with a direct (vs. averted) gaze will be more effective when paired with a neutral expression (vs. broad) smile.*

> **H_{4b}.** *The moderating role of gaze direction in the relationship between smile intensity and luxury ad effectiveness will be serially mediated by perceived competence and ad credibility. Specifically, consumers will perceive higher competence and ad credibility when the expresser displays a direct (vs. averted) gaze coupled with a neutral expression (vs. broad) smile.*

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2.7. Conceptual framework and overview of studies

Our empirical package consists of five main studies and four pretests to examine proposed hypotheses. In Fig.1, we present a visual illustration of our theoretical conceptual framework, along with an overview of these studies. In high-powered online field settings, Studies 1, 2a, and 2b test and conceptually replicate the focal effect, the detrimental impact of smile intensity on luxury advertising effectiveness, by gathering field data from Instagram and conducting multiple real-time ad campaigns on Meta (formerly Facebook). Based on the controlled online experiment, Study 3 further establishes causality between smile intensity and ad effectiveness by analyzing the perceived competence of the expresser and ad credibility as serial processing mechanisms behind the focal effect. It also investigates how consumers' LR levels categorically interact with smile intensity in determining ad effectiveness.

Next, Study 4 further explicates the continuous moderating effect of LR and explores the direction of the expresser's eye gaze as another boundary factor to conduct a complete assessment of Fig.1. That is, this study tested the full conceptual framework by analyzing the serial mediation mechanism. Across all studies, we operationalized multiple behavioral and self-reported proxy variables to quantify ad effectiveness and ruled out several alternative accounts, particularly those linked to the personality factors and appearances of expressers. We encompassed different luxury models and products, including both fictional and real brands, and recruited a diverse pool of participants with representative samples from the US and China, all aimed at ensuring the generalizability of our findings. Overall, the proposed model operates at the level of observer analysis.

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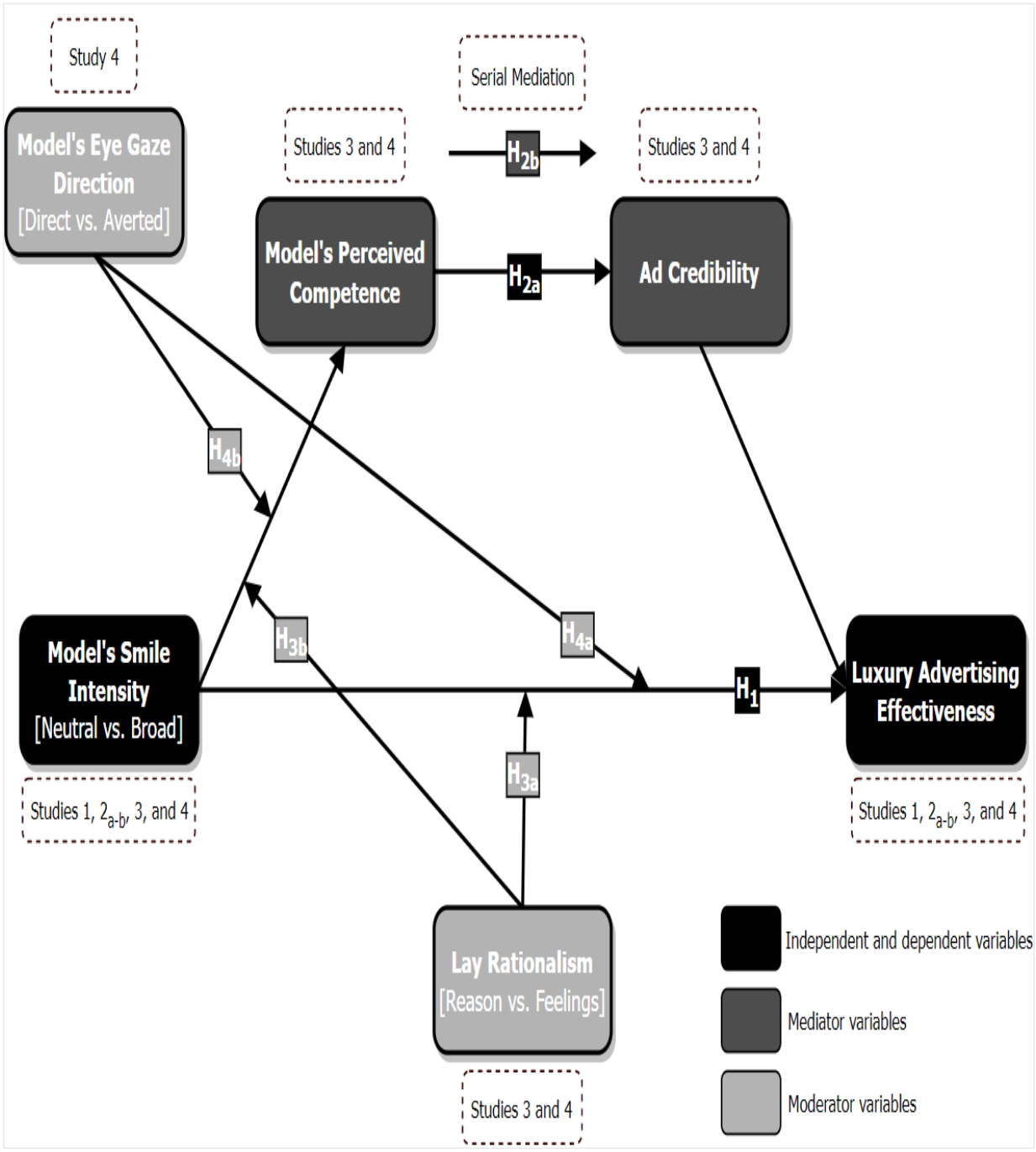

Fig.1. Essay 2: Conceptual framework.

In structuring our experiments, we adhered to the methodological design considerations outlined by Viglia et al. (2021, pp.196-198) and explicitly reported all conditions. Manipulations were validated based on pretests and did not involve celebrities, as such figures are tied to stereotypes of high competence and credibility (Kulczynski et al., 2016). In addition, the sample sizes of our experimental studies were determined before data collection using G*Power 3.1

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(Faul et al., 2009). In all setups, the number of recruited participants was sufficient to identify a medium effect size (f = .25) with 95% statistical power at a significance level of .05 based on multivariate analysis, thus exceeding the recommendations (i.e., 80% power) suggested for behavioral studies (Cohen, 2013). Unless otherwise indicated, we used the same measures in all pretests. For brevity, construct measures and their adapted sources for all studies are reported in the Web Appendix H. The data analysis was performed using STATA®$_{18.0}$ & IBM SPSS®$_{28.0}$. Before beginning data collection for each study, we preregistered all our predictions, exclusion criteria (if any), materials & procedures, and analytical plan at the Wharton Credibility Lab (**aspredicted.org**).

3. Study 1: A field analysis of print ads on Instagram and the initial empirical evidence

Study 1 was preregistered at (**aspredicted.org/KMY_HC3**). The purpose of this study was twofold. First, it was designed to investigate our H_1, which concerns the negative influence of smile intensity on luxury ad effectiveness. Second, it served as a preliminary exploration into the moderating role of gaze direction. In this study, we collected publicly available Instagram print ads from two premier luxury brands: Louis Vuitton® and Gucci®. Instagram, which has experienced rapid global growth and boasts more than five hundred million daily active users, provided an ideal backdrop for our study due to its popularity for luxury ad campaigns (Bagadiya, 2024). This platform promotes interactive engagement, allowing users to like, share, and comment on posts, enabling a bidirectional exchange between luxury brands and their customers. Accordingly, online print ads from Louis Vuitton® and Gucci® often highlight the facial expressions of expressers, especially smiles, which are vital in forming consumer receptivity through nonverbal means (Essiz and Senyuz, 2024). This aspect made these brands particularly suitable for our study, as it allowed us to code the intensity of the expressers' smiles in their posts.

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At the time of our investigation, the decision to choose these brands was based on their comparable Instagram metrics: total post numbers ($7{,}289_{\text{Louis Vuitton}}$ vs. $7{,}186_{\text{Gucci}}$), follower counts ($54.3\text{M}_{\text{Louis Vuitton}}$ vs. $52.4\text{M}_{\text{Gucci}}$), and engagement rates ($.20\%_{\text{Louis Vuitton}}$ vs. $.19\%_{\text{Gucci}}$) (Phlanx, 2023). This similarity was paramount to reduce the risk of confounding effects, such as brand popularity and peripheral differences in social media visibility (Ashley and Tuten, 2015). To further mitigate biases associated with unobserved background factors and parasocial interactions involving followers and non-followers of these brands, we scraped (via **apify.com/apify/instagram-scraper**) and analyzed all their posts ($5{,}565_{\text{Louis Vuitton + Gucci}}$) published during a period of three years and two months (from July 1, 2020, to until our data collection date: September 1, 2023), in order to secure a longitudinal observational dataset. The ad coding process took place over the course of August and September 2023.

3.1. Data and measurements

Data collection and initial coding criteria. In the first phase of this study, each collected post from Louis Vuitton® ($2{,}826_{\text{total}}$) and Gucci® ($2{,}739_{\text{total}}$) within the set timeframe was subjected to analysis by two independent coders who were naive to the hypotheses of this research. This analysis was based on the following criteria: 1) confirmation that the post is a print ad (excluded otherwise), 2) presence of the expresser in the print ad (excluded if absent), and 3) number of expressers featured in the print ad (excluded if more than one). Following the recommendations of Wang et al. (2017), print ads displaying (1) partial facial views, (2) invisible eye gaze, and (3) repeated appearances of the same expresser on different occasions were also omitted from the analysis.

For conceptual clarity, the Instagram print ad is characterized by its static nature, meaning it is a single, non-animated image rather than a video or carousel of multiple images (Beichert et al., 2023). Accordingly, we deliberately did not consider any video ads, reels, and stories from these brands, as they seldom feature dynamic facial expressions and interactions involving

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multiple people. Upon filtering out observations that failed to meet these criteria, we ended up with a total of 435 print ads ($207_{\text{Louis Vuitton}}$ and 228_{Gucci}) as the unit of analysis in the final dataset.

Main independent variable (IV). In accordance with the extant literature, we next presented the coders with sample smile expressions from the American Multiracial Faces Database (AMFD) (Chen et al., 2021) and the Montreal Set of Facial Displays of Emotion (MSFDE) (Beaupré and Hess, 2006). This step was taken to improve empirical rigor of our IV and familiarize them with the main classifications of smile intensity: neutral, slight, and broad, and to clarify their conceptualizations. Subsequently, coders categorized the smile expressions into three groups: 0 representing a neutral expression (absence of a positive/negative expression, the lack of visible teeth, and minimal (or none) muscle activity in the face), 1 indicating a slight smile (a gentle upturn of the mouth without cheek elevation), and 2 for a broad smile (a positive expression with an open mouth and/or elevated cheeks). The intercoder agreement was $a_{\text{Louis Vuitton}}$ = .95 and a_{Gucci} = .94. Any discrepancies in coding were resolved through further discussions among the coders and principal investigators. As depicted in Fig.2, for Louis Vuitton®, 93 ads were classified as having a neutral expression, 46 with a slight smile, and 68 with a broad smile. Among these, 134 ads featured female models and 73 had male models. In the case of Gucci®, 106 ads had a neutral expression, 41 a slight smile, and 81 a broad smile, with 157 showcasing female models and 71 male models. Illustrations of the coded photos are available in the Web Appendix C.

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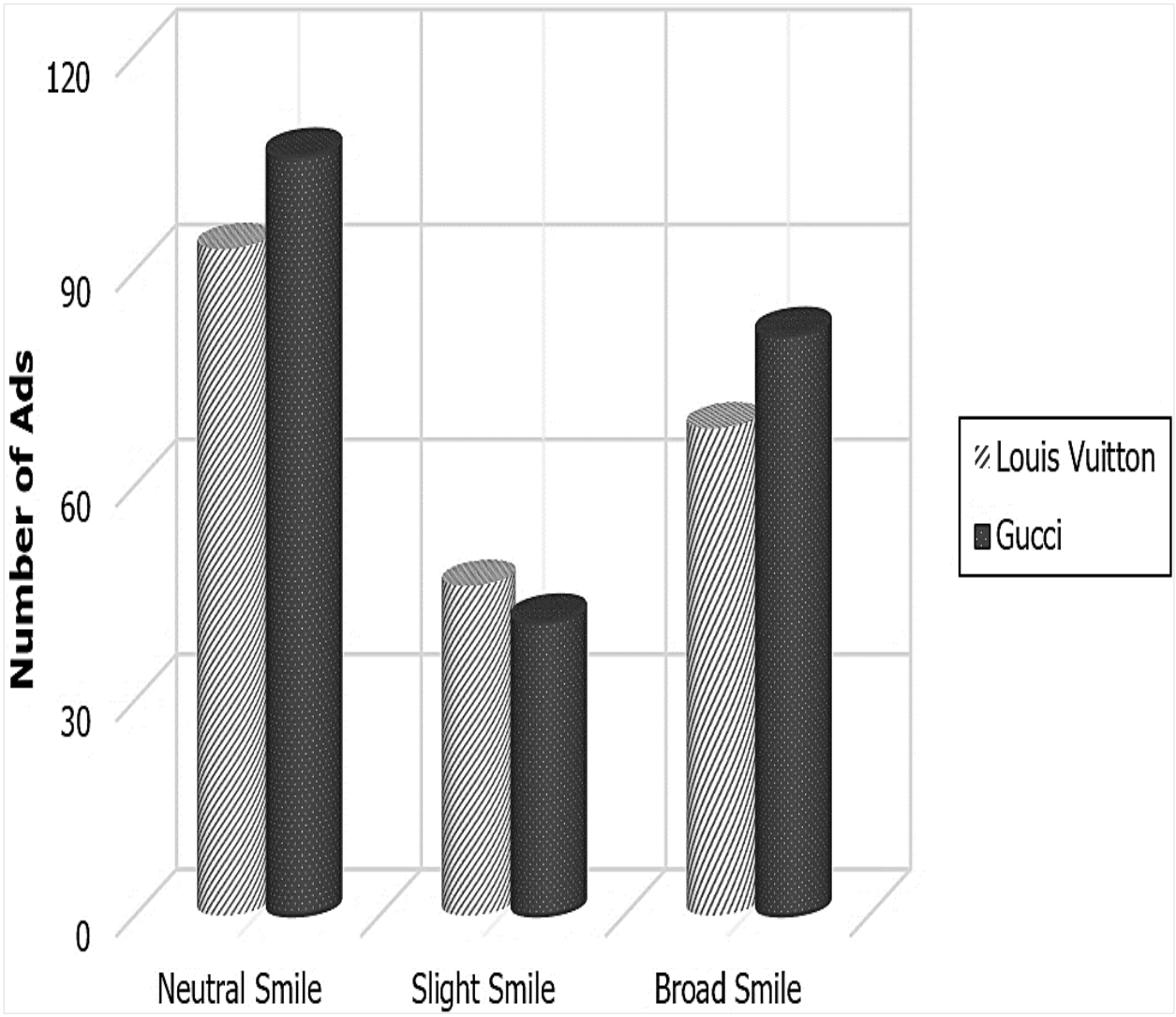

Fig.2. Essay 2: Distribution of smile intensity on Louis Vuitton and Gucci advertisements in Study 1.

Dependent variable (DV). In addition to our main predictor of smile intensity, past research has shown that social media metrics and click-through actions are critical in determining advertising success (Ashley and Tuten, 2015; Voorveld et al., 2018). Correspondingly, we captured the total engagement score (TES) of each print ad, which served as a behavioral proxy for luxury ad effectiveness. In creating the composite measure of print ad engagement, we derived the TES by aggregating the publicly visible likes and comments. For each post, likes were quantified by determining how many users clicked on the like button, while comments were measured based on the total number of user replies made to a post. This method of measurement

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is conceptually rigorous, as the two standardized metrics of engagement are intended to reflect similar fundamental drives to interact with a post. Additionally, it is analogous to recent operationalizations that regard Instagram brand engagement as a sum of two focal interactions: likes and comments (Beichert et al., 2023; Karagür et al., 2022). Consequently, the intercoder reliability ratio for TES was notably strong: $a_{\text{Louis Vuitton}} = .99$ and $a_{\text{Gucci}} = 1.00$. For a given post, an independent sample t-test revealed no significant differences in the average number of likes ($M_{\text{Louis Vuitton}} = 58{,}260.40$, $SD = 47{,}565.42$ vs. $M_{\text{Gucci}} = 53{,}926.32$, $SD = 38{,}614.96$; $t(433) = 1.04$, $p = .29$) and comments ($M_{\text{Louis Vuitton}} = 516.68$, $SD = 403.27$ vs. $M_{\text{Gucci}} = 472.54$, $SD = 272.45$; $t(433) = 1.35$, $p = .17$) between Louis Vuitton® and Gucci®. This suggests that any variations in TES associated with smile intensity are not attributable to fundamental differences in the post-specific engagement levels of these two brands.

Covariates. To further account for external factors that might directly affect TES or interact with smile intensity in predicting TES, we captured a comprehensive set of covariates related to the expresser, brand, and post characteristics. Following the past online advertising effectiveness literature (Özer et al., 2022; To and Patrick, 2021; Wang et al., 2018), the recorded variables for each ad were (1) gaze direction[14] (binary), (2) likeability (index), (3) perceived warmth (index), (4) perceived competence (index), (5) gender (binary), (6) ethnicity (binary), (7) celebrity presence (binary), (8) co-branding promotion(s) (binary), (9) total number of characters in captions (continuous), (10) number of hashtags (#) (continuous), and (11) post age (i.e., differences in days between the post date and data collection date) (continuous). For the index variables, we averaged the ratings from 7-point scales into a composite measure to minimize coder bias and subjectivity (see Web Appendix D for a summary of descriptive statistics and the

[14] To determine the direction of gaze, coders adhered to the approach of To and Patrick (2021), posing the question: What is the gaze direction of the expresser in this ad? —classifying it as either direct (looking at the observer) or averted (looking away from the observer). Of the 435 print ads coded, 64.2% (280) featured direct gaze, whilst 35.8% (155) had averted gaze.

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intercoder agreement scores of covariates). Decisively, we specified the following engagement-based empirical model and its associated measurement parameters:

$$\text{TES}\left(\sum_{i=1}^{435}\text{likes and comments}\right)_t = \beta_0 \text{ (constant)} + \beta_1 \text{ smile intensity}_{i,t} \text{ (0 = neutral, 1 = slight, 2 = broad)} + \beta_2 \text{ gaze direction}_{i,t} \text{ (1 = direct, 2 = averted)} + \beta_3 \text{ gaze direction}_{i,t} \times \text{smile intensity}_{i,t} + \beta_4 \text{ likeability}_{i,t} \text{ (“}\textit{likeable; empathic; nice}\text{”; 1 = not at all, 7 = very well)} + \beta_5 \text{ likeability}_{i,t} \times \text{smile intensity}_{i,t} + \beta_6 \text{ perceived warmth}_{i,t} \text{ (“}\textit{approachable; open; warm}\text{”; 1 = not at all, 7 = very well)} + \beta_7 \text{ perceived warmth}_{i,t} \times \text{smile intensity}_{i,t} + \beta_8 \text{ perceived competence}_{i,t} \text{ (“}\textit{capable; competent}\text{”; 1 = not at all, 7 = very well)} + \beta_9 \text{ perceived competence}_{i,t} \times \text{smile intensity}_{i,t} + \beta_{10} \text{ gender}_{i,t} \text{ (0 = male, 1 = female)} + \beta_{11} \text{ gender}_{i,t} \times \text{smile intensity}_{i,t} + \beta_{12} \text{ ethnicity}_{i,t} \text{ (0 = non-white, 1 = white)} + \beta_{13} \text{ ethnicity}_{i,t} \times \text{smile intensity}_{i,t} + \beta_{14} \text{ celebrity presence}_{i,t} \text{ (0 = no celebrity, 1 = celebrity present)} + \beta_{15} \text{ celebrity presence}_{i,t} \times \text{smile intensity}_{i,t} + \beta_{16} \text{ co-branding promotion(s)}_{i,t} \text{ (0 = no co-branding, 1 = co-branding present)} + \beta_{17} \text{ co-branding promotion(s)}_{i,t} \times \text{smile intensity}_{i,t} + \beta_{18} \text{ (ln) total number of characters in captions per post}_{i,t} + \beta_{19} \text{ (ln) number of hashtags (\#) per post}_{i,t} + \beta_{20} \text{ (ln) post age (in days)}_{i,t} + \varepsilon_{i,t} \text{ (error)} \quad (1)$$

where subscript *i* denotes the i^{th} brands' print ads (Louis Vuitton® or Gucci®) in year *t* (2020 to 2023), (ln) = log-transformed, and "×" represents the interaction term.

3.2. Results

To estimate the specified model in Equation (1), we ran a series of ordinary least squares (OLS) regressions, given that our DV (TES) is of a continuous nature. Results are shown in Table 1, following a three-stage hierarchical modeling approach for both brands. First, we presented only the OLS estimates of the covariates (Model 1), then progressed to include the covariates along with the main smile intensity effect (Model 2), and finally reported the covariates, the main effect, and their interactions (Model 3). Since the data for Louis Vuitton® and Gucci® exhibited a similar pattern of results, we additionally presented a combined model that merges both datasets (Model 4). We standardized the covariates to control for extremely small coefficients and applied heteroskedasticity-consistent robust standard errors (SEs) in each model presented. Concurrently, we excluded a total of ten outliers that were more than 3 *SD* above the mean for TES. Consistent with our pre-registration, this action was taken to control viral posts with substantial engagement levels, which might otherwise skew the predicted effects.

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Table 1. Essay 2: OLS regression estimates of the Instagram data in Study 1.

Explanatory variables	Louis Vuitton (*N* = 201)			Gucci (*N* = 224)			Combined Model 4 (*N* = 425)
	Model 1 (Covariates)	Model 2 (Main effect)	Model 3 (Full model)	Model 1 (Covariates)	Model 2 (Main effect)	Model 3 (Full model)	
Main effect							
(•) Smile intensity	…	-.23***	-.21***	…	-.29***	-.26***	-.24***
Interaction effects							
(•) Smile intensity × Eye gaze direction	…	…	-.17***	…	…	-.18***	-.19***
(•) Smile intensity × Likeability	…	…	.06$^{n.s}$	…	…	.07$^{n.s}$	.05$^{n.s}$
(•) Smile intensity × Perceived warmth	…	…	.08$^{n.s}$	…	…	.06$^{n.s}$	.07$^{n.s}$
(•) Smile intensity × Perceived competence	…	…	-.05$^{n.s}$	…	…	-.07$^{n.s}$	-.06$^{n.s}$
(•) Smile intensity × Gender	…	…	-.04$^{n.s}$	…	…	-.05$^{n.s}$	-.06$^{n.s}$
(•) Smile intensity × Ethnicity	…	…	.03$^{n.s}$	…	…	.02$^{n.s}$	.04$^{n.s}$
(•) Smile intensity × Celebrity presence	…	…	-.06$^{n.s}$	…	…	-.04$^{n.s}$	-.08$^{n.s}$
(•) Smile intensity × Co-branding promotion(s)	…	…	-.05$^{n.s}$	…	…	-.07$^{n.s}$	-.05$^{n.s}$
Expresser-related covariates							
(•) Eye gaze direction (d)	-.04$^{n.s}$	-.05$^{n.s}$	-.06$^{n.s}$	-.06$^{n.s}$	-.08$^{n.s}$	-.09$^{n.s}$	-.07$^{n.s}$
(•) Likeability (i)	.10$^{n.s}$	.09$^{n.s}$	.08$^{n.s}$	.08$^{n.s}$	.10$^{n.s}$	.10$^{n.s}$	.09$^{n.s}$
(•) Perceived warmth (i)	.06$^{n.s}$	.05$^{n.s}$	.05$^{n.s}$	.07$^{n.s}$	.09$^{n.s}$	.10$^{n.s}$	.08$^{n.s}$
(•) Perceived competence (i)	.05$^{n.s}$	.07$^{n.s}$	.06$^{n.s}$	.04$^{n.s}$	.05$^{n.s}$	.09$^{n.s}$	.08$^{n.s}$
(•) Gender (d)	-.19***	-.21***	-.23***	-.11*	-.12*	-.14**	-.16**
(•) Ethnicity (d)	.01$^{n.s}$	.02$^{n.s}$	.04$^{n.s}$	.03$^{n.s}$	.05$^{n.s}$	.06$^{n.s}$	.04$^{n.s}$
Post and brand-related covariates							
(•) Celebrity presence (d)	.14**	.15**	.16**	.21***	.23***	.24***	.16**
(•) Co-branding promotion(s) (d)	.23***	.19***	.20***	.15**	.16**	.16**	.15**
(•) Number of characters in captions per post (l)	.08$^{n.s}$	.06$^{n.s}$	.04$^{n.s}$	.07$^{n.s}$	.08$^{n.s}$	.08$^{n.s}$	.06$^{n.s}$
(•) Number of hashtags per post (l)	.05$^{n.s}$	.04$^{n.s}$	.03$^{n.s}$	.08$^{n.s}$	.07$^{n.s}$	.09$^{n.s}$	.10$^{n.s}$
(•) Post age (l)	-.06$^{n.s}$	-.08$^{n.s}$	-.07$^{n.s}$	-.07$^{n.s}$	-.10$^{n.s}$	-.09$^{n.s}$	-.08$^{n.s}$
Fit and performance metrics							
Adjusted R^2	.272	.323	.361	.291	.359	.422	.394
ΔR^2	…	.051	.038	…	.068	.063	…
Largest VIF	1.98	2.19	2.35	2.12	2.41	2.76	2.68
Collinearity tolerance	.84	.88	.94	.89	.93	.96	.95
F-value	22.36	27.49	30.85	23.56	29.12	34.58	31.25
Prob > *F*	***	***	***	***	***	***	***
LL	-3561	-3532	-3496	-3509	-3465	-3389	-3412
AIC	7182	7136	7086	7073	7018	6872	6973
BIC	7210	7174	7148	7101	7056	6934	7015
DV (TES)	**Louis Vuitton**			**Gucci**			**Combined Model 4**
	Likes	**Comments**	**TES**	**Likes**	**Comments**	**TES**	**TES**
Mean *(SD)*	58260.40 (47565.42)	516.68 (403.27)	58777.08 (47758.05)	53926.32 (38614.96)	472.54 (272.45)	54398.86 (38801.22)	56742.97 (42280.63)

(†) TES = Total engagement score (number of likes + comments per post) is the focal DV in all models, (d) = Dichotomous variables, (i) = Index variables, (l) = Log-transformed due to non-normal distributions, VIF = Variance inflation factor, LL = Log-likelihood, AIC = Akaike information criteria, BIC = Bayesian information criteria, *SD* = Standard deviation, *N* = Total number of final observations (collected online print ads).
(‡) ***p<.001 (t-value ± 3.29), **p<.01 (t-value ± 2.58), *p<.05 (t-value ± 1.96), n.s = not significant effect (all two-tailed).
(§) The combined model represents the full data merging Louis Vuitton and Gucci observations.

For all OLS models, the collinearity tolerances exceeded .80, and the variance inflation factors (VIFs) ranged from 1.23 to 2.76, which are well within the acceptable threshold (≤ 3) (Sarstedt et al., 2022). Furthermore, the correlations between the covariates and smile intensity were under (.17) for Louis Vuitton® and less than (.19) for Gucci®, indicating weak or small associations (Cohen, 2013) (revisit Web Appendix D for the correlation matrix). Therefore, it is unlikely that multicollinearity poses a risk to the interpretation of our results. Regarding predictive relevance, our analysis indicates that Model 3 ($F(11, 189)_{\text{Louis Vuitton}} = 30.85$, $p < .001$; $F(11, 212)_{\text{Gucci}} = 34.58$, $p < .001$) is superior for both brands, evidenced by its higher adjusted R^2 ($.36_{\text{Louis Vuitton}}$ and $.42_{\text{Gucci}}$), increased log-likelihood, along with lower Akaike and Bayesian information criteria (Vrieze, 2012). Model fit and performance metrics are detailed in Table 1.

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In relation to the main effect, smile intensity was negatively related to TES ($\beta_{\text{Louis Vuitton (Model 2)}}$ = -.23, p < .001; $\beta_{\text{Gucci (Model 2)}}$ = -.29, p < .001), suggesting that more intense smiles were less effective in garnering ad engagement. This primarily supports H_1. In a follow-up test, we ran a one-way analysis of variance (ANOVA) on the combined data and found a significant effect of smile intensity on TES ($F(2, 422) = 22.17$, $p < .001$, $\eta_p^2 = .13$). Pairwise comparisons showed that print ads featuring neutral expressions (M_{neutral} = 64,220.05, SD = 45,102.87) and slight smiles[15] (M_{slight} = 60,947.15, SD = 43,576.29) resulted in higher TES than those with broad smiles (M_{broad} = 36,125.73, SD = 24,931.58; $p_{\text{neutral vs. broad}} < .001$, $p_{\text{slight vs. broad}} < .001$). This effect remained significant after controlling for all covariates in an analysis of covariance (ANCOVA) ($ps \leq .05$). Concerning the discrete weights of likes and comments on TES, we performed a robustness test by operationalizing likes rate ($\frac{\text{\# of likes (per ad)}}{\text{follower count}}$) and comments rate ($\frac{\text{\# of comments (per ad)}}{\text{follower count}}$) as two separate DVs within supplementary OLS models. These alternative checks similarly revealed a negative effect of smile intensity on likes rate ($\beta_{\text{Louis Vuitton}}$ = -.20, p < .001; β_{Gucci} = -.25, p < .001) and comments rate ($\beta_{\text{Louis Vuitton}}$ = -.22, p < .001; β_{Gucci} = -.27, p < .001).

Next, we observed a significant interaction effect between gaze direction and smile intensity ($\beta_{\text{Louis Vuitton (Model 3)}}$ = -.17, p < .001; $\beta_{\text{Gucci (Model 3)}}$ = -.18, p < .001; $\beta_{\text{(Combined Model 4)}}$ = -.19, p < .001). Fig.3 presents the interaction plot for the combined data. Probing this interaction further, print ads featuring a direct gaze paired with a neutral expression (vs. broad) smile achieved significantly higher TES ($M_{\text{direct-neutral}}$ = 78,412.63, SD = 59,518.45 vs. $M_{\text{direct-broad}}$ = 40,695.19, SD = 27,310.87; $t(278) = 6.83$, p < .001). Conversely, averted gaze led to higher TES when coupled with a broad smile (vs. neutral expression) ($M_{\text{averted-broad}}$ = 43,672.73, SD = 31,208.16 vs. $M_{\text{averted-neutral}}$ = 21,591.02, SD = 13,947.54; $t(153) = 5.55$, p < .001). This offers initial support for H_{4a}. No

[15] We observed no marginal variations in the mean of TES between the neutral expression and slight smile ads ($t(284) = .57$, $p = .56$), indicating a negligible difference between these two conditions. To enhance methodological rigor, we concentrated our efforts on the dichotomy between neutral expressions and broad smiles for the following phases of this research. This decision is in line with our conceptual development and early works (Berg et al., 2015; Chen and Wyer, 2020; Warren et al., 2018) that predominantly concentrated on the distinctions between smiling and non-smiling expressions. It streamlines our experimental designs and ensures more interpretable results, thus eliminating potential confounds introduced by the intermediate slight smile condition.

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other significant interaction effects were observed between smile intensity and the studied covariates ($ps_{\text{Louis Vuitton (Model 3)}} \geq .10$, $ps_{\text{Gucci (Model 3)}} \geq .11$).

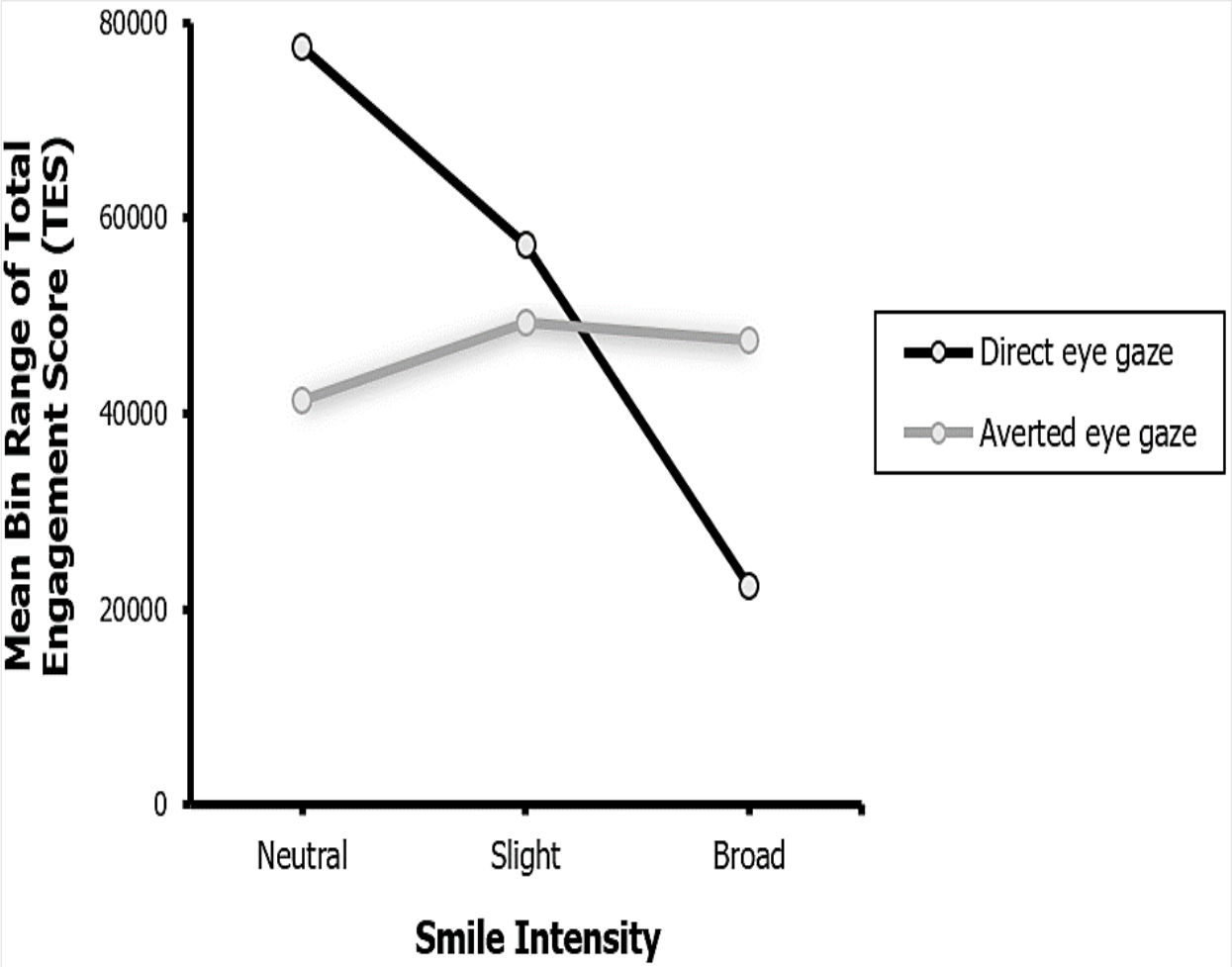

Fig.3. Essay 2: The interaction effect of smile intensity and gaze direction on TES using the combined Instagram data (Study 1).

Pertaining to the direct effects of covariates, the results showed that TES was adversely impacted by female expressers ($\beta_{\text{Louis Vuitton (Model 1)}} = -.19$, $p < .001$; $\beta_{\text{Gucci (Model 1)}} = -.11$, $p < .05$), while it was positively influenced by the presence of a celebrity ($\beta_{\text{Louis Vuitton (Model 1)}} = .14$, $p < .01$; $\beta_{\text{Gucci (Model 1)}} = .21$, $p < .001$) and co-branding promotions ($\beta_{\text{Louis Vuitton (Model 1)}} = .23$, $p < .001$; $\beta_{\text{Gucci (Model 1)}} = .15$, $p < .01$). Together, this suggests that featuring a greater number of male expressers, including celebrities, and applying co-branding promotions can contribute to higher engagement scores. In contrast, we did not detect direct effects of gaze direction, perceived likeability,

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warmth, competence[16], ethnicity, the number of captions, hashtags, and post age on TES ($ps_{\text{Louis Vuitton (Model 1)}} \geq .09$, $ps_{\text{Gucci (Model 1)}} \geq .08$). But most importantly, the focal smile intensity effect on TES remained unchanged after controlling for these covariates ($\beta_{\text{Louis Vuitton (Model 3)}} = -.21$, $p < .001$; $\beta_{\text{Gucci (Model 3)}} = -.26$, $p < .001$; $\beta_{\text{(Combined Model 4)}} = -.24$, $p < .001$).

3.3. Additional post-hoc evidence for ad engagement: A textual analysis

To provide supplementary evidence for H_1 and gain further insights into consumer perceptions, we analyzed the comments of both followers and non-followers of Louis Vuitton® and Gucci®. We collected a total of 17,645 English[17] comments ($8{,}732_{\text{neutral smile ads}}$ vs. $8{,}913_{\text{broad smile ads}}$) using the comment scraper tool publicly available on **apify.com/apify/instagram-comment-scraper**. Given the consistent patterns observed in the results reported above, we created a merged dataset for both brands. Prior to analysis, all emojis (e.g., ❤️, 😍, 🔥, ✨, 👏), tags, and junk words, such as "*a, an, the*" were removed from the dataset, as they were deemed non-contributory to the text's meaning (Özer et al., 2022). Accordingly, we utilized the Linguistic Inquiry and Word Count (LIWC-22) statistical package, developed by Boyd et al. (2022), which is widely used in consumer research (Beichert et al., 2023; Oc et al., 2023).

LIWC is a prominent tool for categorizing text files and measures the frequency of psychological processes in the text, which designate various drives, states, motives, and individual perceptions. It examines each post and identifies target words one by one. Our ancillary analysis specifically focused on ten key LIWC dimensions[18]: (1) affiliation, (2) authenticity, (3) achievement, (4) power, (5) need, (6) want, (7) curiosity, (8) allure, (9) attention, and (10) visual.

[16] By incorporating combined data and using the $\text{PROCESS}_{4.3.1}$ Model 4 with 10,000 bootstrap iterations (Hayes, 2017), we observed no significant indirect effect of the expresser's perceived competence on the relationship between smile intensity and TES ($\beta = -.05$, $p = .19$). At this point, this non-significant result is particularly illuminating and aligns with our theoretical prediction, H_{2b}, underscoring the necessity of delving into a more intricate serial mediation model.

[17] Due to the complexities and resource constraints involved in accurately translating multilingual comments, we focused solely on English comments to ensure consistency in our text analysis, while acknowledging this as a limitation in terms of language inclusivity.

[18] The reader is advised to refer to the LIWC-22 primer of Boyd et al. (2022) for detailed conceptualizations of selected psycholinguistic dimensions.

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In parallel with works of literature on social media advertising (Chen and Wyer, 2020; Voorveld et al., 2018) and SCM (Fiske et al., 2007, 2002), these dimensions were chosen for their relevance to post-engagement and H_{2b}. Consequently, we aimed to explore the disparity in the number of comments received by ads featuring neutral expressions vs. broad smiles across these psycholinguistic variables.

The Web Appendix E details the results. Markedly, we found that neutral expression ads received significantly more comments on all LIWC dimensions—affiliation ($M_{neutral}$ = 32.16 vs. M_{broad} = 28.79; t(17,643) = 6.13, p < .001), authenticity ($M_{neutral}$ = 64.25 vs. M_{broad} = 60.93; t(17,643) = 3.17, p < .01), achievement ($M_{neutral}$ = 74.82 vs. M_{broad} = 69.94; t(17,643) = 3.67, p < .001), power ($M_{neutral}$ = 70.76 vs. M_{broad} = 65.82; t(17,643) = 3.91, p < .001), need ($M_{neutral}$ = 27.84 vs. M_{broad} = 25.81; t(17,643) = 5.79, p < .001), want ($M_{neutral}$ = 28.42 vs. M_{broad} = 22.43; t(17,643) = 13.87, p < .001), curiosity ($M_{neutral}$ = 26.68 vs. M_{broad} = 25.66; t(17,643) = 2.49, p < .05), allure ($M_{neutral}$ = 207.64 vs. M_{broad} = 191.87; t(17,643) = 5.71, p < .001), attention ($M_{neutral}$ = 33.06 vs. M_{broad} = 30.17; t(17,643) = 5.04, p < .001), and visual ($M_{neutral}$ = 66.12 vs. M_{broad} = 59.94; t(17,643) = 7.96, p < .001). This denotes that print ads with neutral (vs. broad) smiles led to a greater level of comment engagement. The higher prevalence of affiliation, authenticity, achievement, and power-associated words in neutral expression ads signals the likelihood that neutral facial expressions may result in enhanced competence judgments. Nonetheless, we will more thoroughly test this possibility in Study 3.

3.4. Discussion

In combination, Study 1 demonstrated the negative impact of smile intensity on luxury ad effectiveness. Consistent with our predictions, print ads displaying neutral expressions enhanced TES. By focusing on two separate luxury brands, we safeguarded that the observed effect was not confined to a single brand. In addition, we observed support for the moderating role of gaze direction, which we plan to delve into more systematically in Study 4. As a post-hoc evidence,

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print ads received more comments on all LIWC-22 dimensions, which are closely intertwined with TES and competence perceptions. We plan to investigate underlying mechanisms behind these effects in Studies 3 and 4.

One notable limitation of this study was the impracticality of classifying the diversity of luxury products featured in collected ads. Contextually, this hindered our understanding of whether the detrimental effect of smile intensity is generalizable across different types of luxury products and consumption categories (Zhu et al., 2022). Moreover, we were unable to gather demographic data (e.g., age, gender, ethnicity) of users who engaged with these posts due to the privacy policies of Instagram. This raises questions about whether the observed effect can hold across different gender, age, and ethnicity groups. Finally, self-selection bias and endogeneity remain a risk to our field data. It was beyond our control whether these brands displayed our ads on their websites or other social media platforms (e.g., Meta, YouTube), which could potentially drive traffic across platforms and indirectly affect TES. In what follows, we addressed these concerns and aimed to expand upon these findings in more controlled settings.

4. Study 2a: Testing the main effect in Meta ads

While Study 1 offered preliminary evidence on the main effect, its correlational nature restricted causality and the ecological validity of our predictions. To provide additional extrapolation for H_1 and enhance the practical relevance of our findings, we conducted a field study in a naturalistic setting using Meta's Ads Manager (**facebook.com/business/tools/ads-manager**). This platform is extensively used by luxury brands for their advertising campaigns and offers diverse rhetorical advantages to consumer researchers focused on examining managerially relevant DVs, such as online brand engagement (see Orazi and Johnston, 2020, pp.190-191 for the advantages of Meta experiments).

In this study, we captured two real-time performance proxies to evaluate luxury ad effectiveness: (1) click-through rates (CTRs) and (2) cost-per-clicks (CPCs), hence moving

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beyond self-reported intentions which can be influenced by social desirability response bias[19] (Essiz and Senyuz, 2024). This study was preregistered at (**aspredicted.org/blind.php?x=N9K_3MG**).

4.1. Method

Stimuli development. We developed two versions of an advertisement, each featuring images of an expresser with two distinct facial expressions: a neutral expression and a broad smile. Originally, we purchased a licensed stock image from **istockphoto.com**, a global online photography provider. This image showcased a Caucasian female model adorned with luxury jewelry and exhibiting a neutral expression. The facial expression of the selected expresser was identical to the level 1 smile intensity (neutral expression stimulus set) in the AMFD (Chen et al., 2021) and MSFDE (Beaupré and Hess, 2006). To generate a version with a broad smile, we complied with the level 5 smile intensity criteria, employing the broad smile creation procedure delineated by Cheng et al. (2020). We digitally morphed and calibrated the original neutral expression image using FaceApp Pro (**faceapp.com**), a facial editing software. We opted for the "*wide smile*" feature within the facial editor.

To correct any distortions or blurriness resulting from this morphing process, Adobe Photoshop (**adobe.com**) was utilized (see Table 2 for the stimuli developed). Throughout the paper, this morphing procedure was homogeneously applied in all the studies. Similar to Wang et al. (2017), this morphing technique enabled us to increase the empirical validity of manipulating our IV—smile intensity. We achieved this by blending the structural characteristics of neutral and expressive faces (including slight and broad smiles), while maintaining the original textural properties of the neutral face, such as wrinkles and furrows that are indicative of overt expressions.

[19] To reduce the chance of receiving responses influenced by social desirability, participants were provided with an informed consent form in all studies. This form made them aware of the ethical standards regarding confidentiality and their right to withdraw at any time. We also monitored the IP addresses of participants to ensure that no individual enrolled in our studies more than once.

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Extant literature (Abel and Kruger, 2010; Wang et al., 2017) has ascertained that smile intensity is physically manifested by the activity of a specific facial muscle unit, the zygomaticus major (AU12), responsible for elevating the corners of the lips. This action is accompanied by the elevation of the cheeks and the contraction of the outer corners of the eyes, a function of the orbicularis oculi muscle unit (AU6). To safeguard the face validity of our stimuli, we invited six marketing PhDs to examine these muscle action units, AU12 and AU6, as benchmarks in two ads. Higher levels of these units are indicative of positive facial expressions. Following Ekman and Friesen's (1978) facial action coding system, we instructed them to rate the intensity of each muscle action on a 5-point scale, with 1 being minimal and 5 being extreme. This step was taken to enhance the empirical rigor of the IV. The smile intensity score was calculated by averaging the ratings of AU12 and AU6. The mean score for the neutral expression ad was 1.37 (*SD* = .51), while for the broad smile ad, it was 4.37 (*SD* = .74)[20].

Based on this analysis, the smiles in our two ads differed only in degrees of AU12 and AU6, resulting in either neutral expressions or broad smiles. Aside from this, all other visual aspects of the expresser, such as attire, direction of the gaze, eyebrow positioning, and head orientation (Min and Hu, 2022), were consistently uniform across both conditions. Heeding the advice of Zhu et al. (2022), we converted all the stimuli developed in this research to black and white and standardized their size to eliminate potential confounding factors, such as variations in skin and clothing colors. Likewise, the ad background was kept plain and neutral to prevent any distractions. In both versions of the ad, we used the same tagline: "*Exclusive Jewelry Collection*" to heighten perceptions of status and visibility. However, we refrained from disclosing pricing information to ensure it did not sway the judgments of observers.

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[20] They were further asked to rate the smile intensity of stimuli in subsequent studies and results were comparable to Study 2a: Study 2b ($M_{neutral}$ = 1.50, *SD* = .53 vs. M_{broad} = 4.25, *SD* = .70), Study 3 ($M_{neutral}$ = 1.25, *SD* = .46 vs. M_{broad} = 4.50, *SD* = .53), and Study 4 ($M_{neutral}$ = 1.12, *SD* = .35 vs. M_{broad} = 4.00, *SD* = 1.06).

Pretest of the stimuli. We conducted a separate pretest using Prolific® Academic (**prolific.com**), a commercial crowdsourcing platform, to further evaluate the validity of our manipulation and dismiss potential expresser-related confounds. For all pretests and experiments reported in this paper, Prolific® was chosen for its ability to provide access to our target population and its rigorous data quality protocols[21]. To mitigate potential internal validity threats, we employed a purposive sampling method and pre-screened participants who have regular luxury consumption habits. In alignment with the audience criteria for our field study, we implemented three screening protocols: (1) nationality: US, (2) gender: female, and (3) a minimum approval rate of 99%.

Surpassing our preregistration, we next recruited 72 participants (M_{age} = 28.34, SD = 8.16, US residents, compensation = $\$0.30_{per\ individual}$) for a single-minute pictorial evaluation task. These participants were randomly assigned to a two-cell (smile intensity: neutral vs. broad) between-subjects design. Given the palpable influence of smiles on model personality assessments and ad-related judgments (Wang et al., 2017; Yao et al., 2022), they proceeded to rate the expresser's smile strength (as a manipulation check), the authenticity of the smile expression, facial attractiveness, trustworthiness of the smile, perceived competence, perceived warmth, perceived prestige, ad realism, and brand's perceived luxury as single-item confound checks in a counterbalanced order. These ratings were based on 5-point scales and measurement items reported in the Web Appendix H. They were also asked to complete a single-item attention check: Is the model featured in this ad smiling or not smiling? (1 = smiling, 2 = not smiling).

Pretest results. As a result of the attention check, a cross-tabulation analysis uncovered that every participant accurately identified whether the model was smiling or not based on the condition (neutral expression vs. broad smile) they were assigned. As predicted, independent t-test results showed that the neutral expression (vs. broad) smile received significantly lower

[21] Compared to other platforms (e.g., MTurk), Prolific® participants have been shown to be more attentive to instructions and more honest in their responses (Peer et al., 2022).

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ratings on perceived smile strength ($M_{neutral}$ = 1.06, M_{broad} = 3.94; $t(70)$ = -23.42, $p < .001$), and perceived warmth ($M_{neutral}$ = 2.33, M_{broad} = 3.82; $t(70)$ = -5.55, $p < .001$), and higher ratings of perceived competence ($M_{neutral}$ = 3.44, M_{broad} = 2.06; $t(70)$ = 5.14, $p < .001$), and perceived prestige ($M_{neutral}$ = 4.19, M_{broad} = 3.55; $t(70)$ = 2.27, $p < .05$). These findings supported the success of our stimuli for further investigations. Ratings of authenticity of the smile expression, facial attractiveness, trustworthiness of the smile, ad realism, and brand's perceived luxury did not significantly differ across the two smile intensity conditions ($ps \geq .68$). Notably, participants reported higher perceived luxury of the promoted brand in both conditions ($M_{neutral}$ = 4.32, M_{broad} = 4.24; $t(70)$ = .33, p = .76; difference from the scale midpoint: $t(71)$ = 3.75, $p < .001$) (see Web Appendix F for detailed results).

Procedure and design of the Meta study 2a. This multiple-ad study employed a single-factor (neutral expression vs. broad smile) between-subjects design. We used Meta's A/B split testing functionality, which randomly allocated users to one of the two ad conditions. Our objective was to evaluate which ad version outperformed the other while making sure that the users were evenly spread and statistically comparable between the two groups. To maintain consistency across all other elements, except for the smile intensity degree in ads, we set the following campaign parameters: (1) campaign objective: drive traffic, (2) performance target: maximize the number of clicks, (3) bidding strategy: highest volume, (4) location targeting: US, (5) language preference: English, (6) device compatibility: all devices, and (7) detailed targeting: individuals interested in luxury goods, jewelry, and advertising. Considering the promoted product's nature (women's jewelry)[22] and the gender of the expresser (woman), our campaign specifically targeted female observers aged 18 and above as the unit of analysis. The purpose of this gender-matching protocol was to mitigate potential confounding threats, such as tendencies towards romance or desire-driven responses, which might be discreetly influenced by the

[22] Jewelry, being universally accepted as a symbol of status and wealth, serves as an ideal luxury product type for this study (Pankiw et al., 2021). Its use can offer valuable practical insights directly relevant to the global luxury market segment.

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intensity of the expresser's smile involving opposite-gender pairings (e.g., a female expresser and a male participant) (To and Patrick, 2021).

In September 2023, we launched both ads for Canyon, a fictitious luxury jewelry brand, aiming to obtain unique CTRs[23] for the targeted ads. The use of a fictional brand name was a methodological choice to cleanly segregate the effects of manipulations from the potential interference of pre-existing brand recognition and equity[24] (Holden and Vanhuele, 1999). We prescheduled the campaign's duration to ensure both ads were evaluated over an identical timeframe. The ads ran parallelly and continuously for seven days (168 hours), starting and ending at 12:00 a.m. EST. The total budget for the week, set at €354, was equally allocated to both conditions. Our budget allowance guaranteed at least a total reach of ≈160,750 users and an aggregated minimum of ≈1810 click-throughs across both ads through a power analysis by Meta's targeting algorithms. When users clicked the "*Learn More*" button on the ads, they were directed to a mock page that featured the same ads and offered details about the scientific purpose of campaigns, in which they were informed about the primary goals of this study. Of note, we collected data on the age of users to control it as a plausible covariate.

4.2. Results

Via Meta Ads Manager, we monitored both the number of reach (i.e., different users exposed to ads) and the number of clicks for each campaign. Our ads reached a total number of 161,643 unique users ($Reach_{neutral}$ = 81,281, $Reach_{broad}$ = 80,362). The total number of clicks for the neutral expression ad was 1176, while the ad with a broad smile garnered 791 clicks (see Fig.4 for the

[23] The unique CTR is a commonly utilized behavioral measure for evaluating ad performance. It captures the ratio of clicks an ad receives from different individuals reached, excluding any overlaps (Orazi and Johnston, 2020). It assists us in eliminating biases that may arise from repetitive clicks or the ad being displayed unevenly to different individuals. Throughout the one-week study period, we also implemented a frequency cap to ensure that each unique individual was assigned to a single ad condition.

[24] We used a brand name generator tool (**durable.co/name-generator**) to formulate the fictional brand names reported in Studies 2a and 3, ensuring that there were no biases from the influence of pre-existing brand names. In spite of its methodological strengths, we recognize that using a fictional brand may limit the generalizability of our findings. We addressed this concern by using real luxury brands in Studies 2b and 4.

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daily distribution of ad clicks spanning a seven-day period). CTRs for both conditions ($CTR_{neutral}$ = 1.446%, CTR_{broad} = .984%) outperformed the average range for Meta ads.

This is in line with the standard benchmark of .90% for business ads (Irvine, 2024), signaling that our ads were comparable in appeal and focus to other Meta ads. A chi-square test with one degree of freedom showed a significant difference in proportions, $\chi^2(1) = 71.91$, $p < .001$. Critically, the neutral smile ad achieved a higher CTR (1.446%) than the broad smile ad (.984%).

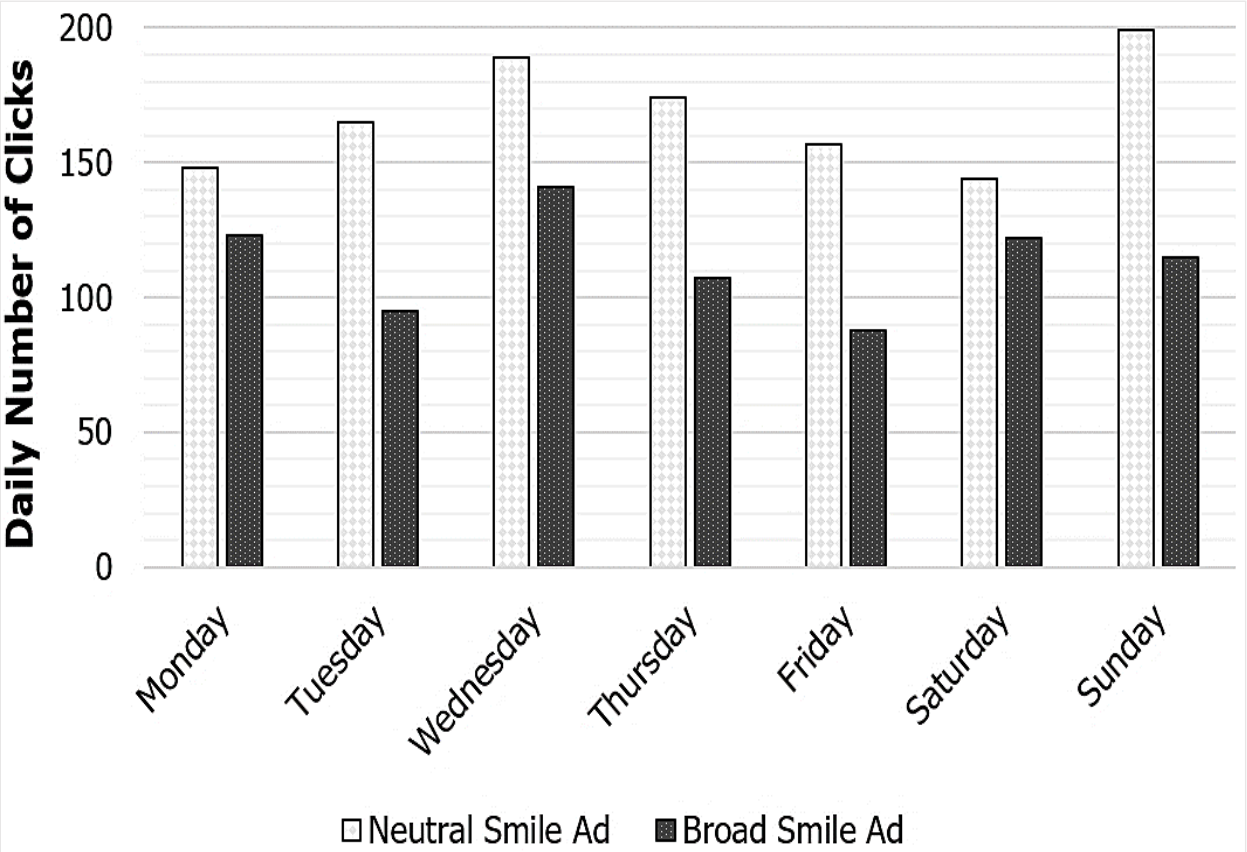

Fig.4. Essay 2: Weekly breakdown of Meta ad clicks across smile intensity conditions in Study 2a.

Furthermore, the CPC represents the ratio of total expenditure in each ad condition to the total number of clicks it generates (Orazi and Johnston, 2020). Since the ad expenditure is equivalent across conditions, a relatively lower CPC in one condition can serve as an indicator of ad effectiveness. The CPC for the neutral expression ad was €.15, whereas it was €.22 for the broad

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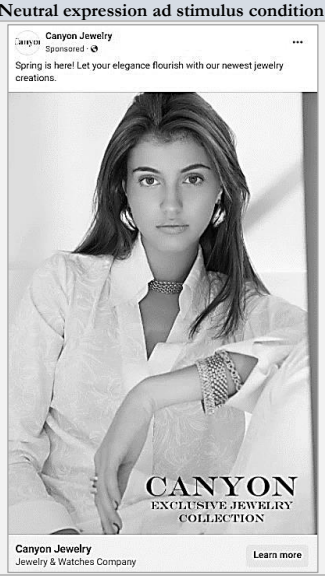
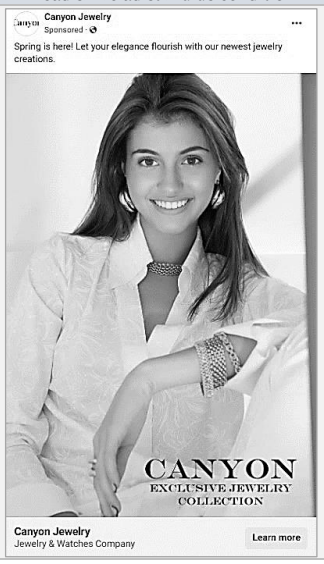
smile ad, suggesting higher cost-efficiency for the neutral expression ad. Table 2 displays the detailed results and descriptive statistics from this study.

Table 2. Essay 2: Meta field study stimuli and empirical results in Study 2a.

Single-factor design (A/B testing)	**Neutral expression ad stimulus condition**	**Broad smile ad stimulus condition**
Stimuli pictures		
Descriptives of participants and ad performance metrics		
Gender	Female: 100%, Male: 0%	Female: 100%, Male: 0%
Reach (i.e., different users exposed to ads) (N_{total} = 161,643)	81,281	80,362
Reach by age groups	18-24 = 39,015 25-34 = 21,945 35-44 = 6,502 45-54 = 4,882 55-64 = 4,564 65+ = 4,373	18-24 = 34,557 25-34 = 24,913 35-44 = 5,625 45-54 = 4,018 55-64 = 4,821 65+ = 6,428
Impressions (i.e., the total number of exposures to ads)	81,368	80,519
Frequency	1.0010	1.0019
Number of ad clicks	1181 [1176]	795 [791]
Expenditure (i.e., budget: amount spent)	€176.63	€176.52
CTR (%)	1.446	0.984
CPC	€0.15	€0.22

(†) CTR = Click-through rate = $\left(\frac{\text{Number of ad clicks}}{\text{Reach}}\right) \times 100$, CPC = Cost-per click = $\left(\frac{\text{Expenditure}}{\text{Number of ad clicks}}\right)$, Frequency = $\left(\frac{\text{Impressions}}{\text{Reach}}\right)$. Clicks presented in brackets indicate correction based on frequency.

To ensure the robustness of our results, we performed a binary logistic regression analysis after establishing a simulated dataset with smile intensity (1 = neutral, 0 = broad), age group (6 separate dummy indicators), and their interaction as the IVs, and click-counts (1 = click, 0 = no click) as the DV. The results corroborated the significant main effect; there was a positive influence for the neutral expression condition on click counts (β = .40, SE = .04, Wald $\chi^2(1)$ = 74.81, $p < .001$; $Exp\ (\beta)$ = 1.49 (odds ratio: OR), confidence interval $(CI_{95\%})_{Exp\ (\beta)}$ = [1.36, 1.63]). Strictly speaking, observers who saw the ad with a neutral expression were 1.49 times more likely

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to click on it compared to those who were exposed to the ad with a broad smile. We accounted for the smile intensity × age interaction to control age-related effects. This interaction was found to be non-significant (p = .19), indicating that the observed effect was robust across all age groups listed in Table 2. No main effect of age on click-counts was observed (β = .03, p = .14).

4.3. Discussion

Overall, Study 2a provided robust marketplace support backing H_1. We unpacked that a luxury ad featuring the expresser with a neutral expression (vs. broad) smile resulted in higher actual click behaviors and lower CPCs. Although the results of this field study offer moderate ecological validity, sample representativeness, and enhanced behavioral realism *per se*, it also raises the possibility that extraneous variables might have distorted our findings, giving rise to lower internal validity. Conclusively, the real-world context of this study demanded certain trade-offs in the design process of stimuli: (1) we used a female expresser, (2) the brand was fictitious, and (3) our participant pool consisted of female observers from an individualistic country: the US (Hofstede, 1984).

Another constraint regarding generalizability was the prerequisite for participants to possess an interest in luxury goods. Considering the importance of gender-specific reactions to smiles in further discerning empirical intuitions (Trivedi and Teichert, 2019) and acknowledging the potential cross-cultural variations in interpreting smiles (Wang et al., 2018), our ability to disentangle differences in ad effectiveness between male expressers and observers from collectivist cultures has yet to be fully reciprocated.

Explicitly, earlier facial expressions research, beginning with Darwin's theories on the biological and evolutionary underpinnings of emotions, has consistently shown universal trends in the expression of emotions (Darwin, 1872; Ekman and Friesen, 1978; Buck, 1980). In this context, facial expressions are frequently referred to as the "*universal language of emotion,*" consistent across various cultures (Ekman, 1993). However, this claim has been challenged by previous

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findings, noting that no other facial expression can communicate as wide a range of complex and diverse messages as the smile (Chen and Wyer, 2020; DePaulo, 1992; Keltner and Kring, 1998). This is especially relevant in the realm of cultural display rules (Ekman and Oster, 1979). For instance, Cheng et al. (2020) and Wang et al. (2018) mutually argue that smiles are frequently used to cover negative emotions when cultural standards demand that such emotions be hidden from view.

Accordingly, attention has been directed towards the cultural contexts of emotions and the possibility that certain aspects of the emotional process are influenced by cultural factors. From this perspective, Matsumoto and Kudoh (1993) showed that while both American and Japanese participants could recognize happiness and surprise, Americans were better at accurately identifying anger, disgust, fear, and sadness compared to their Japanese counterparts. A different study by Pogosyan and Engelmann (2011) later documented how American, Japanese, and Russian participants differently judged the intensity of positive emotions in an advertising context, emphasizing cultural variations. Wang et al. (2018) showed comparable results by analyzing American vs. Chinese individuals. Such distinctions can be attributed to deviations in cultural display rules.

Display rules, naturally learned during childhood socialization, govern the appropriateness of emotional responses in various settings specific to cultural contexts (Hofstede, 1984). Research has indicated that Western cultures, typically characterized by individualistic values, encourage the expression of emotions (Matsumoto et al., 2002). In contrast, Asian cultures, which tend to be more collectivistic, advocate for the control of emotions to maintain group harmony (Lee et al., 2018). Differences in the interpretation of emotions in various contexts between Asians and Americans have also been associated with "analytic" versus "holistic" information processing styles (Nisbett et al., 2001). Combined, the existing evidence suggests that people from different cultures may hold unique beliefs about social-personality traits depending on whether faces are

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smiling or not. In return, the present research does not neglect this possibility. So far, no research has investigated potential cultural differences in the perception of affect intensity within the context of luxury advertising. The next field study aims to tackle this issue by testing the external validity of the proposed model.

5. Study 2b: A second field study on Meta: Enhancing external validity

Study 2b was preregistered at (**aspredicted.org/blind.php?x=SFD_8ZL**). In this second Meta advertising study, we sought to replicate the findings of Study 2a with three key changes. First, past cross-national research has pointed out that consumers from different countries may interpret the same smile in different ways due to cultural distinctions (Wang et al., 2018). Correspondingly, we recruited Meta-users from a collectivistic country, China[25], to test whether our observed effect extends outside the US.

Second, the role of the expresser's gender is important in the smile intensity research, as it influences the magnitude and type of emotional contagion experienced by observers in nonverbal interactions (Doherty et al., 1995). Trivedi and Teichert (2019, p.197) specifically advocate probing the variations in how smiles are perceived differently based on the genders of expressers and observers. Consequently, we employed a male stimulus and male participants following the gender-matching protocol reported in Study 2a. Third, we featured an actual sunglass[26] advertisement from Prada®, one of the leading brands in the Asia-Pacific luxury market (Statista, 2023b), to enhance the realism dimension of this study.

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[25] China was chosen for its status as the world's second-biggest market for personal luxury goods after the US (Statista, 2023a), and for its distinct cultural traits when compared to the US, as illustrated in Hofstede's six cultural dimensions. For a detailed examination, the reader is further directed to the comparison chart at **hofstede-insights.com/country-comparison-tool?countries=china%2Cunited+states**.

[26] Past research in luxury marketing has identified sunglasses as a suitable and accessible product stimulus, encouraging the current study to utilize them due to their utilitarian, hedonic, and symbolic attributes (Shimul and Phau, 2022).

5.1. Method

Stimuli development. To safeguard that the effects obtained in Study 2a were not distorted by demographic characteristics of the expresser (e.g., gender, ethnicity), we developed a new set of stimuli by securing a photo of a male Asian model wearing sunglasses and exhibiting a neutral expression, obtained from a real commercial on the Prada® China Official Website (**prada.com/cn**). We then applied the same morphing procedure as detailed in Study 2a to create the broad smile condition; the only variation in the two ads was the level of activity in the AU12 and AU6 muscle action units, resulting in either the level 1 or level 5 smile. These intensity levels corresponded with those for neutral expressions and broad smiles as delineated in the AMFD and MSFDE (Beaupré and Hess, 2006; Chen et al., 2021) (see Table 3 for the stimuli produced).

Pretest of the stimuli. To check the validity of our stimuli and tease out alternative accounts, we recruited a separate convenience sample of 70 male Prolific® members (M_{age} = 34.29, SD = 7.64, compensation = $\$0.30_{per\ individual}$) who were fluent in English and declared their ethnicity as East Asian, for a single minute ad evaluation task. The sample size of this pilot study was sufficient to conduct preliminary reliability and validity analyses, as per $N \geq 50$ rule of thumb (Haws et al., 2023). In contrast to Study 2a, we used no other screening criteria, which allowed the inclusion of a range of luxury and non-luxury consumers, enabling an unbiased estimation of the factors that impact luxury ad perceptions. Participants were randomly assigned to a two-cell (smile intensity: neutral vs. broad) between-subjects design. Following Study 2a's pretest procedure, they then rated the expresser's smile strength (as a manipulation check), the authenticity of the smile expression, facial attractiveness, trustworthiness of the smile, perceived competence, perceived warmth, perceived prestige, ad realism, and the brand's perceived luxury as single-item confound checks (revisit Web Appendix H for the measures). They also completed an attention check identical to the pretest in Study 2a.

Pretest results. A cross-tabulation analysis revealed that each participant correctly discerned whether the expresser in the ad was smiling or not, based on the condition (neutral expression vs. broad smile) assigned to them. The manipulation for the smile intensity operated as anticipated. Smile strength ratings were significantly lower when the expresser displayed a neutral (M = 1.12, SD = .27) vs. broad smile (M = 3.92, SD = .72), $t(68)$ = -21.54, $p < .001$. Moreover, the ad with a neutral expression received significantly higher ratings on perceived competence ($M_{neutral}$ = 3.79, M_{broad} = 2.46; $t(68)$ = 4.73, $p < .001$), perceived prestige ($M_{neutral}$ = 4.15, M_{broad} = 3.49; $t(68)$ = 2.47, $p < .05$), and lower ratings on perceived warmth ($M_{neutral}$ = 2.15, M_{broad} = 3.71; $t(68)$ = -6.55, $p < .001$). Meanwhile, authenticity of the smile expression ($M_{neutral}$ = 3.52 vs. M_{broad} = 3.43; $p = .37$), facial attractiveness ($M_{neutral}$ = 3.96 vs. M_{broad} = 3.88; $p = .33$), trustworthiness of the smile ($M_{neutral}$ = 3.35 vs. M_{broad} = 3.51; $p = .45$), ad realism ($M_{neutral}$ = 4.18 vs. M_{broad} = 4.07; $p = .63$), and Prada's perceived luxury ($M_{neutral}$ = 4.59 vs. M_{broad} = 4.52; $p = .47$; difference from the scale midpoint: $t(69)$ = 4.19, $p < .001$) did not significantly differ across both conditions. This confirms the success of our manipulation.

Procedure and design of the Meta study. Similar to Study 2a, we utilized a single-factor (neutral expression vs. broad smile) between-subjects design, focusing on the CTR and CPC of the ads as DVs. Additionally, we gathered the age data of the users to incorporate it as a covariate. Following our preregistration, we launched both ad campaigns in November 2023 and the ads ran in parallel for three consecutive days (72 hours), starting and ending at 12:00 a.m. Beijing Time. Our complete ad settings are documented in Table 3. In parallel, we evenly distributed €152 to both ad conditions (see Table 3, expenditure column). This budget allowance guaranteed a baseline exposure to ≈70,820 users and an aggregated minimum of ≈615 click-throughs, as determined through a power analysis performed by Meta's targeting algorithms. Differing from Study 2a, participants who clicked on our ads were taken to the online store of Prada® China, providing them with further information about the featured sunglasses. For both

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campaigns, we used the same product description in Chinese, taken from the official ad, to advocate message consistency and experimental realism.

5.2. Results

Replicating the results of Study 2a, Table 3 presents the key findings. Our campaigns engaged 71,658 unique Meta users from China, divided into two groups ($Reach_{neutral}$ = 35,933, $Reach_{broad}$ = 35,725). The ad featuring a neutral expression received 405 clicks, in contrast to the broad smile ad, which attracted 226 clicks. Primarily, the neutral expression ad achieved a higher CTR (1.127%) and a lower CPC (€0.18) than the broad smile ad (CTR = 0.632%, CPC = €0.33) ($\chi^2(1)_{CTR\ (neutral\ vs.\ broad)} = 50.18$, $p < .001$). Applying Study 2a's dummy coding procedure, robustness test results from the binary logistic regression unveiled a significant positive impact of the neutral expression condition on the number of clicks ($\beta = .58$, $SE = .08$, Wald $\chi^2(1) = 48.82$, $p < .001$; $Exp\ (\beta) = 1.79$ (OR), $CI_{95\%,\ Exp\ (\beta)} = [1.52, 2.10]$). This indicates that Chinese observers viewing the ad with a neutral expression were 1.79 times[27] more inclined to click on it than those who saw the ad featuring a broad smile. Similar to Study 2a, the interaction between smile intensity and age was not significant ($p = .15$), pointing to a consistent effect across the age groups presented in Table 3.

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[27] Although similarities were observed in the positive impact of neutral expressions on click-through actions among American and Chinese users, this effect was stronger in the latter group (OR: 1.49_{US} vs. 1.79_{China}). This finding fortifies previous research suggesting that Chinese individuals are more receptive to neutral expressions than Americans (Wang et al., 2018). Such finding points out to cross-cultural variations in the interpretation of smile intensity. While differences in sample sizes and cultural contexts were noted in Studies 2a and 2b, the observed variance might also be attributed to factors such as cognitive processing of observers (Bengart and Vogt, 2023), arousal levels (Yao et al., 2022), or perceptions of psychological distance (Zhu et al., 2022). However, delving into the reasons behind such cross-national disparities was neither feasible with the split testing option nor the primary objective of this study.

Table 3. Essay 2: Meta field study stimuli and empirical results in Study 2b.

Single-factor design (A/B testing)	Neutral expression ad stimulus condition	Broad smile ad stimulus condition
Stimuli pictures		
Descriptives of participants and ad performance metrics		
Gender	Male: 100%, Female: 0%	Male: 100%, Female: 0%
Reach (i.e., different users exposed to ads) (N_{total} = 71,658)	35,933	35,725
Reach by age groups	18-24 = 12,935 25-34 = 8,983 35-44 = 6,108 45-54 = 2,515 55-64 = 3,593 65+ = 1,799	18-24 = 13,218 25-34 = 9,176 35-44 = 5,358 45-54 = 4,287 55-64 = 1,429 65+ = 2,257
Impressions (i.e., total number of exposures to ads)	36,008	35,837
Frequency	1.0020	1.0031
Number of ad clicks	407 [405]	229 [226]
Expenditure (i.e., budget: amount spent)	€76.17	€75.43
CTR (%)	1.127	0.632
CPC	€0.18	€0.33
(†) Refer to Table 2 for estimation formulas of CTR, CPC, and frequency. Clicks presented in brackets indicate correction based on frequency. **(‡)** Ad settings = Ad campaign objective: *traffic*, Performance goal: *maximize number of clicks*, Bid strategy: *highest volume*, Location: *China*, Language: *Chinese*, Device: *All devices*.		

5.3. Discussion

Up to this point, Studies 1, 2a, and 2b have jointly reinforced our main thesis (H_1) that smile intensity has a detrimental impact on luxury ad effectiveness. In other words, neutral expressions have facilitated greater real ad engagement in terms of TES, CTR, and CPC. This study further validated the robustness of this effect, demonstrating that it remains significant regardless of (1) the expresser's gender and ethnicity, (2) the participants' gender and cultural background, as well as across (3) a different product and a real luxury brand. This focal finding might be explained by the fact that luxury brands tend to focus on portraying elitism, detachment, and sophistication, characteristics often associated with restrained emotional expression and competence (Zhu et al., 2022). Consistent with the social functions of emotions (Keltner and Haidt, 1999) and

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psychophysical attributes of facial expressions (Ekman, 1993), neutral expressions, in contrast to broad smiles, might better convey these qualities, thereby enhancing advertising success. Another possible rationalization for this conclusion might be the proximal impact of neutral expressions on perceived authenticity and the personal trust of consumers—a conjecture in line with Choi et al. (2020).

On the flip side, a critical question remains: Why do we consistently observe this effect, and what factors are attributable to its occurrence? Viglia et al. (2021) recommend using real social media data together with controlled experiments to achieve results that are more valid and have wider applicability. Building on this advice, the next controlled experiment aims to address the above question.

6. Study 3: Investigating the serial mediation mechanism and the boundary role of lay rationalism

Study 3 was preregistered at (**aspredicted.org/blind.php?x=85D_156**). This study aimed to bolster the internal validity of the observed effect. It was designed to (1) test our proposed serial mediation by examining the perceived competence and ad credibility as underlying mechanisms, and (2) investigate in parallel whether there is an interaction effect between smile intensity and lay rationality of consumers in predicting luxury ad effectiveness. Building on Studies 1-2b, we considered two additional covariates: product involvement level (Septianto et al., 2023) and attentional differences (i.e., the time spent viewing the ad) (To and Patrick, 2021) that could partially account for the observed effect.

On the grounds that facial expressions can affect not only attitudes towards the advertisement but also impact the willingness to pay (Isabella and Vieira, 2020; Shuqair et al., 2024), we further refined and enriched our measurement of luxury ad effectiveness by capturing two widely deployed proxies: (1) ad attitudes and (2) purchase intention towards the promoted luxury product. Here, we examined our prediction that neutral expressions in luxury ads

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positively influence ad attitudes and purchase intention. This effect was expected to stem from heightened perceptions of competence and ad credibility, and it was anticipated to be more pronounced among high LR consumers who base their decisions on rational thinking rather than feelings.

6.1. Method

Participants and design. In accordance with our preregistration plan that justifies our sample size criteria, 260 US-based male users from Prolific® (M_{age} = 36.96, *SD* = 13.19, ranging from 19 to 75, compensation = $\$0.80_{per\ individual}$) participated in this study. We randomly assigned these users to a single-factor (smile intensity: neutral vs. broad) between-subjects design experiment in October 2023. The majority of users (67.1%) held a bachelor's degree or above, and the mean annual household income was $53,545 (*SD* = $39,126). To mitigate risks to the study's internal validity, we used three Prolific® screening criteria: (1) recruited users who own more than two luxury items that cost over $250, (2) excluded users from previous pretests, and (3) approval rate: min—99%.

Participants spent an average time of 4.08 minutes completing the study. The study was set for desktop views only to ensure that our ads are viewed and evaluated in a similar visual context. Eight users were filtered out for failing to identify if the expresser was smiling or not based on the condition (neutral vs. broad) they were assigned, and four users were excluded as they demonstrated zero variance across all items measured for key constructs (apart from the demographic questions). This resulted in the final sample of 248 users ($n_{neutral\ smile}$ = 126, $n_{broad\ smile}$ = 122). Our results demonstrated the same patterns even when these exclusions were not applied. Based on the obtained effect size and sample size, we performed a *post-hoc* power analysis for MANCOVA using G*Power 3.1 (Faul et al., 2009) and attained a statistical power of .97.

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Procedure and measures. Hosted on the Qualtrics®, this study was conducted within the hypothetical context of a watch company[28] seeking to investigate the effectiveness of different advertisements prior to their projected release. To minimize the possibility of demand-induced effects (Nichols and Maner, 2008), we used the same gender-matching protocol in Study 2a. This protocol reduced the demand in such a way that it prevented responses driven by romance or desire between observer/expresser pairs of the opposite gender. Participants were briefed only on the fact that Astrum, a new luxury watch company, was exploring the possibility of entering the US market. They were then requested to evaluate one of Astrum's potential advertisements (see Web Appendix G for the stimuli developed). In this study, we purchased and downloaded a newly licensed stock image from **istockphoto.com** of a Caucasian male model wearing a luxury watch and displaying a neutral expression. Following the same stimuli development procedure in Study 2a, we digitally morphed and calibrated the original image to develop the broad smile condition. In both ad versions, we used the slogan of "*Timeless Elegance*" to enhance status perceptions of the Astrum.

After participants were exposed to one of two ad conditions, we captured their ad attitudes using five items (a = .96, CR = .98, AVE = .82) from To and Patrick (2021) and gauged their purchase intention for the promoted watch with three items (a = .93, CR = .94, AVE = .74) retrieved from Dodds et al. (1991) as DVs. To explore the underlying attribution processes, we measured the expresser's perceived competence using four items (a = .95, CR = .97, AVE = .78) based on Wang et al. (2017), perceived ad credibility with seven-item scale (a = .93, CR = .94, AVE = .75) retrieved from Sarofim and Cabano (2018), and LR with six-item scale (a = .82, CR = .83, AVE = .71) sourced from Hsee et al. (2015). All constructs listed above were measured using either 5-point Bipolar or Likert scales in a counterbalanced order (see Web Appendix H for the item factor loadings).

[28] The choice of a watch as the main luxury product for this study was determined based on its global public significance in the market. Luxury watches not only carry symbolic meaning but also signify status and prestige (Shimul and Phau, 2022).

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We then determined composite scores for each construct by averaging participants' responses to the scale items. Moreover, we checked Cronbach's *a* and composite reliability (CR) to assess internal consistency between items and average variance extracted (AVE) scores as a rigorous measure of convergent validity. For a given construct, the Cronbach's *a*, CR (≥ .70), and the AVE values (≥ .50) exceeded the minimum thresholds recommended by Sarstedt et al. (2022), hence safeguarding internal consistency and convergent validity. To evaluate discriminant validity, we examined the heterotrait-monotrait (HTMT) ratio of correlations. For all pairs of constructs, including our IV (smile intensity), DVs (ad attitudes, purchase intention), mediators (expresser's perceived competence, ad credibility), and the moderator (LR), the HTMT ratios were below the .85 cap (ranging from .21 to .67) (Henseler et al., 2015), ascertaining the discriminant validity. The overall fit indices were also deemed acceptable (GFI = .95, CFI = .98, RMSEA = .028, χ^2/df = 2.86) (Hu and Bentler, 1999).

Participants also responded to the same covariates ((1) authenticity of the smile expression, (2) facial attractiveness, (3) trustworthiness of the smile, (4) perceived warmth, (5) perceived prestige, (6) ad realism, (7) product involvement, (8) Astrum's perceived luxury), the manipulation check, and the attention check as operationalized in Study 2a. In addition, we monitored the duration they spent viewing the ad to capture attentional variances, setting a baseline exposure time of 20 seconds (Karagür et al., 2022). Their product involvement level was assessed using a single-item measure (1 = not at all, 5 = very involved) from Septianto et al. (2023). In the final step, participants provided their demographic information (age, education, and annual household income). Upon completion of the study, they were thanked and given a debriefing, which included the information that Astrum was a fictitious company.

Pretest. Utilizing the same measures from our earlier pretests, we checked the effectiveness of the smile intensity manipulation on a separate pool of 70 male users from Prolific® (M_{age} = 27.33, *SD* = 6.52, US residents, compensation = $\$0.30_{per\ individual}$). They were

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randomly assigned to a two-cell (smile intensity: neutral vs. broad) between-subjects design. An independent t-test confirmed the success of our manipulation, showing that the neutral expression (vs. broad) smile ad received lower ratings on perceived smile strength ($M_{neutral}$ = 1.20, M_{broad} = 4.07; $t(68)$ = -24.88, $p < .001$). Noticeably, participants reported higher perceived luxury of the Astrum in both conditions ($M_{neutral}$ = 4.40, M_{broad} = 4.20; $t(68)$ = .90, p = .36; difference from the scale midpoint: $t(69)$ = 4.19, $p < .001$). That is, the difference in perceived luxury between neutral expression and broad smile ads was not significant. For brevity, we reported full pretest results in the Web Appendix I.

6.2. Results

Manipulation check, attentional differences, equivalence of groups, and normality assumptions. The manipulation for the smile intensity worked as anticipated in the main study as well, where the expresser with a neutral (vs. broad) smile was rated significantly lower in smile strength ($M_{neutral}$ = 1.24, SD = .55 vs. M_{broad} = 3.53, SD = .93; $t(246)$ = -23.55, $p < .001$, η_p^2 = .68). In addition, there were no significant differences in the duration participants spent observing the ads ($M_{neutral}$ = 27.95 seconds vs. M_{broad} = 27.57 seconds; p = .89), ruling out attentional concerns. Regarding the group equivalence, the neutral expression and broad smile conditions did not differ significantly in terms of age (χ^2 (4, N = 248) = 0.791, $p > .05$), education (χ^2 (4, N = 248) = 1.423, $p > .05$), and income (χ^2 (3, N = 248) = 1.126, $p > .05$). As for the normality of DVs in each smile intensity condition, the absolute kurtosis and skewness values were within the permissible normality range of (-2, 2) (Hair et al., 2010).

Main effect. Central to our H_1, we next built a general linear model: multivariate analysis of covariance (MANCOVA) by using composite scores of ad attitudes and purchase intention as DVs, smile intensity as the fixed factor (1 = neutral, 0 = broad), and (1) authenticity of the smile expression, (2) facial attractiveness, (3) trustworthiness of the smile, (4) perceived warmth, (5) perceived prestige, (6) ad realism, (7) product involvement, (8) Astrum's perceived luxury, (9) age,

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(10) education, and (11) annual household income as covariates[29]. The results showed that smile intensity significantly impacted both the ad attitudes ($F(1, 246) = 8.19$, $p < .001$; $M_{neutral} = 3.73$, $SD = .97$ vs. $M_{broad} = 3.36$, $SD = 1.08$, $\eta_p^2 = .06$) and purchase intention ($F(1, 246) = 4.90$, $p < .001$; $M_{neutral} = 3.07$, $SD = 1.36$ vs. $M_{broad} = 2.65$, $SD = 1.30$, $\eta_p^2 = .04$), signifying higher effectiveness of the neutral expression condition in both cases. This supports H_1 (see Fig.5 for the violin plot comparisons). Among the covariates[30], perceived prestige of the expresser and perceived luxuriousness of the Astrum significantly influenced ad attitudes ($Fs(1, 246) = 4.86_{\text{perceived prestige}}$; $4.19_{\text{perceived luxuriousness}}$, $ps < .001$) and purchase intention ($Fs(1, 246) = 3.71_{\text{perceived prestige}}$; $3.56_{\text{perceived luxuriousness}}$, $ps < .001$). Nevertheless, they did not interact with smile intensity in predicting both DVs ($ps \geq .19$).

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[29] In the MANCOVA, authenticity of the smile expression ($F(1, 246)_{\text{ad attitudes}} = .71$, $p = .42$; $F(1, 246)_{\text{purchase intention}} = .95$, $p = .31$), facial attractiveness ($F(1, 246)_{\text{ad attitudes}} = 1.44$, $p = .25$; $F(1, 246)_{\text{purchase intention}} = .99$, $p = .31$), trustworthiness of the smile ($F(1, 246)_{\text{ad attitudes}} = .88$, $p = .37$; $F(1, 246)_{\text{purchase intention}} = 1.10$, $p = .29$), perceived warmth ($F(1, 246)_{\text{ad attitudes}} = .62$, $p = .44$; $F(1, 246)_{\text{purchase intention}} = .84$, $p = .35$), ad realism ($F(1, 246)_{\text{ad attitudes}} = 1.52$, $p = .23$; $F(1, 246)_{\text{purchase intention}} = 1.13$, $p = .28$), product involvement ($F(1, 246)_{\text{ad attitudes}} = .69$, $p = .40$; $F(1, 246)_{\text{purchase intention}} = .54$, $p = .46$), age ($F(1, 246)_{\text{ad attitudes}} = .21$, $p = .67$; $F(1, 246)_{\text{purchase intention}} = .64$, $p = .43$), education ($F(1, 246)_{\text{ad attitudes}} = .50$, $p = .47$; $F(1, 246)_{\text{purchase intention}} = .92$, $p = .33$), and annual household income ($F(1, 246)_{\text{ad attitudes}} = 1.52$, $p = .23$; $F(1, 246)_{\text{purchase intention}} = .95$, $p = .31$) did not have a significant effect on ad attitudes and purchase intention, suggesting that our results were robust to differences in these covariates.

[30] To rule out alternative explanations, we tested the possibility of all covariates (except demographics) to act as mediators on the relationship between (smile intensity and ad attitudes) — (smile intensity and purchase intention) by submitting them into series of $\text{PROCESS}_{4.3.1}$ (Model 4; $n = 10{,}000$ bootstrap iterations) (Hayes, 2017). In all cases, the indirect bias-corrected bootstrap estimates had $\text{CIs}_{95\%}$ that encompassed zero, showing that mediation effects were not significant ($ps \geq .11$). A detailed analysis of these results is available upon request from the author.

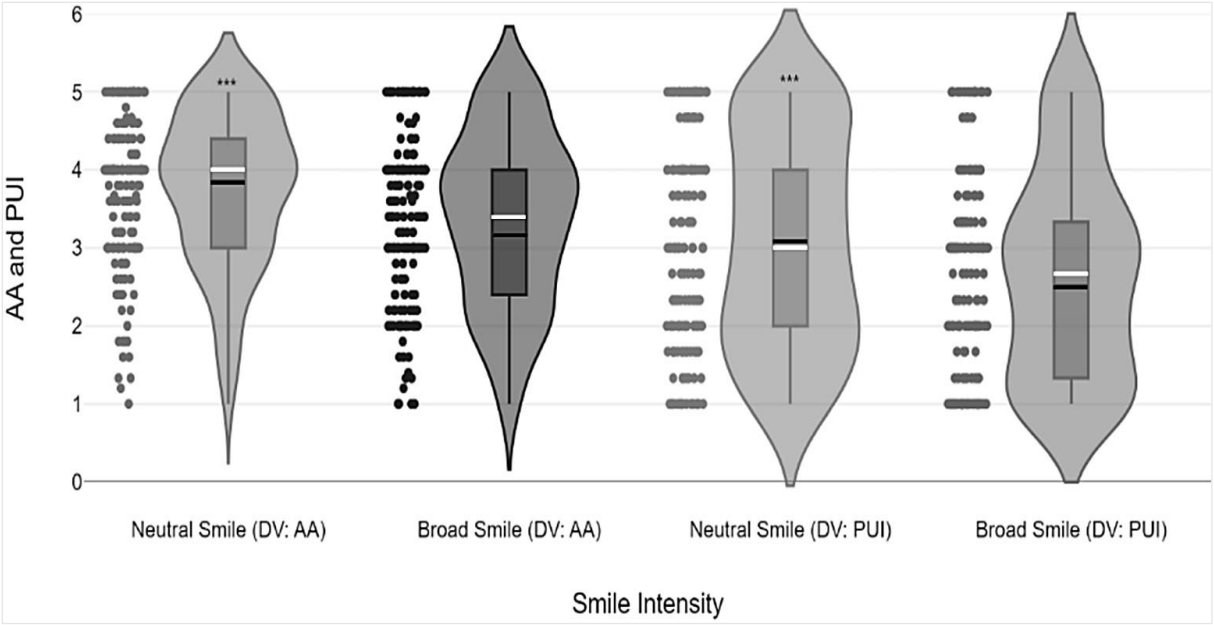

Fig.5. Essay 2: Violin plots comparing ad attitudes (AA) and purchase intention (PUI) scores between neutral expression and broad smile conditions in Study 3. *Notes.* The horizontal black and white lines inside the boxplots represent median and mean values, respectively. Dots on the left side of each plot show the data range for the assigned condition. The width of the violin shape represents the probability density estimates at different points. ***$p < .001$.

Process evidence. To test the moderated serial mediation, we ran two multiple regressions using PROCESS$_{4.3.1}$ (Model 92) with 10,000 bootstrap iterations (Hayes, 2017). In the first model ($R^2 = .56$), we designated ad attitudes (Y) as the DV, smile intensity (X) as the IV (1 = neutral, 0 = broad), the model's perceived competence (M_1) as the first mediating variable, ad credibility (M_2) as the second mediator, and LR (W) as the categorical moderator[31] (1 = high, 0 = low). In the second model ($R^2 = .49$), purchase intention (Y) was the DV, and the other variables remained the same. Fig.6 and Fig.7 present detailed results[32]. In both models, the neutral expression had a positive direct effect on perceived competence ($\beta_{\text{first model}} = .55$, $SE = .03$, $p < .001$; $\beta_{\text{second model}} = .58$, $SE = .02$, $p < .001$). Further, perceived competence had a positive direct

[31] Following the original proposition of Hsee et al. (2015), we implemented a median split approach to categorize LR into two distinct groups: high and low. In Study 4, we also plan to consider LR as a continuous variable to circumvent the potential drawbacks of the median split technique.

[32] The reported moderated serial mediation models align with the criteria for "*meaningful mediation analysis*" set forth by Pieters (2017, p.697). Multicollinearity was found to be non-problematic in both models (VIFs ≤ 2.67).

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effect on the ad credibility ($\beta_{\text{first model}}$ = .65, SE = .04, p < .001; $\beta_{\text{second model}}$ = .61, SE = .03, p < .001), which in turn, positively influenced ad attitudes ($\beta_{\text{first model}}$ = .51, SE = .02, p < .001) and purchase intention ($\beta_{\text{second model}}$ = .55, SE = .04, p < .001). This supports H_{2a}.

Importantly, the effect of neutral expression on ad attitudes and purchase intention was serially mediated by the perceived competence → ad credibility path, as the $CI_{95\%}$ for indirect effects[33] did not include zero ($\beta_{\text{first model}}$ = .18, SE = .03, p < .001, $CI_{95\%}$ = [.12, .23]; $\beta_{\text{second model}}$ = .19, SE = .05, p < .001, $CI_{95\%}$ = [.09, .29]). Even though we had no initial theoretical reason to expect, we reversed the order of the mediators (i.e., ad credibility → perceived competence) as a robustness check and found non-significant serial mediation effects on ad attitudes (β_{indirect} = .02, p = .26) and purchase intention (β_{indirect} = .03, p = .23). In tandem, H_{2b} is supported.

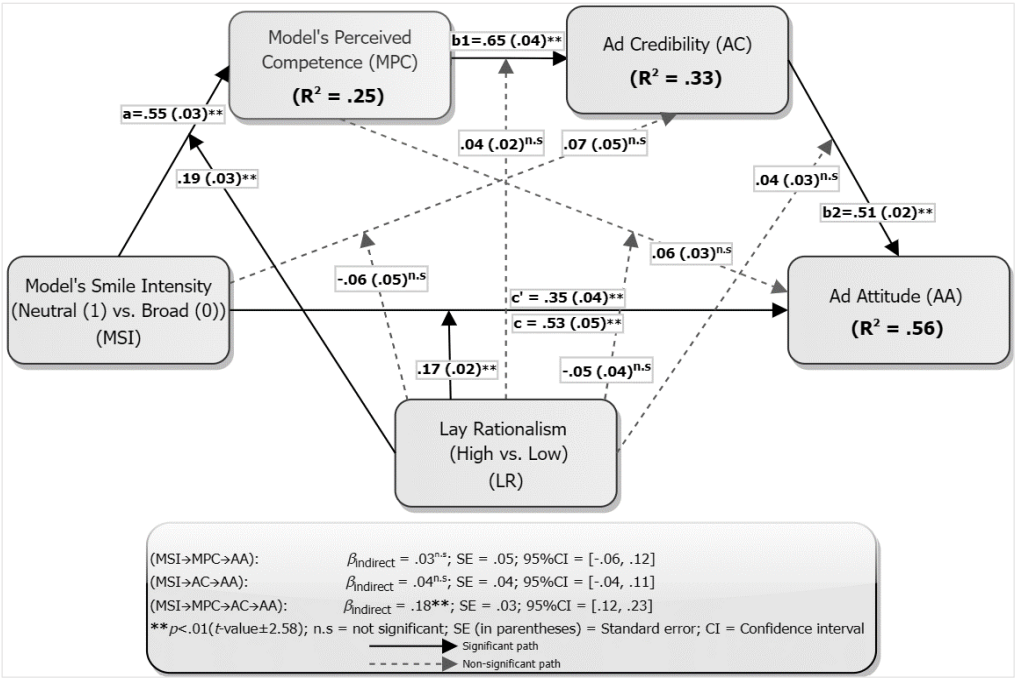

Fig.6. Essay 2: Moderated serial mediation results with ad attitude as the DV in Study 3. *Notes.* c' = Direct effect of smile intensity on ad attitude; c = Total effect of smile intensity on ad attitude;

$$c = c' + (a \times b1 \times b2).$$

[33] All other indirect paths were not significant, as their $CIs_{95\%}$ included zero: (smile intensity → perceived competence → ad attitudes; $\beta_{\text{first model}}$ = .03, SE = .05, $CI_{95\%}$ = [-.06, .12]), (smile intensity → ad credibility → ad attitudes; $\beta_{\text{first model}}$ = .04, SE = .04, $CI_{95\%}$ = [-.04, .11]), (smile intensity → perceived competence → purchase intention; $\beta_{\text{second model}}$ = .05, SE = .04, $CI_{95\%}$ = [-.03, .13]), and (smile intensity → ad credibility → purchase intention; $\beta_{\text{second model}}$ = .03, SE = .03, $CI_{95\%}$ = [-.02, .09]).

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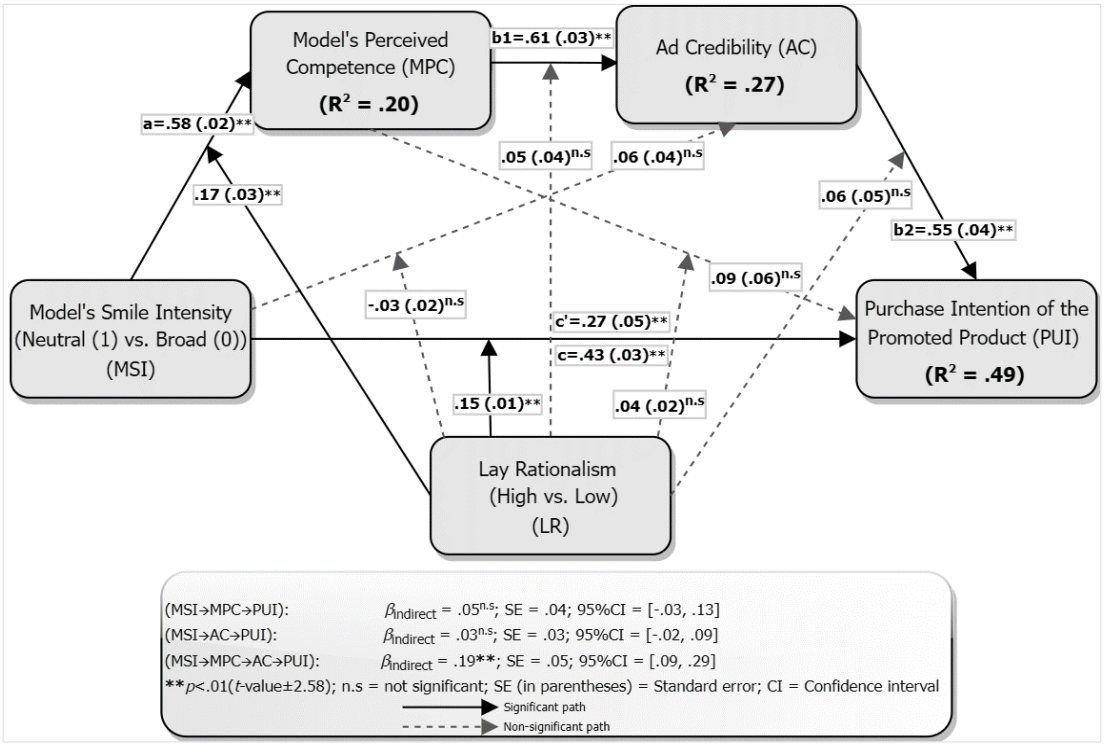

Fig.7. Essay 2: Moderated serial mediation results with purchase intention as the DV in Study 3.

Notes. c' = Direct effect of smile intensity on purchase intention; c = Total effect of smile intensity on purchase intention; c = c' + (a × b1 × b2).

Moderation effects. Regarding the role of LR, we found it to moderate the effect of smile intensity on ad attitudes ($\beta_{\text{first model}}$ = .17, SE = .02, p < .001) and purchase intention ($\beta_{\text{second model}}$ = .15, SE = .01, p < .001). Fig.8 demonstrates pairwise comparisons. Specifically, for high LR participants, the neutral expression led to higher ad attitudes (M_{neutral} = 4.33 vs. M_{broad} = 2.68; t(246) = 11.59, p < .001) and purchase intention (M_{neutral} = 4.23 vs. M_{broad} = 2.57; t(246) = 11.97, p < .001). These effects were reversed for low LR counterparts (ad attitudes: M_{neutral} = 3.15 vs. M_{broad} = 3.86; t(246) = -4.58, p < .001; purchase intention: M_{neutral} = 2.85 vs. M_{broad} = 3.79; t(246) = -7.43, p < .001), indicating higher effectiveness of the broad smile.

A subsequent conditional process analysis (Hayes and Rockwood, 2020) revealed that the index of moderated mediation was significant ($\beta_{\text{first model}}$ = .17, SE = .02, p < .001, $CI_{95\%}$ = [.13, .21]; $\beta_{\text{second model}}$ = .14, SE = .02, p < .001, $CI_{95\%}$ = [.10, .18]). Put simply, perceived competence and ad credibility serially mediated the positive impact of a neutral expression on ad attitudes (β_{first}

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$_{model}$ = .16, *SE* = .04, $CI_{95\%}$ = [.08, .24]) and purchase intention ($\beta_{second\ model}$ = .13, *SE* = .02, $CI_{95\%}$ = [.09, .17]) for high LR participants, but not for the low LR ones (ad attitudes: $\beta_{indirect}$ = -.02, *SE* = .06, $CI_{95\%}$ = [-.13, .09]; purchase intention: $\beta_{indirect}$ = -.01, *SE* = .05, $CI_{95\%}$ = [-.10, .08]). Combined, these results support H_{3a} and H_{3b}.

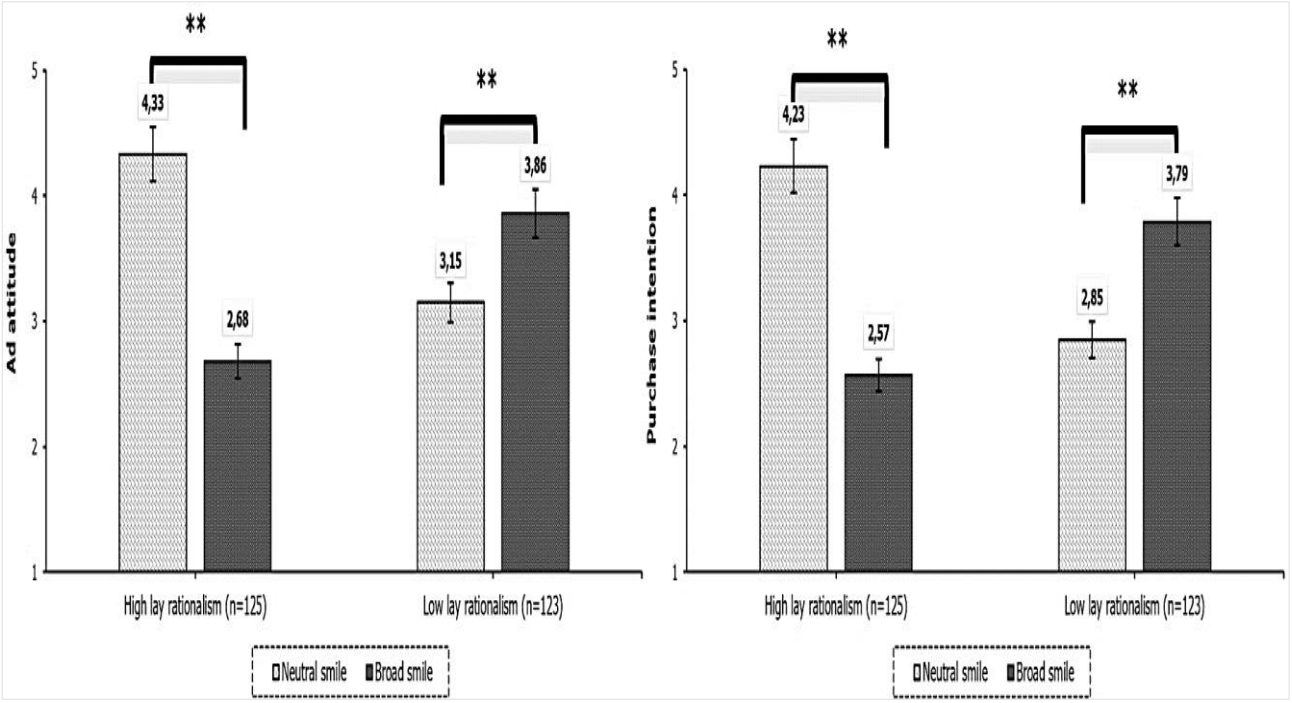

Fig.8. Essay 2: Two-way interaction effects of categorical lay rationalism and smile intensity on ad attitude and purchase intention in Study 3 (±error bars: standard errors). $^{**}p < .01$.

Although we established LR as a moderator, one alternative conceptualization is that LR could instead mediate our results. Considering cognitive processing differences between individuals, participants' LR thinking mode might potentially serve as the underlying mechanism explaining why we observe variations in reactions to ads featuring neutral expressions vs. broad smiles (Hsee et al., 2015). To dismiss this concern, we conclusively ran two $PROCESS_{4.3.1}$ Model 4 (Hayes, 2017) and found that the indirect effects of smile intensity on ad attitudes (β = .08, *SE* = .05, $CI_{95\%}$ = [-.02, .16]) and purchase intention (β = .04, *SE* = .03, $CI_{95\%}$ = [-.03, .11]) through LR were non-significant.

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6.3. Discussion

The findings of Study 3 provided causal evidence for the predicted smile intensity effect and established the expresser's perceived competence and ad credibility as underlying dynamics behind the higher effectiveness of the neutral expression condition. By nature, some luxury consumers are perceived as lacking warmth, as they are thought to be focused on impression management (Dubois et al., 2021). This might explain their preference for neutral expression ads, which match the high-end image they desire to embody. Our mediation effects resonate with previous studies on SCM (Min and Hu, 2022; Wang et al., 2017), further elucidating that smile intensity influences not only the motivation to buy luxury items and the formation of ad attitudes but also contributes to how competence and ad credibility are judged. From the reverse angle, these mediations manifest a negative spillover effect (Essiz and Senyuz, 2024), in which consumers might perceive lower status and withhold their purchases if the smiles shown in ads do not align with the perceived fit between the expresser and the luxury positioning of the promoted brand.

Here, we also provided support for the moderating role of LR and ruled out the influence of several covariates related to the ad, the expresser, and the demographics of observers. This moderation effect is consistent with the contentions of Berg et al. (2015) and Wang et al. (2020). It could be explained by the tendency of low LR consumers to view broad smiles as more emotionally appealing and less stress-inducing. Also, the emotional contagion mechanism might be more commonly observed in consumers with low LR, as they tend to depend on feelings for decision-making. In sum, one shortcoming of this study was its reliance on a male-only sample and a fictitious brand. This methodological choice limited our ability to illuminate gender differences and brand familiarity as possible confounding factors (Trivedi and Teichert, 2019; Warren et al., 2018). The following experiment aims to tackle this limitation by employing a real brand within a gender-balanced sample.

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7. Study 4: Exploring the boundary role of gaze direction

Study 4's details were preregistered at (**aspredicted.org/blind.php?x=2V3_79Y**). The main objective of this study was to expand the scope of our investigation by replicating the findings of Study 3 and integrating the expresser's gaze direction as the second boundary condition, thus testing our full theoretical model. To enhance the realism of our experiment and extend the applicability of our findings, we used a different stimulus: an actual unisex handbag advertisement directly from the Gucci® US Official Website (**gucci.com/us/en**). Expanding upon the findings of Study 1, we selected Gucci® for its prominent standing as a renowned company in the US luxury market, distinguished by a luxury brand recognition rate of ≈90% (Essiz and Senyuz, 2024).

7.1. Method

Participants and design. Following our preregistration strategy, we recruited 350 US residents via Prolific® (50% male, M_{age} = 39.78, *SD* = 14.01, ranging from 18 to 77, compensation = $\$1.00_{per\ individual}$) in November 2023. To align with the nature of the product being advertised, we opted for a gender-balanced sample and pre-screened regular luxury consumers who own a minimum of two luxury items priced above $250, thereby aiming to minimize potential internal validity issues. All individuals who were part of our earlier studies were excluded before data collection. Regarding the profile of participants, nearly 70.1% possessed at least a bachelor's degree, with the average yearly household income being $62,929 (*SD* = $46,782).

In this study, we employed a 2 (smile intensity: neutral vs. broad) × 2 (gaze direction: direct vs. averted) between-subjects experimental design, randomly assigning participants to one of four different ad conditions (see Web Appendix J for stimuli). On average, participants took 4.89 minutes to complete the study. Akin to Study 3, this study was structured exclusively for desktop viewing and the DVs employed were identical.

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Procedure and measures. Through Qualtrics®, participants were presented with a scenario designed to mimic a realistic shopping situation, in which they were asked to imagine themselves browsing online luxury fashion stores. During this simulated digital shopping experience, they solely encountered an advertisement for a Gucci® handbag. Participants were instructed to attentively observe the ad and reflect on their genuine reactions to it. To negate demand characteristics (Nichols and Maner, 2008), the scenario deliberately avoided drawing attention to the attributes of the expresser depicted in the ad. That is, it did not contain any specific descriptions of the expresser's physical features. Pertaining to stimuli, the original Gucci® ad showcased a Caucasian male model with a neutral expression and direct gaze. The manipulation of a broad smile was carried out in the same way as in our earlier studies. The gaze direction was manipulated using the neural filters toolbox in Adobe Photoshop, wherein the smart portrait function was activated, and the gaze slider was amended to achieve a 20-degree shift for the averted gaze conditions. Our approach is consistent with the method employed by Wang et al. (2018).

After being exposed to the scenario described above, participants were asked to complete 5-point multi-item scales to measure their ad attitudes (a = .97, CR = .98, AVE = .81), purchase intention for the promoted handbag (a = .97, CR = .97, AVE = .79), perceived competence (a = .96, CR = .97, AVE = .76), perceived ad credibility (a = .95, CR = .96, AVE = .77), and LR (a = .79, CR = .81, AVE = .66) in a randomized order. These measures were identical to those used in Study 3 (revisit Web Appendix H) and collapsed into composite scores. The overall fit indices were adequate (GFI = .96, CFI = .97, RMSEA = .023, χ^2/df = 2.27) (Hu and Bentler, 1999). Across all constructs, the Cronbach's a, CR (≥ .70), and AVE values (≥ .50) were satisfactory (Sarstedt et al., 2022) and the HTMT ratios remained below the .85 benchmark, ranging from .22 to .71 (Henseler et al., 2015). Collectively, these psychometric properties safeguarded the reliability and validity of our constructs.

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Besides, participants completed the same battery of covariates, manipulation, and attention checks regarding smile intensity as in Study 3, and all of them passed the attention check. Given the use of a real brand, we additionally captured the brand familiarity, measured by a single item (1 = not at all familiar, 5 = very familiar) (Septianto et al., 2023). Unlike Study 3, participants were required to respond to a two-item gaze manipulation check, adapted from To and Patrick (2021): "*Is the model featured in this ad looking at you or away from you?*" (1 = looking at me, 2 = not looking at me) and "*To what extent did you notice the direction of the model's eye?*" (1 = not at all, 5 = to a great extent). They completed this manipulation check after providing responses to the covariate measures. There were no significant differences in the extent to which participants noticed the model's gaze direction (M_{direct} = 4.61 vs. $M_{averted}$ = 4.76, p = .42) and all participants correctly identified it in accordance with their assigned condition. This supported the effectiveness of gaze manipulation.

As a control check, we asked participants whether they had previously encountered this Gucci® ad on any social media channels, with three affirming they had. Additionally, five participants finished the entire study in less than a minute and displayed no variation in their responses to key constructs. After eliminating these observations, our final sample consisted of 342 participants ($n_{neutral\text{-}direct}$ = 87, $n_{broad\text{-}direct}$ = 86, $n_{neutral\text{-}averted}$ = 84, $n_{broad\text{-}averted}$ = 85). Together with this, we achieved a *post-hoc* power level of .98 for MANCOVA (Faul et al., 2009). Our effects were consistent even when these exclusions were not applied. Finally, participants provided their demographics (age, gender, education, and annual household income). Upon concluding the study, they were thanked and debriefed about its true purpose.

Pretest. Prior to the main study, we validated the effectiveness of the smile intensity manipulation through a separate pretest with 70 Prolific® members (50% male, M_{age} = 36.25, SD = 12.94, US residents, compensation = $\$0.30_{per\ individual}$). We conducted a 2 (smile intensity) × 2 (gaze direction) between-subjects ANOVA on participants' perceptions of smile strength. As

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anticipated, this analysis only showed a significant main effect of smile intensity ($F(1, 68) = 21.11$, $p < .001$; $M_{neutral} = 1.10$, $SD = .19$ vs. $M_{broad} = 4.12$, $SD = .91$). The main and interaction effects of gaze direction were not significant (Fs < 1), confirming the success of smile intensity manipulation. As for our product selection[34], we queried participants about their perception of the targeted audience for the advertised handbag (1 = women, 2 = men, 3 = suitable for both genders (unisex)). A significant majority of the participants (61, representing 87.2%) perceived it as unisex, whilst 7 (10%) saw it as mainly for men, and 2 (2.8%) for women. The proportional disparity in these views was significant ($Z_{unisex\ vs.\ men} = 7.78$, $p < .001$; $Z_{unisex\ vs.\ women} = 9.26$, $p < .001$), hence corroborating the unisex appeal of the handbag.

7.2. Results

Manipulation check, attentional differences, equivalence of groups, and normality assumptions. As before, we conducted a 2 (smile intensity) × 2 (gaze direction) between-subjects ANOVA on participants' perceptions of smile strength. Similar to the pretest, we identified a significant main effect of smile intensity ($F(1, 338) = 12.57$, $p < .001$; $M_{neutral} = 1.19$, $SD = .22$ vs. $M_{broad} = 4.27$, $SD = .78$), suggesting differences between the neutral expression and broad smile conditions. No significant main and interaction effects of gaze direction were observed (Fs < 1). This reaffirmed the success of the smile intensity manipulation. Consistent with Study 3, there were no significant deviations in the time participants spent viewing the ads across conditions ($M_{neutral\text{-}direct} = 25.43$ seconds, $M_{broad\text{-}direct} = 25.56$ seconds, $M_{neutral\text{-}averted} = 26.01$ seconds, $M_{broad\text{-}averted} = 25.79$ seconds; $ps \geq .11$). Pertaining to group equivalence, no significant difference between conditions was observed in terms of age (χ^2 (4, $N = 342$) = 1.127, $p > .05$), education (χ^2 (4, $N = 342$) = 1.268, $p > .05$), and income (χ^2 (3, $N = 342$) = 0.986, $p > .05$). For each smile intensity group, ad attitudes and purchase intention were found to be normally

[34] We have chosen to focus on handbags because they represent a primary product line for most luxury fashion brands (Essiz and Senyuz, 2024).

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distributed, as supported by the Kolmogorov-Smirnov normality tests, which showed non-significant results ($p > .05$) for both DVs.

Main and interaction effects. We next ran a 2 (smile intensity) × 2 (gaze direction) MANCOVA and unveiled a significant main effect of smile intensity on ad attitudes ($F(1, 338) = 4.68$, $p < .001$; $M_{neutral} = 3.82$, $SD = 1.14$ vs. $M_{broad} = 3.26$, $SD = 1.05$, $\eta_p^2 = .04$) and purchase intention ($F(1, 338) = 5.92$, $p < .001$; $M_{neutral} = 2.46$, $SD = 1.02$ vs. $M_{broad} = 1.74$, $SD = .96$, $\eta_p^2 = .05$), advocating greater effectiveness of neutral expressions in concert with H_1 (see Fig.9). This was further qualified by significant smile intensity × gaze direction interactions ($F(1, 338)_{ad\ attitudes} = 4.24$, $p < .001$, $\eta_p^2 = .02$; $F(1, 338)_{purchase\ intention} = 5.12$, $p < .001$, $\eta_p^2 = .03$). Decomposing these interactions, planned contrasts (see Fig.10) illustrated that neutral expression coupled with direct gaze resulted in higher ad attitudes ($M_{neutral} = 3.61$, $SD = 1.25$ vs. $M_{broad} = 3.13$, $SD = 1.08$, $p < .001$, $\eta_p^2 = .04$) and purchase intention ($M_{neutral} = 2.98$, $SD = 1.15$ vs. $M_{broad} = 2.12$, $SD = .97$, $p < .001$, $\eta_p^2 = .05$), supporting H_{4a}. As for the averted gaze, broad smile led to increased ad attitudes ($M_{neutral} = 2.67$, $SD = 1.02$ vs. $M_{broad} = 3.22$, $SD = 1.34$, $p < .001$, $\eta_p^2 = .03$) and purchase intention ($M_{neutral} = 1.75$, $SD = 1.01$ vs. $M_{broad} = 2.19$, $SD = 1.15$, $p < .001$, $\eta_p^2 = .02$).

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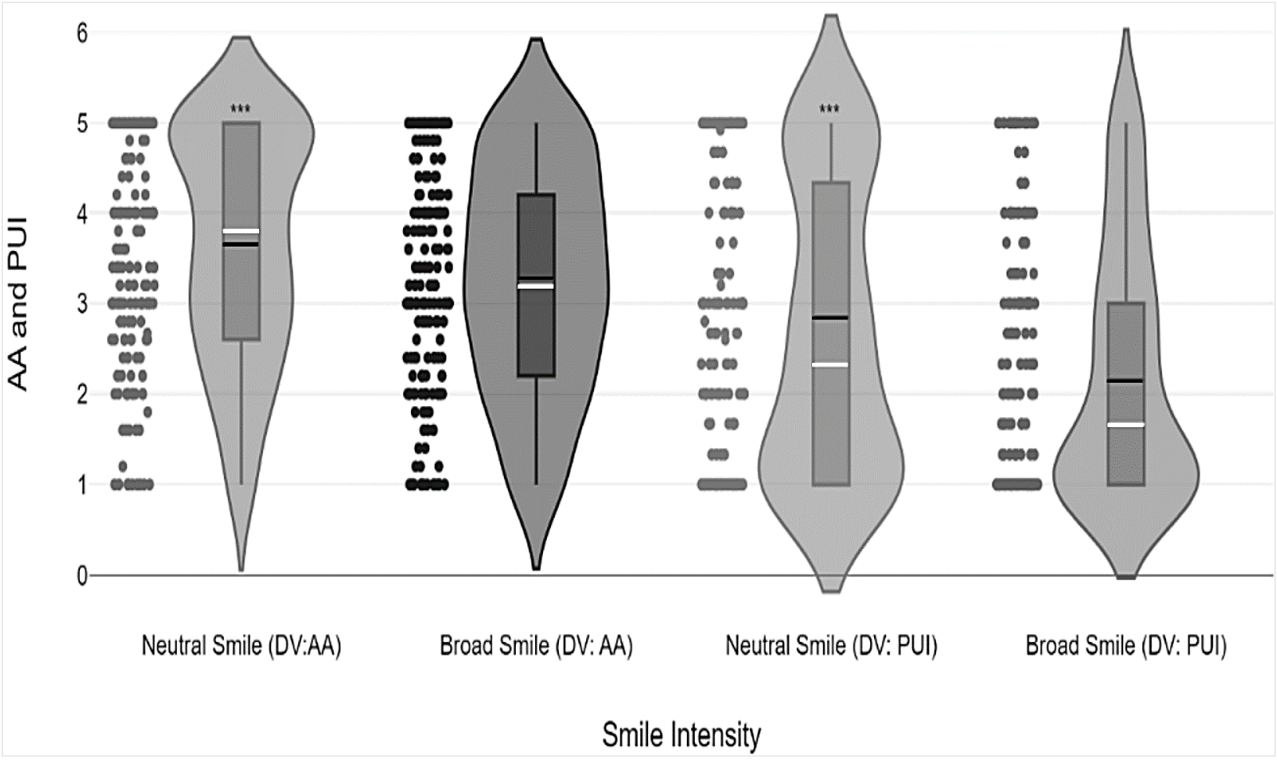

Fig.9. Essay 2: Violin plots comparing ad attitude (AA) and purchase intention (PUI) scores between neutral expression and broad smile conditions in Study 4. *Note.* The horizontal black and white lines inside the boxplots represent median and mean values, respectively. Dots on the left side of each plot show the data range for the assigned condition. The width of the violin shape represents the probability density estimates at different points. ***$p < .001$.

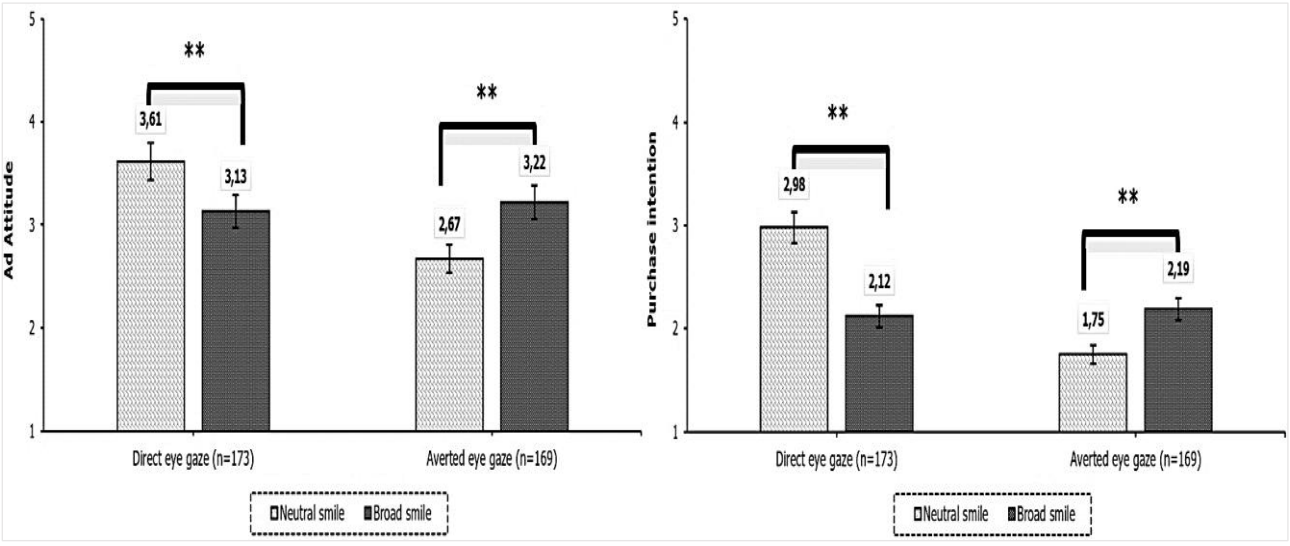

Fig.10. Essay 2: Two-way interaction effects of gaze direction and smile intensity on ad attitude and purchase intention in Study 4 (±error bars: standard errors). **$p < .01$.

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To corroborate the moderating influence of LR, we next submitted ad attitudes and purchase intention to a 2 (smile intensity) × 2 (LR) MANCOVA. Importantly, two-way interactions emerged between smile intensity and LR in predicting ad attitudes ($F(1, 338) = 4.76$, $p < .001$) and purchase intention ($F(1, 338) = 5.38$, $p < .001$). The categorical interaction patterns were consistent with the effects of Study 3 (planned contrasts are available in the Web Appendix K for brevity).

We explicated this interaction further through two floodlight analyses (see Fig.11). Floodlight analyses help identify the specific conditions (values) at which the relationship between the IV and DV is significant (cf. Spiller et al., 2013). In the first analysis, ad attitudes served as the DV. In the second one, purchase intention was the DV. Inspecting the Johnson-Neyman points (Johnson and Neyman, 1936), we found that respondents with high LR scores of $\geq 3.85_{\text{first analysis}}$ (.53 *SD* above the mean; $39.2\%_{\text{of respondents}}$) and $\geq 3.58_{\text{second analysis}}$ (.26 *SD* above the mean; $44.5\%_{\text{of respondents}}$) exhibit more favorable ad attitudes and purchase intention when the expresser features a neutral expression. In contrast, those with low LR scores of $\leq 1.90_{\text{first analysis}}$ (1.42 *SD* below the mean; $8.4\%_{\text{of respondents}}$) and $\leq 2.02_{\text{second analysis}}$ (1.3 *SD* below the mean; $13.2\%_{\text{of respondents}}$) display more positive ad attitudes and purchase intention when the expresser features a broad smile. This finding reinforces H_{3a}.

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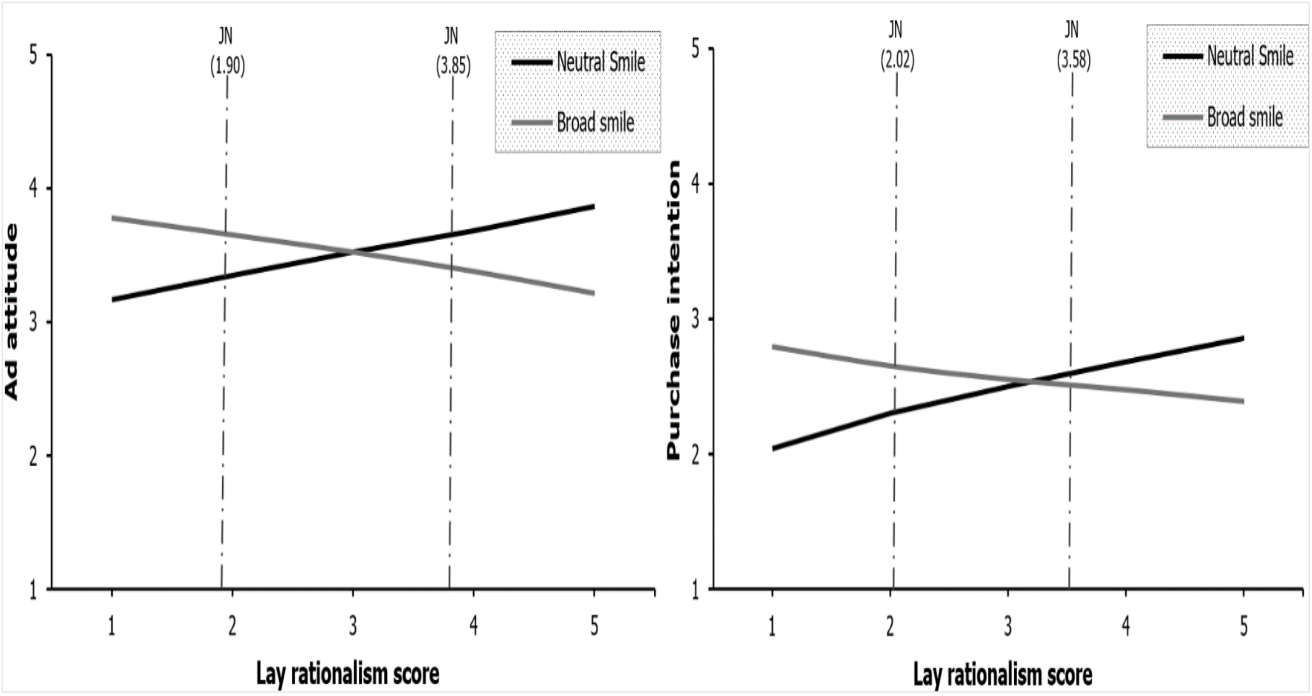

Fig.11. Essay 2: Floodlight analyses of lay rationalism scores in Study 4. *Note.* Vertical dash lines represent Johnson-Neyman (JN) points.

Alternative accounts. In both MANCOVAs reported above, accounting for (1) authenticity of the smile expression, (2) facial attractiveness, (3) trustworthiness of the smile, (4) perceived warmth, (5) perceived prestige, (6) ad realism, (7) product involvement, (8) brand familiarity, and (9) Gucci's perceived luxury as covariates—revealed no interaction effects (*Fs* < 1). Likewise, no gender effects were observed (*Fs* < 1). These covariates did not dilute the moderation effects of gaze direction and LR.

Process evidence. To test underlying mechanisms through which gaze direction moderates the effect of smile intensity on ad attitudes and purchase intention, we performed two multiple regressions via $PROCESS_{4.3.1}$ (Model 92; *n* = 10,000 iterations) (Hayes, 2017). In the first model (R^2 = .52), we specified ad attitudes (Y) as the DV, smile intensity (X) as the IV (1 = neutral, 0 = broad), perceived competence (M_1) as the first mediator, ad credibility (M_2) as the second mediator, and gaze direction (W) as the categorical moderator (1 = direct, 0 = averted). In the second model (R^2 = .47), purchase intention (Y) acted as the DV, while the other variables

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remained constant. Multicollinearity was not a concern in both models (VIFs ≤ 2.49) (Pieters, 2017).

Comparable to Study 3, the positive impact of neutral expression on ad attitudes and purchase intention followed a serial mediation pattern through the perceived competence → ad credibility pathway, evidenced by the $CI_{95\%}$ for indirect effects excluding zero ($\beta_{\text{first model}} = .14$, $SE = .02$, $p < .001$, $CI_{95\%} = [.10, .18]$; $\beta_{\text{second model}} = .16$, $SE = .01$, $p < .001$, $CI_{95\%} = [.14, .18]$). This fortifies H_{2b}. Moreover, the index of moderated mediation was significant ($\beta_{\text{first model}} = .15$, $SE = .03$, $p < .001$, $CI_{95\%} = [.09, .21]$; $\beta_{\text{second model}} = .14$, $SE = .03$, $p < .001$, $CI_{95\%} = [.08, .20]$). A conditional process analysis (Hayes and Rockwood, 2020) unpacked that perceived competence and ad credibility serially mediated the positive effect of a neutral expression on ad attitudes ($\beta_{\text{first model}} = .13$, $SE = .02$, $CI_{95\%} = [.09, .17]$) and purchase intention ($\beta_{\text{second model}} = .12$, $SE = .01$, $CI_{95\%} = [.14, .16]$) when accompanied by a direct gaze. However, this serial effect was not present when the gaze was averted (ad attitudes: $\beta_{\text{indirect}} = -.04$, $SE = .05$, $CI_{95\%} = [-.14, .06]$; purchase intention: $\beta_{\text{indirect}} = -.03$, $SE = .04$, $CI_{95\%} = [-.11, .05]$). This provides support for H_{4b}.

7.3. Discussion

Study 4 shored up our conceptual framework by documenting how gaze direction moderates the effect of smile intensity on ad attitudes and purchase intention. By boosting the expresser's perceived competence and ad credibility, a neutral expression (vs. broad) smile leads to higher ad attitudes and purchase intention when paired with a direct (vs. averted) gaze. In the ambit of luxury consumption, this finding supports earlier social psychology literature and can be ascribed to the shared signal hypothesis, suggesting a preference for direct gaze over averted one due to associations of direct eye contact with positive traits like trustworthiness, confidence, competence, and openness (Adams and Kleck, 2003; Mason et al., 2005).

Unexpectedly, we found that pairing a broad smile with an averted gaze can also be beneficial in fostering positive attitudes and purchases. This finding, not anticipated in our

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original Fig.1, points to a double-edged match-up effect of gaze direction. At first glance, this contrasts with the findings of Wang et al. (2018) and might be attributed to the contextual differences and the intricate hedonic nature of luxury consumption. Another conceivable explanation is that the expresser's averted gaze can enhance the narrative transportation of observers into an advertisement, potentially leading to deeper information processing by adding an element of mystery or aloofness (To and Patrick, 2021).

8. General discussion

In physical and digital channels, many luxury brands heavily rely on ad models to cultivate and sustain a distinct brand image that radiates exclusivity and high status. These models become the face of the brand, personifying its core values and communicating its identity. However, not all adverts featuring models achieve the same level of success. Some generate substantial engagement, while others fail to do so. What then differentiates the more captivating luxury ads from the less effective ones? Building upon the key tenets of pivotal works on the nonverbal communication of emotions (e.g., DePaulo, 1992; Ekman, 1993; Ekman and Oster, 1979; Keltner and Kring, 1998), this research presents a novel perspective to this inquiry, focusing on how the intensity of smiles influences the varying success of luxury advertisements.

To date, research has consistently shown that people can accurately perceive differences in the intensity of specific emotions (Abel and Kruger, 2010; Ekman and Oster, 1979). However, the impact of intense versus neutral facial expressions on luxury consumer reactions has not been studied. Previous studies have focused on the positive and boomerang effects of facial happiness in the context of frontline employees and service marketing (Choi et al., 2020; Du and Huang, 2023), but the influence of neutral expressions in marketing communications remains underexplored area. This study seeks to enrich the literature on luxury brand advertising by exploring three key questions: (1) Can less intense smiles in advertisements enhance the effectiveness of luxury brands? (2) What mechanisms drive this potential enhancement? (3) How

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do expresser-observer related factors interact with the intensity of smiles to boost the effectiveness of advertisements? To address these questions, five multi-method studies were conducted, examining the impact of different smile intensities displayed by expressers, ensuring internal and external validity in our findings.

This work shifts the focus from stated emotions to facial expressions of emotions, an aspect less frequently explored in consumer behavior research. We contend that facial expressions are critical because they are immediately observable and often provide more reliable cues than verbal expressions of emotions (Cheng et al., 2020). Our findings indicate that a neutral expression, rather than a slight or broad smile, results in increased actual brand engagement, advertisement attitudes, and purchasing behaviors. While this result might seem predictable, the underlying reasons are not as apparent. In this sense, this research contributes to and extends the works of Chen and Wyer (2020) and Wang et al. (2017) into the realm of luxury brand communication. It supports the social-functional perspective of emotions, which suggests that facial expressions have communicative roles and convey essential social information (Fridlund, 1992; Van Kleef, 2009). A neutral expression, perceived as more controlled and authentic, effectively communicates competence and credibility—qualities especially valued in luxury branding, where the prestige and sophistication of the brand are vital (Zhu et al., 2022).

In parallel, the present findings contribute to the growing body of research on smile intensity by documenting and strengthening the backfiring effect of smile intensity in a novel consumption context (Bharadwaj et al., 2022; Cheshin et al., 2018). Our study provides causal evidence linking high smile intensity from expressers to lower ad engagement, marking a departure from previous studies that consistently observed the boomerang effect in non-advertising settings such as livestream retailing and customer service (Du and Huang, 2023). To our knowledge, this type of negative association has not been previously explored or causally demonstrated in luxury advertising literature. In a broader context, our results enhance

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understanding of how the emotional expressions of advertisers can influence consumer engagement decisions.

At first glance, our results seem to conflict with those of Trivedi and Teichert (2019), who observed a positive impact of smile intensity at various stages of consumer decision-making, including closer ad examination, intention to search for information, positive attitude change, inclusion in the evoked set, and purchase intention. Similarly, our findings diverge from those reported by Kulczynski et al. (2016). Putting aside contextual accounts, this apparent discrepancy can be understood by considering the methodological differences between the studies. Trivedi and Teichert (2019) employed a correlational approach using secondary data, while we utilized experimental manipulations of smile intensity. Kulczynski et al. (2016) studied the influence of celebrity figures, which may have biased consumer responses favorably. These variations in methodological approach could lead to different observed effects of smile intensity. Our correlational and experimental methods build upon and refines previous findings from service contexts that employed machine learning techniques on archival data (Du and Huang, 2023) by eliminating wide set of potential confounding factors related to the expresser, observer, and brand attributes distinct from the intensity of facial expressions.

Another significant addition to the research on the social impact of emotions in luxury advertising is the identification of mediating processes discussed in this research. Previous research in marketing communications has primarily examined emotional contagion as the foundational mechanism (e.g., Berg et al., 2015; Shuqair et al., 2024). Overall, these studies underscore affective processes as key to understanding how facial expressions of models can transfer to customers and influence their engagement decisions. While contagion effects for both positive and negative affective states have been documented (Cheng et al., 2020; Warren et al., 2018), the contagion of intensity shows less frequent and inconclusive results.

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Our research adds to the understanding of emotional contagion by highlighting social and cognitive processes (Isabella and Vieira, 2020; Shuqair et al., 2024) that mediate the influence of smile intensity on advertising outcomes through perceptions of competence (social) and ad credibility (cognitive). The SCM suggests that perceived competence and warmth are critical dimensions of social perception (Fiske et al., 2002, 2007). In the context of luxury advertising, where conveying competence is crucial for brand quality and exclusivity, a neutral expression appears to increase ad credibility by signaling competence. This aligns with existing research suggesting that subtle expressions effectively convey competence and prompt positive consumer reactions (Chen and Wyer, 2020; Ketelaar et al., 2012; Zhu et al., 2022). To that end, this research thus demonstrates how judgments of competence serve as fine social information, showing that competence can be communicated through contextualized facial expressions between expressers and observers. This finding builds on previous research in luxury marketing, which has focused on the perceived competence and authenticity of products and brands (e.g., Septianto et al., 2022), by concentrating on consumer perceptions of competence at the individual-perception level.

Furthermore, this research identifies two critical boundary conditions that influence the relationship between smile intensity and ad effectiveness: the lay rationalism (LR) among observers and the direction of the expresser's gaze. LR, which indicates a preference for engaging in rational and analytical thinking, moderates the impact of smile intensity in luxury advertising. Individuals with high LR are more likely to critically evaluate the sincerity and appropriateness of smiles in luxury ads, making them particularly receptive to the competence signals conveyed by a neutral expression. This observation is consistent with the underpinnings of dual process theory (Kahneman, 2003) and the central-route processing perspective (Hsee et al., 2003), which suggest that those with a rational thinking style scrutinize advertising content more thoroughly. While the influence of LR on consumer responses has been explored in specific contexts, such as green

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consumption (Bengart and Vogt, 2023), this study is the first to apply the LR variable within the context of luxury consumption and to examine how individuals with different levels of LR respond to nonverbal luxury communication strategies.

Last but not least, the direction of the eye gaze also significantly influences the impact of smile intensity on luxury advertising reactions. A direct gaze, when paired with a neutral expression, enhances ad effectiveness more than an averted gaze. This combination boosts the perceived connection and engagement between the expresser and the observer, potentially enhancing feelings of intimacy and trust (Sarofim and Cabano, 2018). Consistent with the findings of Wang et al. (2018), a direct gaze strengthens the credibility of the shared signal hypothesis (Mason et al., 2005), reinforcing the positive perceptions associated with a neutral expression and crafting a more persuasive narrative for the luxury ad. Taken together, by examining smiles and gaze direction from both the expresser's actions and the observer's psychological perspective, this research offers valuable insights with significant theoretical, methodological, and practical implications. In what follows, these implications are discussed.

8.1. Theoretical and methodological implications

This work theoretically contributes to the facial expressions of emotions and adds to the luxury marketing literature in multiple ways. Previously, past research in nonverbal marketing has usually linked smiling with positive emotional experiences (e.g., joy, pleasantness) (Berg et al., 2015; Kulczynski et al., 2016) and intrinsic motivation (Cheng et al., 2020). Nonetheless, the interpretation of a smile is greatly influenced by its specific type and the context of its expression (recall Web Appendix B for context-dependent effects of smiles). Surprisingly, the role of smiles and their displayed emotional intensity in luxury product advertising has remained a drastically under-researched area of inquiry.

Extending the scope of the social-functional perspective of emotions (Fridlund, 1992; Keltner and Haidt, 1999; Mueser et al., 1984) and advancing upon the preceding nonverbal

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marketing literature (Chen and Wyer, 2020; Kidwell and Hasford, 2014; Kulczynski et al., 2016; Trivedi and Teichert, 2019), we present the first empirical evidence showing that the intensity of a smile acts as a visual deterrent to the effectiveness of luxury advertising. In undertaking this endeavor, we cultivate a more nuanced view of the dark side of broad smiles in still images, which leads to downstream consequences in the taxonomy of luxury consumer engagement. Counterintuitively, our research establishes applicability of this effect across a wide range of model, ad, and brand-related covariates, spanning four distinct products and five different brands in the US and Chinese samples. Given that the burgeoning literature in luxury branding has predominantly concentrated on topics such as celebrity endorsements (Carrillat and Ilicic, 2019), message framing (Amatulli et al., 2020), customer attachment (Shimul and Phau, 2022), cultural barriers (Zhou et al., 2021), and B2C environments (Cartwright et al., 2022), our work enriches this transformative stream of research by ratifying the critical role of facial expressions in luxury communication strategies.

Furthermore, our epistemological knowledge is quite limited regarding how varying degrees of facial cues can influence social evaluations (for a notable exception, see Wang et al., 2017). Augmenting the predictive power of the SCM view (Fiske et al., 2002; Judd et al., 2005; Min and Hu, 2022) within a previously unexamined consumption setting, we are among the first to systematically link perceived competence and ad credibility as dual dynamics behind the impact of smile intensity. Since existing SCM literature has insofar remained silent on potential boundary factors that modulate the strength of competence judgments, our research explicates how direct gaze and high LR can facilitate stronger perceptions of competence by interacting with neutral expressions. In this way, we add to the shared signal hypothesis (e.g., Wang et al., 2018) and contribute to the growing corpus of research concerning the congruence between facial expressions of expressers and consumers' personalities (e.g., Shuqair et al., 2024).

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Moreover, previous research has continually focused on the isolated impact of eye gaze within the fields of neuropsychology and social psychology (Madipakkam et al., 2019; Shen and Rao, 2016). To the best of our knowledge, the direct implications of gaze direction in luxury marketing have received no attention to date and we are the first to establish the moderating role of eye gaze as a strategic nonverbal element influencing consumers' ability to interpret luxury advertising. Expanding on the initial theorization of To and Patrick (2021), this research deepens our understanding of the joint persuasive effects of smile intensity and gaze direction in fostering greater engagement, favorable ad attitudes, and purchase intent.

Simultaneously, we illuminate our original knowledge about the lay notion of rationality among luxury consumers. Contributing to this line of empiricism, we demonstrate the key utility of the overlooked LR construct (Hsee et al., 2015) in the smile intensity domain by elucidating how this specific mode of thinking affects consumers' ability to decipher facial signals during the engagement-based luxury decision-making. In this manner, we responded to the call from Cheng et al. (2020) and enriched the dialogue on the trade-off between affect and cognition in consumer responses to nonverbal behaviors. Our findings regarding the moderating role of LR are espoused by extant consumer research (Bengart and Vogt, 2023; Wang et al., 2020), adding new evidence that high LR consumers, known for their need for cognition and rational deliberation, are more receptive to neutral expressions.

Beyond theoretical ramifications, we make three methodological contributions. First, earlier research derived their inferences solely from fictitious ads (Kulczynski et al., 2016), small participant pools (Berg et al., 2015), and used convenience samples that included a wide range of individual backgrounds, such as college students, many of whom had minimal or no experience with luxury products (Zhu et al., 2022). This approach, recently criticized by Essiz and Senyuz (2024), fails to truly reflect the characteristics of the luxury consumer market. To rectify this

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issue, this research utilized both real and fictitious ads using large-scale representative samples, allowing us to derive generalizable outcomes with a lower margin of sampling errors.

Second, our research is among the first to employ a multi-method approach, including Instagram field data, Meta field experiments, and controlled experiments. This approach departs from all prior research on smile intensity, which relied on online experiments and was not conducted in naturalistic or commercial settings (e.g., Trivedi and Teichert, 2019; Wu et al., 2020; Yao et al., 2022). In these previous studies, models' faces were presented in isolation, with participants being compelled to concentrate on them, which may compromise the robustness of their findings. Our approach, on the other hand, deploys methodological triangulation by striking a balance between internal and ecological validity. Finally, this work goes beyond recent smile intensity research (Kim and Read, 2022; Shuqair et al., 2024) by operationalizing a more comprehensive set of behavioral DVs. While this previous research concentrated on quantifying self-reported metrics, such as purchase intention, ad attitude, and brand attitude, the current research measured behavioral DVs, including TES, CTRs, and CPCs.

8.2. Managerial implications

Human faces, with their easily alterable expressions, are effective tools in marketing communications for capturing visual attention. Luxury communication strategists can utilize our research insights to convey their brand values and motivate behavioral changes among consumers by experimenting with the facial cues presented in ads. A key practical takeaway from our findings is that marketers should consider ad models' smile intensity and gaze direction as strategic visual devices to augment advertising success. To attain higher engagement rates, we caution them to capitalize on neutral expressions and direct gazes, as this can enhance the appeal of competence and bolster the ad's perceived credibility. Nevertheless, they need to be cognizant not to include false claims and deceptive smiles in their ads, as it could undermine the effectiveness of nonverbal signals and lead to biased product perceptions (Cheng et al., 2020).

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This, in turn, might result in negative word-of-mouth among consumers and reduce overall brand engagement. Consistent with the results of our Instagram study, harnessing social proof through endorsements from high-profile celebrities and collaborative branding efforts can aid in alleviating these concerns—an assumption also in line with Kulczynski et al. (2016). While marketers cannot alter consumers' previous knowledge about the relationship between endorsers and the brand, they can shape perceptions of an endorser's competence through impression management and promotional activities. Efforts to enhance the perceived competence of endorsers can effectively signal the prestige value of the product (Chen and Wyer, 2020).

One viable nonverbal communication strategy could involve the metaverse, owing to its substantial capacity to revolutionize interactions between brands and consumers (Dwivedi et al., 2023). In the new era of Marketing 6.0, so-called "*Metamarketing*" (Kotler et al., 2023), we advocate luxury brands to intensify their use of sensory inputs and blockchain-certified non-fungible tokens in their virtual advertising strategies. Within this immersive environment, they can effectively convey the power of neutral facial expressions and foster receptivity among users. Likewise, in luxury store settings, we advise frontline employees, who serve as brand endorsers and ambassadors, to maintain a neutral expression and sustain direct eye contact with consumers to signal the perception of competence and create an aura of exclusivity. Along these lines, marketers are recommended to follow a pull marketing strategy and utilize augmented reality ads in physical stores to establish an appealing atmosphere, where consumers can view models displaying luxury products with controlled smiles and gaze expressions.

Considering the prevalence of emotional contagion among young millennial and Gen Z luxury consumers on social media platforms (Shuqair et al., 2024), our findings do not fully urge marketers to abandon the use of broad smiles. Rather, the choice of smile intensity should further align with the brand's positioning strategy and pre-defined marketing objectives. In agreement with our findings, broad smiles, particularly when combined with averted gazes, can

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still evoke positive ad attitudes and purchase intent, making this method potentially suitable for luxury brands seeking to portray themselves as approachable, carefree, and accessible. For example, narratives are effective in forging emotional bonds and could be useful to achieve this objective (To and Patrick, 2021). By integrating averted gaze and broad smiles into engaging narratives, luxury brands can create memorable advertisements. These narratives can emphasize the joy and satisfaction derived from owning and using luxury products, making the experience seem more real and appealing. What is more, incorporating broad smiles alongside peripheral-route persuasion techniques can convey psychological proximity, which describes the sense of closeness or familiarity that consumers experience with a brand (Otterbring et al., 2021). When brands are perceived as psychologically near, consumers tend to feel more connected and loyal to them. After all, it is indeed imperative for marketers to delve into the advertising contexts under which other luxury product categories are more susceptible to the impact of broad smiles and averted gazes.

At a consumer level, congruent facial expressions of models ought to be synchronized with the target audience's propensity to base decisions on reasons or feelings in segmenting the market. For neutral expression ads, high LR consumers may be primed to rely more on concrete product information without appealing to affective displays. Although not detailed previously for the sake of brevity, our datasets from Studies 3 and 4 indicated that men, individuals with more education, older adults, and those with higher incomes tend to exhibit greater LR scores compared to their counterparts. These demographic correlates are in agreement with the findings of Hsee et al. (2015). For this demographic group, luxury ads that employ central-route persuasion emphasizing the product's functional value are likely to be more effective.

If luxury brands opt to use broad smiles, it is suggested to pair them with peripheral-route persuasions (e.g., narratives and hedonic appeals) that stir emotional value to signal psychological proximity and connect with low LR consumers. To attract consumers with low level of

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rationality, marketers can highlight the affective appeal of luxury products by featuring expressers with broad smiles and averted gazes in Instagram and Facebook advertisements aimed at audiences in the US and China. In physical markets, applying machine learning techniques to personalize ads at the digital point of sale is a practical way to achieve this target. Ringbeck et al. (2019) have shown that machine learning algorithms can detect lay rationality levels based on consumers' click and browsing patterns. Luxury retailers can leverage past click-stream data to automatically customize the expressions of smiles and gazes on their websites, matching them with the LR level of consumers. This would require examining previous luxury purchases of consumers, considering how they weight hedonic and utilitarian dimensions because these two focal product aspects involve a trade-off between emotions and rationality (Hsee et al., 2015).

8.3. Limitations and future research avenues

The present research while comprehensive is not without limitations, which lay the groundwork for future avenues. Mainly, this research concentrated on smiles and gaze direction due to their omnipresence in marketing communications. However, competence perceptions of observers can be altered in the presence of other physical nonverbal cues, such as gestures, haptics, head, and body movements (Zhu et al., 2022). Likewise, negative facial expressions (e.g., fear, anger, sadness) (Coleman and Williams, 2013) and aesthetics of the smile (e.g., tooth shape and size) (Nguyen et al., 2024) are recognized to influence personality judgments in interpersonal contexts. Also, future research may study other types of smiles (e.g., Duchenne) and less common facial expressions, such as surprise. Thus, there is room for future research to explore the influence of these constructs on luxury advertising and consumer perceptions.

Further, this research found that high-intensity emotional displays, such as broad smiles, often lead to negative evaluations of the expresser, primarily because such intense emotions are perceived as inappropriate in luxury settings, which diminish perceived competence. However, in other consumption scenarios, like sustainable tourism, where warmth, closeness, and a sense of

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attachment to the brand are valued, intense facial expressions may be more suitable and align better with expected display rules (Ekman, 1993; Pankiw et al., 2021; Septianto et al., 2023). Given that the interpretation of emotions is highly context-dependent (Kraus and Chen, 2013; Van Kleef, 2009), we do not claim that high-intensity facial expressions are universally harmful. Rather, we propose that the impact of these expressions is shaped by the consumption context, geographical context, and the perceived appropriateness of the displays.

In addition, we used static print ad images over dynamic portrayals to maintain the clarity of our manipulations. Future research (using field or neural data) is encouraged to test the replicability of our findings in video contexts. We anticipate that the detrimental smile intensity effect might be more pronounced in video ads because the interactive nature of these ads makes it more challenging to prevent the induction of positive facial expressions. Interestingly, one may also examine how evaluations of competence derived from facial cues and perceived credibility might be corrected upon introducing additional personal information about the expresser in video ads.

Another limitation of this research is that it only assessed the immediate impact of facial expressions on consumer reactions to luxury products. Here, the observed effects are immediately following exposure to facial expressions. Future research should investigate the long-term effects of these expressions on aspects such as customer loyalty and attachment (Shimul and Phau, 2022). In line with this limitation, the present findings could be influenced by the egocentric bias, which suggests that individuals tend to overrate their abilities in making initial judgments (Ross et al., 1977). Therefore, observers might overestimate their capacity to differentiate between deliberate and spontaneous smiles, despite not being as expert at this distinction as they believe.

What is more, as our sample is drawn from the US and China, our findings are intrinsically linked to their market maturity. Hence, extrapolating these findings to other luxury

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markets without considering their distinctive growth structures and demographic traits could lead to misinterpretations. To enhance the generalizability of our proposed framework, it is essential to carry out cross-national comparisons (e.g., high vs. low context cultures) and longitudinal studies (e.g., quasi-experiments or qualitative designs) across different luxury services. For instance, future research could investigate if the adverse effects of broad smiling persist or attenuate in the context of sustainable luxury hospitality and tourism, where delivering warmth is critical.

In the present research, the measurement of DVs relies on self-reported scales in controlled experiments. Future research could explore measuring behavioral DVs in lab settings using eye-tracking experiments. It would be equally intriguing to scrutinize the influence of smile intensity on virtual influencers (Gerrath et al., 2024) and other conceptually pertinent DVs (e.g., brand intimacy, brand recall, electronic word-of-mouth, and willingness to pay a price premium) (Bergner et al., 2023; Oc et al., 2023).

More generally, using multi-analytical methods (e.g., artificial neural networks, fuzzy-set qualitative comparative analysis) may offer windows of opportunity to pinpoint probable reasons behind the differing degrees of linear and non-linear effect sizes associated with smile intensity. Although we established LR and gaze direction as theoretical moderators, future research is needed to unpack interaction effects of other conceivable boundary variables such as message framing (negations vs. affirmations) (Septianto et al., 2023), endorsement type (hedonic vs. utilitarian) (Shuqair et al., 2024), regulatory focus of consumers (promotion vs. prevention) (Wang et al., 2017), and social media platform characteristics.

While this research has centered on analyzing gaze direction in terms of direct or averted relative to the observer, it would be a fruitful progression to explore how the expresser's gaze orientation—the left, right, or at the product—and the biological features of the eyes (e.g., color, limbal rings) influence consumer responses to ad campaigns. Another intriguing research

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direction could involve examining the influence of the expresser's gaze direction on consumers' visual processing and their subsequent behavioral responses in luxury advertising contexts (e.g., Wang et al., 2018). Ultimately, consumer reactions to nonverbal advertising elements are often molded by the influence of family or household members (Essiz and Mandrik, 2022). To further generalize our predicted effects, it is cardinal to undertake empirical studies that probe intergenerational boundaries in the socialization process of luxury consumers.

9. Concluding remarks

Firms continue to use models with smiling faces in their advertisements to foster a positive atmosphere. Previous studies have supported the conventional belief that broader smiles are more effective at generating consumer satisfaction and enhancing sales (Barger and Grandey, 2006; Choi et al., 2020; Min and Hu, 2022; Pugh, 2001). In the dynamic realm of luxury marketing, our five preregistered multi-method studies originally cast doubt on the applicability of these conclusions and demonstrated the opposite: that bigger smiles do not always yield better outcomes. As in, we expound how neutral expressions can heighten the perceived competence of the expresser and ad credibility. This effect is contingent on the lay notion of rationality and gaze direction. These inferences impact behavioral responses including ad engagement, attitudes, and purchase decisions, all of which present crucial repercussions for luxury brand marketers. Given the scarcity of research focused on nonverbal behaviors in luxury consumption and considering that consumers recurrently make judgments about models based on their cognitive and emotional expressions, we sincerely hope that this investigation will serve as a springboard for consumer psychologists to delve deeper into the implications of these constructs on multifaceted consumer behavior patterns. After all, as Mlodinow (2012, p.138) vividly observes, "*Nonverbal communication forms a social language that is in many ways richer and more fundamental than our words.*"

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List of Abbreviations

AA: Ad attitude; AC: Ad credibility; AMFD: American multiracial faces database; ANCOVA: Analysis of covariance; ANOVA: Analysis of variance; AU: Action unit; AVE: Average variance extracted; CFI: Comparative fit index; CI: Confidence interval; CPC: Cost-per-click; CR: Composite reliability; CTR: Click-through rate; DV: Dependent variable; GFI: Goodness of fit index; HTMT: Heterotrait-monotrait ratio of correlations; IV: Independent variable; LIWC-22: Linguistic inquiry and word count statistical package; LR: Lay rationalism; M: Mean; MANCOVA: Multivariate analysis of covariance; MPC: Model's perceived competence; MSFDE: Montreal set of facial displays of emotion; MSI: Model's smile intensity; N: Sample size; OLS: Ordinary least squares; OR: Odds ratio; PUI: Purchase intention; R^2: Coefficient of determination; RMSEA: Root mean square error of approximation; SCM: Stereotype content model; SD: Standard deviation; SE: Standard error; TES: Total engagement score; US: United States; VIF: Variance inflation factor; α: Cronbach's alpha; β: Beta coefficient.

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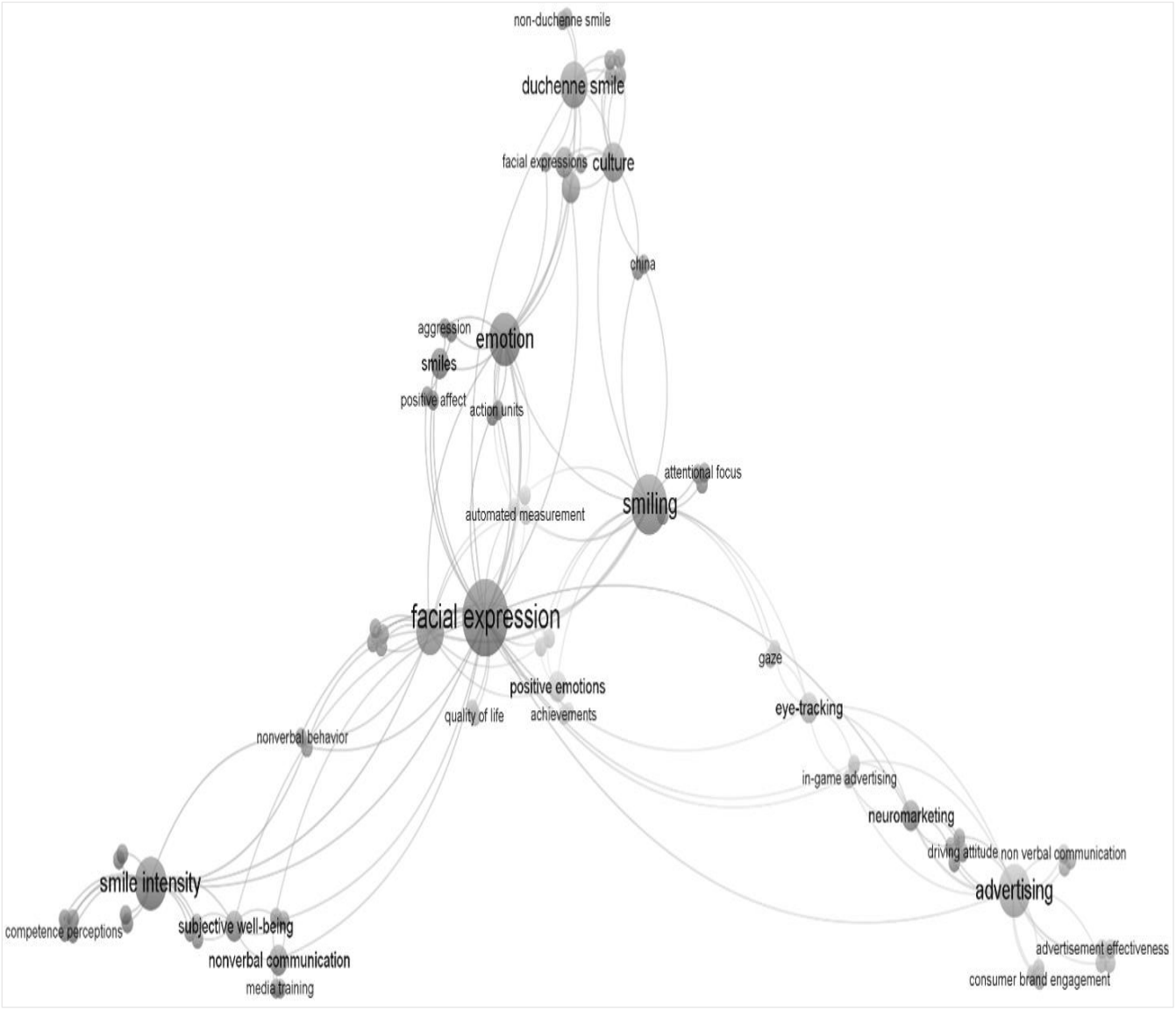
Supplementary Materials: Web Appendices

Appendix A. Bibliometric analysis using VOSviewer$_{1.6.20}$. N = 45 Web of Science references spanning from all available years: 1975-2024. Search keywords: "*smile intensity*", "*face-based inferences*", "*smiling and consumption*", "*smiling and luxury*", "*nonverbal communication and advertising*", "*facial expressions and advertising effectiveness.*" Minimum frequency for a specific keyword: 5.



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Appendix B. Effects of smiling on consumer behavior: A systematic snapshot of previous literature and contextualization of current research.

Author(s)	Journal	Theory	Method	Context and (origin)	Smile conditions and stimuli	Mediator(s)	Moderator(s)	Confounding variable(s)/covariate(s)	Dependent variable(s)	Key findings
1-Ketelaar et al. (2012)	Evolutionary Psychology	(•) Darwinian typologies on facial expressions	(•) Four laboratory experiments (N_t =199)	(•) Fashion and sports (•) (United States)	(•) Duchenne happiness smiles vs. embarrassment smiles (•) Fashion models and football players	(•) Degree of smiling	✗	(•) Negative emotions (happiness, anger, disgust, and contempt)	(•) Prestige (•) Dominance (•) Prosociality	(•) Smile effect = (-) (•) The authors contend that smiles are linked to lower social status. Smiles particularly signal lower dominance and prestige among fashion models and football players.
2-Kraus and Chen (2013)	Emotion	(•) Typologies on nonverbal facial expressions and dominance	(•) Content analysis (N = 152 MMA fighters) (•) MTurk survey data (N = 178)	(•) Professional fighting context (•) (United States)	(•) Smiling vs. neutral (•) Fighters	(•) Aggression (•) Hostility	✗	(•) Fighter height (•) Fighter ability (•) Betting odds	(•) Fighter performance: (1) Effective striking and (2) grappling (•) Physical dominance judgments	(•) Smile effect = (-) (•) Smiles are perceived as an indicator of physical performance. (•) The key finding is that professional fighters who smile more in a pre-fight photos facing their opponents tend to perform worse in the fight compared to those who smile less intensely.
3-Berg et al. (2015)	Journal of Consumer Marketing	(•) Emotional contagion and affect infusion mechanisms	(•) Two laboratory and one eye tracking experiments (N_t = 204)	(•) Advertisement and packaging design (•) (Sweden)	(•) Smiling vs. non-smiling (•) Print ad models	(•) Perceived typicality (•) Emotional contagion	✗	✗	(•) Consumer joy (•) Ad attitude (•) Packaging attitude	(•) Smile effect = (+) (•) The research shows that pictures of models with smiles lead to increased consumer joy and more favorable attitude towards advertisements and product packaging.
4-Kulczynski et al. (2016)	Psychology & Marketing	(•) Facial feedback theory	(•) Three online experiments (N_t = 874)	(•) Endorsement context (•) (Australian)	(•) Resting vs. smiling (•) Celebrity models	(•) Emotional contagion (i.e., pleasantness) (•) Source expressive display-based judgments	(•) Perceived celebrity-product match (match vs. mismatch)	(•) Source familiarity	(•) Ad attitude (•) Brand attitude (•) Purchase intention	(•) Smile effect = (+) (•) The research advocates that when an endorser is depicted smiling in an advertisement, consumers experience heightened pleasure. This positive emotion bridges the connection between the endorser's facial expression and attitude towards the advertisement, the brand, and purchase intention. (•) The emotional response caused by seeing a smiling endorser in an advertisement happens effortlessly, but only when the source is recognized by the consumer and aligns with the endorsed product.
5-Wang et al. (2017)	Journal of Consumer Research	(•) The stereotype content model (•) Social-functional perspective of emotions	(•) Four online and laboratory experiments; one field study (N_t = 1267)	(•) Nutrition coaching (•) Legal services (•) Crowdfunding (•) (United States)	(•) Broad vs. slight (•) Marketers: Stockbroker, nutritionist, and lawyer	(•) Warmth and competence perceptions	(•) Regulatory focus (promotion vs. prevention) (•) Consumption risk (high vs. low)	(•) Target attractiveness (•) Smile authenticity (•) Attention paid to the ad (•) Ad processing (•) Perceived difficulty (•) Persuasion knowledge (•) Perceived inappropriateness of the persuasion attempt (•) Gender of the project creator (•) Total project funding (•) Entrepreneurial experience of the project creator (•) If the project was promoted as a "*staff pick*" by Kickstarter.com. (•) Video demonstration of the project	(•) Social judgments (•) Purchase intention (•) Sign-up behavior	(•) Smile effect = (+, -; Mixed) (•) The authors conclude that a marketer with a broad smile is often perceived by consumers as more approachable and warmer, but less skilled (competent), than one with a slight smile. (•) Moreover, the facilitative effect of smile intensity on warmth perceptions is especially evident in low-risk consumption situations and among promotion-focused individuals. Whilst the detrimental effect of smile intensity on competence perceptions is prudent in high-risk consumption situations and among prevention-focused counterparts.
6-Lee et al. (2018)	ACR North American Advances	(•) The social-functional perspective of emotions	(•) Two experiments (*NA*)	(•) Ad travel agency and gym services	(•) Broad vs. slight (•) Service	✗	(•) Relationship norm (communal vs. exchange)	(•) Processing fluency	(•) Brand attitude (•) Purchase intention	(•) Smile effect = (+, -; Mixed) (•) The research indicates

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				(•) Country: *NA*	employees		(•) Self-construal (independent vs. interdependent)			that relationship norms and self-construal can affect the way consumers interpret a model's broad or slight smile. Specifically, consumers with an interdependent self-construal find a model's broad smile more convincing than a slight smile. This effect is more pronounced in a communal relationship setting than in an exchange one.
7-Warren et al. (2018)	Journal of Consumer Psychology	(•) Typologies on coolness (•) Emotional expressions as social information model	(•) Five online and laboratory experiments (N_t = 1310)	(•) Fashion advertisements and competitive contexts (i.e., MMA) (•) (United States)	(•) Inexpressive face vs. smiling (•) Fashion models and fighters	(•) Perceived coolness (•) Warmth (•) Dominance	(•) Social context (competitive vs. noncompetitive)	(•) Competence (•) Divergence (•) Rebellious	(•) Brand attitude (•) Brand choice (•) Warmth (•) Dominance	(•) Smile effect = (+) (•) The research challenges the prevalent notion that not displaying smiling expression (i.e., being inexpressive) is synonymous with being cool. (•) The authors propose that being inexpressive can make individuals appear *cold* rather than *cool* in non-competitive situations (e.g., models in clothing advertisements). Conversely, in competitive situations—such as an athlete confronting the opponent—being inexpressive can enhance perceptions of coolness by advocating dominance.
8-Broeder and Goorden (2019)	Tourism & Management Studies	✗	(•) An online experiment (N = 311)	(•) Celebrity-endorsed Nike shoe advertisement on the Instagram (•) (Spain and Netherland)	(•) Genuine vs. ingenuine smiling (•) Print ad models	(•) Model attractiveness (•) Model credibility	(•) National/cultural background (Dutch vs. Spanish)	✗	(•) Purchase intention	(•) Smile effect = (+) (•) The focal finding is that an advertisement featuring a celebrity with a genuine smile has a stronger positive impact on purchase intention than one with an ingenuine smile. (•) An ingenuine smile is professed as less attractive and negatively affects the intent to purchase. Contrarywise, a genuine smile is viewed as more credible and positively influences purchase intention. This effect is more pronounced among Spanish consumers compared to Dutch ones.
9-Trivedi and Teichert (2019)	Journal of Business Research	(•) Emotional contagion theory	(•) A secondary survey data (N = 421 real ads)	(•) Print advertisements on 22 product categories (•) (Germany)	(•) Smiling vs. non-smiling (•) Print ad models	✗	(•) Model gender (male vs. female) (•) Consumer gender (male vs. female)	✗	(•) Closer ad examination intention (•) Information search intention (•) Positive attitude change towards the brand (•) Brand integration into the consideration set (•) Brand purchase intention	(•) Smile effect = (+) (•) The research indicates that a smiling model not only induces a positive shift in brand attitude but also affects how a product is positioned within a consideration set and influences consumers' purchase intentions. (•) For female consumers, a smiling female model, as opposed to a non-smiling male model, exerts a greater influence on enhancing brand perception and the propensity to purchase. Conversely, smiling models, regardless of their gender, positively influence male consumers' perceptions.
10-Chen and Wyer (2020)	International Journal of Research in Marketing	(•) Typologies on facial expressions and social role expectations	(•) Five MTurk and laboratory experiments (N_t = 1906).	(•) Print advertisements of low and high prestige brands (•) (Hong Kong and United States)	(•) Smiling vs. neutral (•) Print ad models	(•) Deviation from expectation (•) Endorser status	(•) Gender of the endorser (male vs. female) (•) Product type (high vs. low status)	(•) Target ethnicity (•) Various personality traits (e.g., achievement-oriented, decisive, empathic)	(•) Actual product consumption behavior (•) Endorser competence (•) Endorser warmth	(•) Smile effect = (+, -) (•) The research demonstrates that the way endorsers' smiles influence their perceived social status is determined by how well they align with normative expectations. This alignment varies contingent on the endorser's gender, whether male or female. (•) This effect was more prominent only when the brand was unfamiliar one,

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										and the social status associated with possessing products were not previously recognized.
11-Cheng et al. (2020)	Journal of Consumer Research	(•) Social-functional view of emotions (•) The evolutionary and psychophysical characteristics of facial expressions	(•) Five scenario-based laboratory and MTurk experiments (N_t = 839)	(•) Consumer testimonials and online fundraising (•) Western (United States) and Asian (Hong Kong)	(•) Large Duchenne vs. small (•) Marketers	(•) Inferred intrinsic motivation	(•) Endorser's motivation ambiguity (ambiguous vs. unambiguous)	(•) Consumer's mood (•) Liking of the endorsers (•) Liking of the website design	(•) Anticipated service quality (•) Photo choice (•) Inferred extrinsic motivation	(•) Smile effect = (+) (•) The research shows that when the motivation behind an actor's action is unclear, observers tend to attribute higher intrinsic motivation to those who exhibit larger (i.e., Duchenne-like) smiles. (•) Therefore, actors purposefully showcase broader and more Duchenne-like smiles when aiming to convey intrinsic motivation to observers.
12-Choi et al. (2020)	Service Science	(•) The social role theory and gender stereotypes (•) Emotional contagion theory	(•) A scenario-based MTurk experiment (N = 168)	(•) Hotel service encounters (•) (United States)	(•) Slight vs. broad (•) Service employee	(•) Perceived authenticity	(•) Smile intensity (slight vs. broad) (•) Service provider's gender (male vs. female)	(•) Service provider's attractiveness (•) Scenario realism (•) Gender	(•) Consumer satisfaction	(•) Smile effect = (+, -; Mixed) (•) The research investigates the interaction effects of smile intensity and the service provider's gender. A broad smile is perceived as more authentic when it comes from a female service provider than from a male one. Thus, a slight smile aligns more with male stereotypes, leading to heightened perceptions of authenticity. (•) Perceived authenticity is identified as the focal mechanism explaining the relationship between smile intensity and service satisfaction.
13-Isabella and Vieira (2020)	RAUSP Management Journal	(•) Emotional contagion theory	(•) Three laboratory experiments (N_t = 472)	(•) Print advertisements on TV brands, fashion products, and MP3 players (•) (Brazil)	(•) Neutral vs. happy (•) Retailer models	✗	(•) Smile type (neutral vs. genuine vs. false) (•) Gender congruence effect (model gender vs. viewer gender)	(•) Positive and negative emotion dimensions	(•) Mimicry/Feedback (•) Purchase intent (•) Attitude toward the product (•) Reliability (•) Product appeal	(•) Smile effect = (+) (•) The research supports the link between facial expression of the ad model and the mimicry synchronization observed in participants. (•) It also reveals that genuine smiles influence product evaluation more positively than false smiles. (•) Lastly, it indicates a congruence effect between gender and product, where the gender of both model and participants moderates the relationship between the model's facial expression and participants' product assessment.
14-Wu et al. (2020)	Journal of Contemporary Marketing Science	(•) Stimulus-organism-response framework (•) The elaboration likelihood model	(•) Four laboratory experiments (N_t = 580)	(•) Online retailer store context (•) (China)	(•) Smiling vs. neutral vs. no facial expression (•) Models of online retailer stores	(•) Pleasure (•) Arousal	(•) Emotional receptivity (high vs. low) (•) The consumption situation (browsing vs. purchasing)	(•) Perceived attractiveness (•) Perceived amount of information (•) Gender	(•) Approach behavior	(•) Smile effect = (+) (•) The research exhibits that a smiling facial expression resulted in the highest score for consumer approach behavior. Pleasure and arousal were the underlying mechanisms behind this effect. (•) For individuals with high emotional receptivity, smiling faces resulted in the most pronounced approach behavior, while those with low emotional receptivity responded best to neutral facial expressions. (•) Participants showed the strongest approach behavior towards smiling facial expressions in browsing situations, but not in purchasing conditions.
15-Baek et al. (2022)	International Journal of Advertising	(•) Brand anthropomorphism theory (•) Construal level theory	(•) A MTurk and a laboratory experiment (N_t = 367)	(•) Charity context and human or machinelike AI agents (•) (United	(•) Big vs. small vs. without (•) Virtual and humanlike agents	(•) Psychological closeness	(•) Smile existence (big vs. small vs. without)	(•) General attitude toward artificial intelligence agents	(•) Donation intention	(•) Smile effect = (+) (•) The research suggests that smiles can be incorporated in the ongoing endeavors to make AI more human-like.

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				States)						(•) The key outcome is that consumers feel a deeper psychological closeness and are more inclined to donate when they are approached by broad smiling AI agents with human-like appearances, as opposed to those resemble robots.
16-Kim and Read (2022)	Marketing Intelligence & Planning	(•) The stereotype content model of social judgments (•) The behavior from intergroup affect-stereotypes map	(•) Two Qualtrics experiments (N_t = 746)	(•) Instagram and influencer advertising (•) (United States)	(•) Upper vs. closed vs. neutral (•) Fictitious micro-influencers	(•) Perceived warmth (•) Admiration	(•) Product category (high vs. low risk) (•) Ad message orientation (self vs. social)	(•) Product involvement (•) Age (•) Gender	(•) Purchase intention (•) Online behavioral intention (•) Brand attitude (•) Ad attitude	(•) Smile effect = (+) (•) The research demonstrates that when Instagram influencers display a high smile intensity (vs. medium and neutral expressions), it enhances the perception of warmth and evokes feelings of admiration. This, in turn, leads to more positive attitudes towards the brand and the advertisement, and also promotes increased online brand engagement. (•) Significantly, this positive effect of smiling remains consistent across various product categories and different ad message contents.
17-Min and Hu (2022)	International Journal of Hospitality Management	(•) Emotions as social information model (•) The stereotype content model of social judgments	(•) Two scenario-based MTurk and Qualtrics experiments (N_t = 435)	(•) Restaurant and law services (•) (United States)	(•) Slight vs. broad (•) Service employees	(•) Perceived warmth (•) Perceived competence	(•) Service sector orientation (hedonic vs. utilitarian)	(•) Gender (•) Age	(•) Purchase intention	(•) Smile effect = (+) (•) The research shows that broad smiles from service employees evoke feelings of warmth, which subsequently enhances consumers' perception of employees' competence, leading to an increased inclination among consumers to make a purchase. (•) The research further unveils the boundary role of industry settings. Intriguingly, the positive impact of perceived warmth on evaluations of competence is more pronounced in hedonic-focused service industries (e.g., restaurants) compared to utilitarian-focused services (e.g., law firms).
18-Yao et al. (2022)	Marketing Intelligence & Planning	(•) The stereotype content model of social judgments (•) The agentic-communal model of power	(•) Three laboratory experiments and a WeChat experiment (N_t = 638)	(•) Hotel and medical services (•) (China)	(•) Slight vs. broad (•) Service employees	(•) Perceived warmth (•) Perceived competence	(•) Sense of power (high vs. low)	(•) Woman's attractiveness (•) Smile authenticity	(•) Purchase intention (•) Subjective well-being	(•) Smile effect = (+) (•) The research uncovers the underlying dynamics of how service providers' smile intensity and consumers' sense of power influence purchase intention and subjective well-being through warmth and competence judgments. (•) The key finding is that consumers with a lower sense of power tend to view service providers with broad smiles as warmer, whereas those with a higher sense of power perceive them as less competent. (•) Moreover, a broad smile of the marketer increases satisfaction and purchase intention by amplifying feelings of warmth among consumers with a lower sense of power.

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19-The current research	Journal of Consumer Research (in revision)	(•) Social-functional perspective of emotions (•) The stereotype content model of social judgments	(•) Study 1: Instagram field data, content analysis (*N* = 435 Gucci and Louis Vuitton ads) (•) Study 2a: Meta field study (*N* = 161,643 Meta users from the US) (•) Study 2b: Meta field study (*N* = 71,658 Meta users from China) (•) Study 3: Prolific® experiment (*N* = 248) (•) Study 4: Prolific® experiment (*N* = 342)	(•) Luxury advertisements (•) (United States and China)	(•) Broad vs. slight vs. neutral (•) Fictitious and real luxury brand models (•) Products used in this research: Study 2a (jewelries), Study 2b (sunglasses), Study 3 (a watch), and Study 4 (a unisex bag).	(•) Model's perceived competence (•) Perceived ad credibility	(•) Lay rationalism (reasons vs. feelings) (•) Eye gaze direction (direct vs. averted)	(•) Product involvement (•) Brand familiarity (•) Perceived luxuriousness (•) Ad exposure time (•) Age, education, and annual income (•) Consumer gender (•) Facial attractiveness (•) Model ethnicity (•) Authenticity of the smile expression (•) Celebrity presence (•) Co-branding promotion(s) (•) Number of captions per post (•) Number of hashtags per post (•) Post age	(•) Total engagement score (•) Click-through rate and cost-per click (•) Ad attitude (•) Purchase intention of the promoted product	(•) Smile effect = (-) (•) The current research demonstrates that a neutral smile (vs. broad and slight smiles) leads to higher luxury advertising effectiveness in terms of total engagement score, click-through rates, cost-per clicks, ad attitudes, and purchase intentions. This robust effect is serially mediated by perceived competence of the ad model and ad credibility. (•) Further, the authors show that the detrimental effect of smile intensity on luxury advertising effectiveness is stronger in participants with a high LR score than in participants with a low LR score. This effect occurs because less lay rationalistic participants perceive higher competence and ad credibility when the model displays a broad smile. (•) Finally, the model's gaze direction (direct vs. averted) interacts with smile intensity (neutral vs. broad) to impact luxury advertising effectiveness. The ad model with a direct (vs. averted) gaze is more effective when paired with a neutral (vs. broad) smile.

(†) Studies are organized chronologically. ***NA*** refers to no information available on the type of experiment, sample size, or research origin; **t** refers to the total sample size; **MMA** corresponds to mixed-martial arts.

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Appendix C. Sample smile intensity photos from the Instagram data in Study 1.

Appendix D. Descriptive statistics and Pearson correlations of the Instagram data.

Louis Vuitton (Variables)	α and ICC	Mean	SD	Min	Max	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9	10	11
1-Smile intensity	.94	.97	.83	0	2	.10	-1.07	…										
2-Eye gaze direction	.96	1.31	.68	1	2	-.57	-1.69	.12*	…									
3-Likeability	$.75_{ICC}$*	5.19	1.23	1	7	-.26	-.57	.16*	.09	…								
4-Perceived warmth	$.78_{ICC}$*	3.43	1.78	1	7	.16	-.96	.14*	-.03	.15*	…							
5-Perceived competence	$.83_{ICC}$*	4.09	1.56	1	7	-.20	-.68	-.13*	-.15*	.11*	-.12*	…						
6-Model's gender	1.00	.64	.48	0	1	-.60	-1.66	-.06	.06	.12*	.04	.15*	…					
7-Celebrity presence	.86	.33	.47	0	1	.69	-1.54	-.03	.07	.16*	-.06	-.03	.11*	…				
8-Co-branding promotion(s)	.98	.11	.32	0	1	-2.37	3.68	-.07	.04	.07	-.05	.08	.01	.12*	…			
9-Number of captions per post	.99	20.73	8.30	0	48	.50	.65	.02	.01	.04	.04	.03	.05	.11*	.13*	…		
10-Number of hashtags per post	1.00	2.66	1.94	0	9	1.12	1.31	.05	.03	.05	.02	.04	.03	.13*	.15*	.06	…	
11-Post age	1.00	392.5	201.7	1	1093	-.09	-1.45	-.04	.05	-.01	-.03	.02	-.02	.06	-.04	-.05	.02	…
Gucci (Variables)	α and ICC	Mean	SD	Min	Max	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9	10	11
1-Smile intensity	.95	1.07	.91	0	2	.17	-1.22	…										
2-Eye gaze direction	.98	1.43	.88	1	2	-.48	-1.45	.11*	…									
3-Likeability	$.79_{ICC}$*	4.95	1.67	1	7	-.33	-.64	.12*	-.05	…								
4-Perceived warmth	$.82_{ICC}$*	3.72	1.88	1	7	.29	-.73	.15*	.08	.18*	…							
5-Perceived competence	$.85_{ICC}$*	4.21	1.29	1	7	-.16	-.62	-.13*	-.14*	.13*	-.15*	…						
6-Model's gender	1.00	.69	.35	0	1	-.52	-1.25	.08	.02	.11*	.12*	.14*	…					
7-Celebrity presence	.91	.27	.54	0	1	.57	-1.21	-.06	.05	.12*	.03	-.05	.13*	…				
8-Co-branding promotion(s)	.99	.14	.36	0	1	-2.39	3.52	.03	-.06	.02	.08	.04	-.03	.11*	…			
9-Number of captions per post	.97	15.62	7.49	0	45	.33	.47	.04	.03	.05	-.05	.06	.06	.08	.15*	…		
10-Number of hashtags per post	.99	2.37	1.72	0	11	.86	1.12	.02	-.02	.04	.01	.01	.05	.14*	.12*	.08	…	
11-Post age	1.00	448.1	221.6	1	1095	-.69	-1.92	-.01	.05	-.02	-.04	.05	.04	.02	-.07	-.06	-.04	…

(†) *p<.05 (two-tailed), SD = Standard deviation, $N_{\text{Louis Vuitton}}$ = 201, N_{Gucci} = 224.
(‡) α: Intercoder reliability score, ICC: Intraclass correlation coefficient.

Appendix E. Textual analysis of Instagram comments between neutral versus broad smile ads in Study 1.

LIWC-22 psychological processes (dimensions)	Description and most frequently used exemplar keywords	Neutral smile ads		Broad smile ads		t-values(p)
		M	SD	M	SD	
• Affiliation (drives)	Whether the comments contained words: "*we, our, us, help, etc.*"	32.16	29.96	28.79	24.05	6.13***
• Authenticity (drives)	Whether the comments contained words: "*authentic, honest, genuine, etc.*"	64.25	55.41	60.93	48.96	3.17**
• Achievement (drives)	Whether the comments contained words: "*work, working, best, better, etc.*"	74.82	69.02	69.94	64.33	3.67***
• Power (drives)	Whether the comments contained words: "*power, order, allow, own, etc.*"	70.76	66.70	65.82	59.14	3.91***
• Need (states)	Whether the comments contained words: "*have to, need, had to, must, etc.*"	27.84	18.56	25.81	16.31	5.79***
• Want (states)	Whether the comments contained words: "*want, hope, wanted, wish, etc.*"	28.42	22.63	22.43	20.56	13.87***
• Curiosity (motives)	Whether the comments contained words: "*wonder, research*, look* for, scien*, etc.*"	26.68	20.97	25.66	20.14	2.49*
• Allure (motives)	Whether the comments contained words: "*have, like, out, know, etc.*"	207.64	130.59	191.87	151.66	5.71***
• Attention (perception)	Whether the comments contained words: "*attention, look, watch, check, look* for, etc.*"	33.06	30.22	30.17	26.98	5.04***
• Visual (perception)	Whether the comments contained words: "*see, look, eye*, saw, etc.*"	66.12	37.11	59.94	42.16	7.96***

(†) LIWC-22 = Linguistic inquiry and word count software, M = Mean, SD = Standard deviation, Comments (N) = 17,645, ***p<.001 (t-value ± 3.29), **p<.01 (t-value ± 2.58), *p<.05 (t-value ± 1.96) (two-tailed).

Appendix F. Pretest results of Study 2a.

Manipulation and confound checks	Neutral expression ad		Broad smile ad		t-values	p-values
	M	SD	M	SD		
Smile strength (manipulation check)	1.06	.23	3.94	.69	-23.42	***
Authenticity of the smile expression	3.41	1.19	3.35	1.07	0.22	0.82 (n.s)
Facial attractiveness	4.05	.95	4.09	.86	-0.18	0.85 (n.s)
Trustworthiness of the smile	3.56	.91	3.62	.88	-0.28	0.68 (n.s)
Perceived competence	3.44	1.05	2.06	1.19	5.14	***
Perceived warmth	2.33	1.19	3.82	1.05	-5.55	***
Perceived prestige	4.19	1.12	3.55	1.26	2.27	*
Ad realism	3.67	1.21	3.72	.93	-0.19	0.84 (n.s)
Brand's perceived luxury	4.32	1.05	4.24	.94	0.33	0.73 (n.s)

(†) N = 72 (each cell = 36), M = Mean, SD = Standard deviation, ***p<.001 (t-value ± 3.29), *p<.05 (t-value ± 1.96) (two-tailed), n.s = not significant.
(‡) A higher mean score indicates a stronger agreement for the related construct (5-Point Likert Scale).

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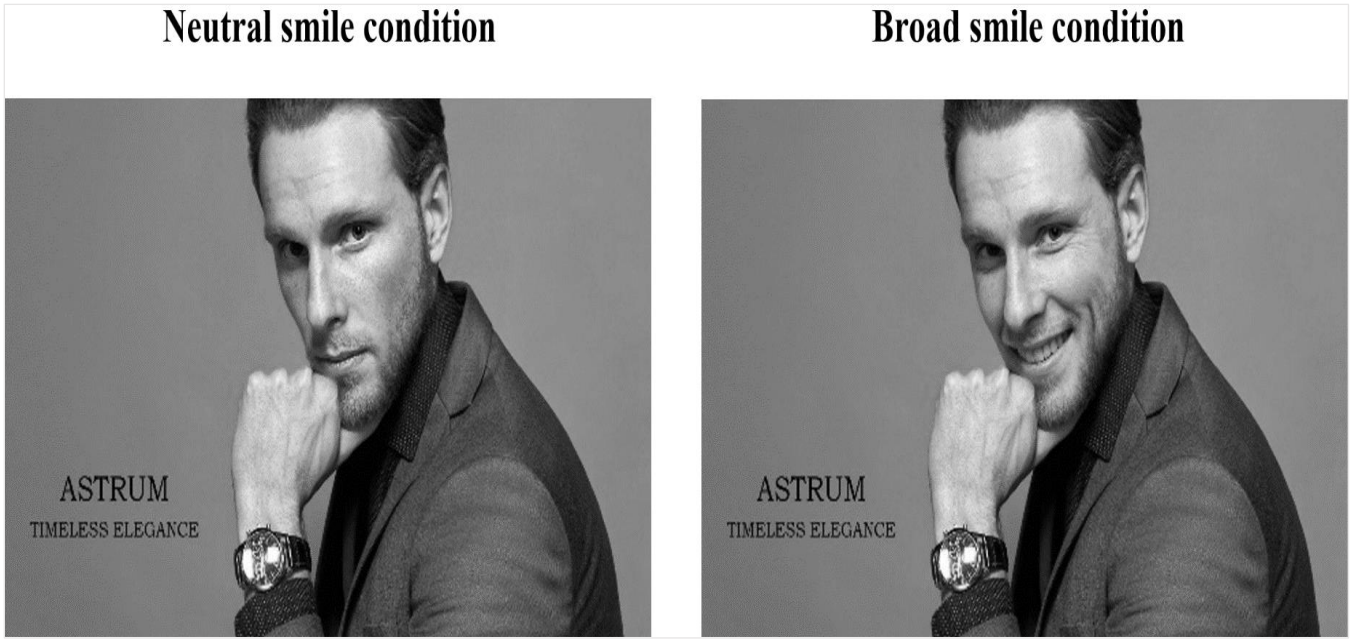
Appendix G. Smile intensity manipulation in Study 3.



Appendix H. Construct measures. *Note.* All measures are on 5-point scales (factor loadings are placed in parentheses).

Ad attitudes (DV) (Studies 3 and 4) (5 items) (To and Patrick, 2021)

Indicate your attitude towards the luxury advertisement you just saw:

1. Unfavorable/favorable ($.94_{\text{Study 3}}$, $.95_{\text{Study 4}}$).
2. Negative/positive ($.93_{\text{Study 3}}$, $.94_{\text{Study 4}}$).
3. Bad/good ($.93_{\text{Study 3}}$, $.94_{\text{Study 4}}$).
4. Unpleasant/pleasant ($.93_{\text{Study 3}}$, $.95_{\text{Study 4}}$).
5. Dislike/like ($.93_{\text{Study 3}}$, $.94_{\text{Study 4}}$).

Purchase intention of the promoted product (DV) (Studies 3 and 4) (3 items) (Dodds et al., 1991)

Indicate your purchase intention for the promoted luxury product (1 = very low; 5 = very high):

1. The likelihood of purchasing the promoted product is ($.93_{\text{Study 3}}$, $.96_{\text{Study 4}}$).
2. The probability that I would consider buying the promoted product is ($.94_{\text{Study 3}}$, $.97_{\text{Study 4}}$).
3. My willingness to buy the promoted product is ($.92_{\text{Study 3}}$, $.95_{\text{Study 4}}$).

Model's perceived competence (1st mediator) (Studies 3 and 4) (4 items) (Wang et al., 2017)

Indicate the extent to which the ad model appears competent (1 = not at all; 5 = very much so):

1. Competent ($.94_{\text{Study 3}}$, $.94_{\text{Study 4}}$).
2. Capable ($.95_{\text{Study 3}}$, $.95_{\text{Study 4}}$).
3. Skillful ($.92_{\text{Study 3}}$, $.94_{\text{Study 4}}$).
4. Intelligent ($.91_{\text{Study 3}}$, $.92_{\text{Study 4}}$).

Perceived ad credibility (2nd mediator) (Studies 3 and 4) (7 items) (Sarofim and Cabano, 2018)

Indicate the extent to which you found this luxury advertisement (1 = not at all; 5 = very much so):

1. Credible ($.83_{\text{Study 3}}$, $.83_{\text{Study 4}}$).
2. Realistic ($.77_{\text{Study 3}}$, $.80_{\text{Study 4}}$).
3. Convincing ($.90_{\text{Study 3}}$, $.91_{\text{Study 4}}$).
4. Persuasive ($.89_{\text{Study 3}}$, $.92_{\text{Study 4}}$).
5. Important ($.84_{\text{Study 3}}$, $.89_{\text{Study 4}}$).
6. Meaningful ($.83_{\text{Study 3}}$, $.91_{\text{Study 4}}$).

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7. Relevant (.86$_{\text{Study 3}}$, .89$_{\text{Study 4}}$).

Lay rationalism (Moderator) (Studies 3 and 4) (6 items) (Hsee et al., 2015)

Indicate your level of agreement with following questions (1 = strongly disagree; 5 = strongly agree):

1. When making decisions, I like to analyze financial costs and benefits and resist the influence of my feelings (.77$_{\text{Study 3}}$, .81$_{\text{Study 4}}$).
2. When choosing between two options, one of which makes me feel better and the other better serves the goal I want to achieve, I choose the one that makes me feel better **(R)** (.89$_{\text{Study 3}}$, .76$_{\text{Study 4}}$).
3. When making decisions, I think about what I want to achieve rather than how I feel (.71$_{\text{Study 3}}$, .72$_{\text{Study 4}}$).
4. When choosing between two options, one of which is financially superior and the other "*feels*" better to me, I choose the one that is financially better (.72$_{\text{Study 3}}$, .73$_{\text{Study 4}}$).
5. When choosing between products, I rely on my gut feelings rather than on product specifications (numbers and objective descriptions) **(R)** (.79$_{\text{Study 3}}$, .84$_{\text{Study 4}}$).
6. When making decisions, I focus on objective facts rather than subjective feelings (.74$_{\text{Study 3}}$, .78$_{\text{Study 4}}$).

(R) refers to a reverse-coded measure.

Smile strength (Manipulation check) (All pretests, Studies 3 and 4) (1 item) (Wang et al., 2017)

- How would you rate the strength of the ad model's smile? (1 = neutral expression; 5 = broad smile)

Eye gaze direction (Manipulation check) (Study 4) (2 items) (To and Patrick, 2021)

1. Is the model featured in this ad looking at you or away from you? (1 = looking at me; 2 = not looking at me)
2. To what extent did you notice the direction of the model's eye gaze? (1 = not at all; 5 = to a great extent)

Attention check (All pretests, Studies 3 and 4) (1 item)

- Is the model featured in this ad smiling or not smiling? (1 = smiling; 2 = not smiling)

Facial attractiveness (Covariate) (All pretests, Studies 3 and 4) (1 item) (Wang et al., 2017)

- How would you rate the facial attractiveness of the ad model? (1 = not at all; 5 = very well)

Authenticity of the smile expression (Covariate) (All pretests, Studies 3 and 4) (1 item) (Wang et al., 2017)

- How would you rate the authenticity of the ad model's smile expression? (1 = not at all; 5 = very well)

Model's perceived prestige (Covariate) (All pretests, Studies 3 and 4) (1 item)

- How would you rate the prestige of the ad model?

Brand's perceived luxuriousness (Covariate) (All pretests, Studies 3 and 4) (1 item) (Amatulli et al., 2020)

- How would you rate the luxuriousness of the advertised brand? (1 = not at all; 5 = very much so)

Product involvement (Covariate) (Studies 3 and 4) (1 item) (Septianto et al., 2023)

- Indicate your involvement in the promoted luxury product category: (1 = not at all; 5 = very involved)

Brand familiarity (Covariate) (Study 4) (1 item) (Septianto et al., 2023)

- How would you rate your familiarity with the promoted brand? (1 = not familiar at all; 5 = very familiar)

Trustworthiness of the smile (Covariate) (All pretests, Studies 3 and 4) (1 item) (To and Patrick, 2021)

- Please indicate the extent to which the model's smile expression can be described as trustworthy (1 = not at all; 5 = very well)

Perceived Competence (Covariate) (All pretests) (1 item) (To and Patrick, 2021)

- Please indicate the extent to which the model appears competent (1 = not at all; 5 = very well)

Perceived Warmth (Covariate) (All pretests, Studies 3 and 4) (1 item) (To and Patrick, 2021)

- Please indicate the extent to which the model appears warm (1 = not at all; 5 = very well)

Ad Realism (Covariate) (All pretests, Studies 3 and 4) (1 item) (To and Patrick, 2021)

- Please indicate the extent to which the ad looks realistic (1 = not at all; 5 = very well)

Ad familiarity (Control) (1 item) (Study 4)

- Did you see this Gucci advertisement before on social media platforms? (0 = no; 1 = yes)

Gender (Control) (Study 4) (categorical variable)

- What is your gender? (0 = male; 1 = female)

Age (Control) (Studies 3 and 4) (continuous variable)

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- What is your age?

Annual income (Control) (Studies 3 and 4) (continuous variable)

- What is your annual household income approximately before taxes?

Education (Control) (Studies 3 and 4) (categorical variable)

- What is your highest level of education? (1 = high school; 2 = trade certificate/vocational; 3 = bachelor's; 4 = master's; 5 = PhD)

Appendix I. Pretest results of Study 3.

Manipulation and confound checks	Neutral expression ad		Broad smile ad		*t*-values	*p*-values
	M	SD	M	SD		
Smile strength (manipulation check)	1.20	.39	4.07	.56	-24.88	***
Authenticity of the smile expression	3.25	1.02	3.42	1.14	-0.65	0.51 (n.s)
Facial attractiveness	3.06	.87	2.94	1.05	0.52	0.60 (n.s)
Trustworthiness of the smile	2.97	1.04	2.86	.83	0.48	0.63 (n.s)
Perceived competence	3.79	.85	3.16	.89	3.02	**
Perceived warmth	2.09	1.04	2.76	1.03	-2.70	**
Perceived prestige	4.32	.97	3.54	1.05	3.22	**
Ad realism	3.46	1.06	3.61	.97	-0.61	0.53 (n.s)
Brand's perceived luxury	4.40	.96	4.20	.88	0.90	0.36 (n.s)

(†) *N* = 70 (each cell = 35), M = Mean, SD = Standard deviation, ***p<.001 (t-value ± 3.29), **p<.01 (t-value ± 2.58) (two-tailed), n.s = not significant.
(‡) A higher mean score indicates a stronger agreement for the related variable (5-Point Scale).

Appendix J. Smile intensity and gaze direction manipulations in Study 4.

Neutral expression with direct gaze condition

Neutral expression with averted gaze condition

Broad smile with direct gaze condition

Broad smile with averted gaze condition

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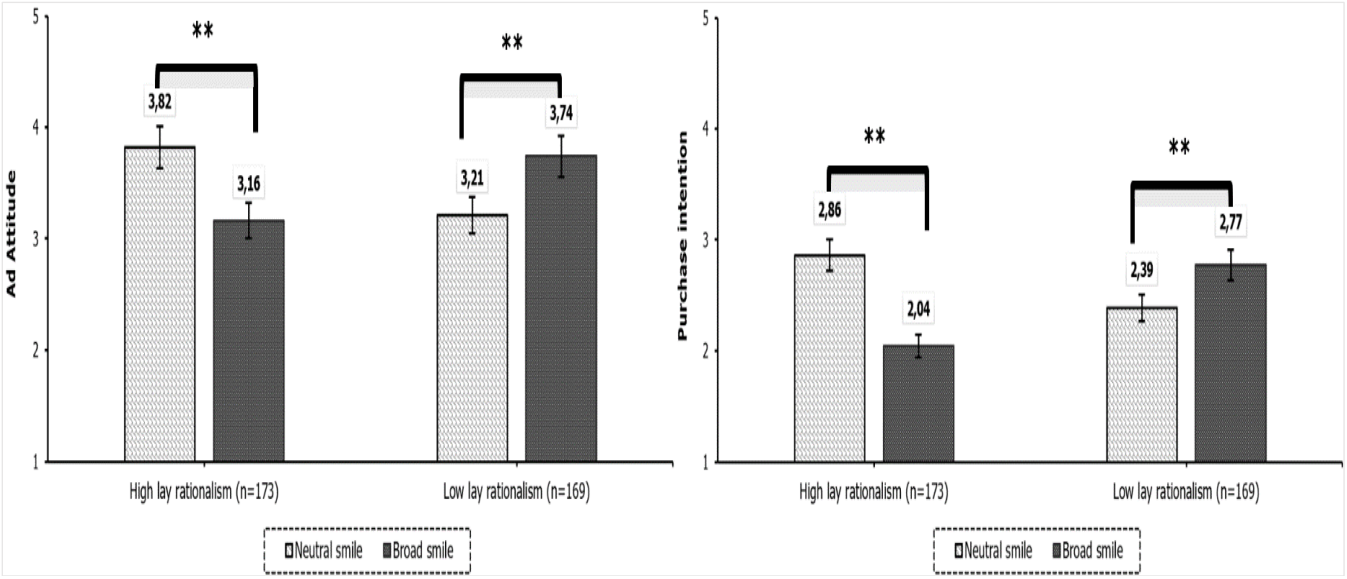
Appendix K. Two-way interactions of categorical lay rationalism and smile intensity on ad attitude and purchase intention in Study 4 (±error bars: standard errors). **$p < .01$.



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GENERAL CONCLUDING REMARKS CHAPTER: SUMMARY OF THE DISSERTATION

Nowadays, luxury brands face the challenge of connecting with consumers whose purchasing decisions are influenced by a complex mix of emotional involvement, ethical assessments, and cognitive biases (Chan and Northey, 2021; Osburg et al., 2021). The present dissertation follows a critically oriented consumer marketing approach in parallel with Alvesson (1994) to conduct a micro-level consumer analysis and provides a strategic viewpoint on luxury consumption, highlighting the necessity for luxury brands to deploy contemporary marketing tactics that align with ethical standards and nonverbal communication strategies. It offers a new conceptual framework on luxury brand communication by contributing to affect-cognitive theory of decision making (Cristofaro, 2020). More broadly and in integrative manner, this dissertation expands current research on luxury consumption (Septianto et al., 2023) by focusing on modern communication strategies to convey messages about luxury goods and demonstrating how to optimize their use. While prior research on luxury has examined the multidimensional benefits of luxury goods and verbal communication tactics (e.g., Kelleci, 2022), it has overlooked, as far as the author is aware, the effectiveness of communication messages focusing on social, sustainable, and emotional benefits of luxury goods consumption. Adding to the latest research on transformative luxury (e.g., Pai et al., 2022), this dissertation aimed to address this gap by focusing on the relationship between luxury ecosystem and consumer satisfaction. Combined, it endeavors to offer a comprehensive examination of the dynamics between social responsibility effects and nonverbal communication signals within luxury brand marketing with the aim of enhancing consumer engagement and welfare.

Throughout two distinct yet interconnected essays, I illuminate how luxury brands can navigate the dynamic landscape of consumer expectations, which are intertwined with sustainability and the nuanced use of nonverbal communication cues in advertising. As consumer

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expectations increasingly lean towards enhanced transparency and social responsibility (Wells et al., 2021), I recommend that luxury brands must consistently adjust their strategies to keep up with these evolving demands. In doing so, this dissertation provides a fundamental step in grasping these dynamics. It emphasizes the critical role of a value-oriented approach to consumer engagement that is essential for maintaining brand prestige and loyalty in the global luxury sector. The reader is advised to refer to Appendix A for the brief summary of this dissertation.

In the first essay, I deepen our knowledge of the consumer base for sustainable luxury products by pinpointing the value-based factors that influence consumer behavior and contributing to the compatibility view of sustainability and luxury (Davies et al., 2012; Pai et al., 2022). The conceptual model presented provides theoretical and managerial insights into how multiple consumption values, along with green advertising receptivity, influence conspicuous ethical self-identity and purchasing intentions for sustainable luxury. Utilizing a hybrid method approach that combines PLS-SEM, IPMA, and ANN, this research highlights generational differences between Millennials and Generation X. It reveals how six consumption values—functional, social, emotional, epistemic, conditional, and green—crucially shape consumer purchasing intentions. Overall, this research offers strategic guidance for luxury brands seeking to strengthen their sustainable positioning and forge deeper connections with ethically conscious consumers.

The second essay turns attention to nonverbal communication in luxury advertising, exploring the largely neglected topic of facial expressions in luxury marketing (Zhu et al., 2022 being a notable exception), specifically examining the negative impact of smile intensity in advertisements. It delves into how boundary factors such as the direction of eye gaze and lay rationalism influence the way smile intensity may shape the perceived competence of the person featured in the ad and the ad's credibility, thereby affecting engagement with the luxury brand. Through a triangulation of secondary data, field experiments, and controlled experiments, this

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research demonstrates that smile intensity significantly shapes consumer perceptions of an expresser's competence and the credibility of the ad, with variations influenced by the expresser's eye gaze and the observer's level of lay rationalism.

Broadly, much of the existing research on emotion intensity within service contexts and organizational behavior has focused on how the emotional expressions of service providers affect customers, often through emotional contagion mechanism (e.g., Cheshin et al., 2018; Du and Huang, 2023; Shuqair et al., 2024). In this research, I complement this stream by showing that intense displays lead to lower valuations of luxury product usage. I also highlight cognitive inferences (e.g., lay reasoning, stereotypic judgments) as another way that displays of emotional intensity can impact customers. This approach helps to deepen our understanding of the interpersonal consequences of emotional expressions in advertising reactions. The findings interactively enhance our comprehension of how luxury brands can strategically utilize nonverbal cues to improve consumer reactions and engagement.

Together, these essays enhance the theoretical, methodological, and practical dimensions of luxury brand communication in a cohesive manner. While each essay provides unique insights into its respective topic, they collectively underscore a comprehensive narrative that is vital for luxury branding. By integrating findings from both pieces, the dissertation illustrates how contemporary luxury brands can effectively use socioemotional cues to deepen consumer engagement. It highlights the emotional and perceptual biases affecting consumer choices in the luxury sector, showing how these are influenced by ethical considerations and nonverbal communication cues. Collectively, the essays provide a dual perspective on the impact of consumer behavior on luxury brands and products at the purchasing stage. This dissertation theoretically and practically enriches luxury marketing literature in various ways, which I will elaborate systematically as follows.

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First, in an age characterized by rapid technological changes and evolving consumer preferences, luxury is a significant global industry where luxury brands must crucially adapt to and leverage new marketing trends (Roberts, 2019; Septianto et al., 2023). This dissertation delves into the intangible value propositions of luxury branding, examining consumer reactions to luxury marketing strategies, and exploring how modern communication techniques are influenced by digital innovation and increasing consumer demands for sustainability. The research underscores a marked shift toward sustainable preferences within the luxury market. It is shown that contemporary consumers expect not only high-quality products but also insist on brands' commitment to environmental and social responsibilities. The move toward sustainable sourcing in the luxury industry is critical for addressing the various social and environmental challenges that societies face (Bhandari et al., 2022). Therefore, I advise that integrating sustainability into marketing communications involves more than just highlighting the eco-friendly features of products; it necessitates embedding sustainability deep within the brand's DNA. This includes being transparent about sourcing, manufacturing-supply chain processes, and the lifecycle impacts of products, employing modern digital platforms to foster a dialogic rather than a monologic engagement with consumers.

Moreover, this dissertation underscores the significant impact that nonverbal cues, such as facial expressions in advertisements, have on consumer perceptions of ad credibility. In today's digital era, the strategic utilization of visual and auditory cues can be augmented through high-quality video content, virtual reality experiences, and interactive web interfaces that offer consumers a multi-sensory brand experience (Gerrath et al., 2024). These tools not only aid in effectively communicating the brand's message but also in creating a memorable brand experience that can improve consumer engagement and loyalty (Özer et al., 2022; Shuqair et al., 2024). This highlights the present dissertation's overarching contribution to our understanding of how modern marketing strategies, supported by digital innovation and a commitment to

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sustainability, are vital for luxury brands seeking to succeed in today's market environment. By proactively implementing these strategies, luxury brands can not only meet but surpass the evolving expectations of their discerning consumers, securing long-term engagement.

Next, grasping the affective and perceptual biases that impact luxury consumer decision-making is essential (Chan and Northey, 2021). These biases, deeply embedded in psychological processes, significantly influence consumer behavior and perceptions, especially in high-value markets where emotional and cognitive reactions greatly affect buying choices (Wiedmann et al., 2009). This dissertation explores how understanding value-based determinants and nonverbal determinants of luxury consumption help us to grasp underlying reasons behind these biases that are strategically utilized and manipulated by luxury brands to cultivate stronger relationships with consumers. In doing so, the current dissertation highlights the interaction between ethical brand communication, nonverbal cues, and consumer psychology to understand consumers' affective and perceptual mindsets.

As consumers increasingly prioritize ethical considerations, their emotional and perceptual responses to brands are more contingent on how well the brand's values align with their own personal and societal standards (Athwal et al., 2019). Ethical practices such as sustainable supply chain initiatives and fair-trade policies significantly shape consumer perceptions and biases by matching their moral expectations and emotional requirements (Karaosman et al., 2020). This alignment not only enhances a brand's credibility but also cultivates consumer trust and loyalty by resonating with their social responsibility values (Shimul and Phau, 2022). Expanding on this area of research, this dissertation emphasizes that the dynamic between affective and perceptual biases, and sustainable brand communications is particularly crucial in the luxury sector.

What is more, this dissertation highlights those nonverbal behaviors, particularly in advertising and consumer interactions, also play a pivotal role in shaping affective and perceptive

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biases. It is known that subtle cues, such as a spokesperson's facial expressions, can convey competence, sincerity, and trustworthiness, deeply influencing consumer perceptions and decisions (Warren et al., 2018). Extending the scope of smile intensity research (Cheng et al., 2020; Wang et al., 2017) to new consumption context, this dissertation shows that these nonverbal cues become even more critical in an online advertising context where the physical evaluation of luxury items is not possible, thereby increasing reliance on these psychological cues to gauge product quality, expresser competence, and ad reliability.

Together, the findings from this dissertation enhance our comprehension of luxury brand marketing by offering a framework for effectively engaging consumers through the strategic use of psychological factors. By syncing brand strategies with consumer psychology, I demonstrate that luxury brands can foster deeper and more meaningful connections with their customers, securing their position and success in a competitive marketplace. My approach not only highlights the critical role of consumer engagement but also places ethical communication and nonverbal marketing at the core of the dynamic narrative of luxury branding.

Another integrated contribution of this dissertation lies in the interplay of socioemotional factors and luxury consumer engagement. Indeed, luxury brands have a unique resonance within a realm where consumer engagement is deeply influenced by socioemotional cues, which are interwoven into the structure of brand communications (Amatulli et al., 2021). This nuanced engagement goes beyond just the appeal of exclusivity and aesthetics, delving into the emotional and ethical foundations that shape consumer identity and preferences (Sharma et al., 2020). Explicitly, luxury branding is not merely about satisfying a demand for high-end products but about fulfilling deeper socioemotional needs, aligning the brand's values with those of its consumers (Kelleci, 2022). As highlighted in this dissertation, incorporating social responsibility and value perceptions into brand narratives has become an essential aspect of socioemotional luxury branding. Here, it is demonstrated that today's luxury consumers are increasingly

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conscious of and concerned with global social and environmental issues, expecting brands to exhibit not only quality excellence but also a commitment to ethical practices and sustainability.

Moreover, nonverbal communication strategies are crucial in defining the socioemotional landscape of luxury branding (Butcher et al., 2016; Essiz and Senyuz, 2023). Drawing from seminal social psychology research (DePaulo, 1992; Ekman, 1993; Fiske et al., 2002; Willis et al., 2011), this dissertation underscores how nonverbal cues like facial expressions can profoundly impact consumer perceptions and actions. It demonstrates that these cues can communicate authenticity, emotion, and sincerity, thereby enhancing the perceived integrity and appeal of the brand. In today's digital era, it is important to recognize that these cues are also conveyed through online interactions and digital marketing campaigns, where the selection of images, colors, and interface design can significantly influence consumer responses.

Therefore, the overarching contribution of this dissertation is its illustration of how the effective integration of social responsibility with nonverbal communication strategies can transform luxury branding from simple consumer transactions into profound socioemotional engagements. This alignment not only elevates brand prestige but also enhances the consumer decision-making process, making it more aligned with personal and societal values. It encourages luxury brands to strive for excellence in product quality while also upholding ethical standards. Through these concluding remarks, it becomes evident that the future of luxury branding depends on its ability to authentically incorporate socioemotional cues that resonate with consumers' evolving consumption value mindsets. This not only fulfills the expectations of today's ethically conscious consumers but also establishes a new benchmark for luxury brands to create lasting impacts by connecting with the hearts and minds of their target market (Hsee et al., 2015). This nuanced understanding of socioemotional engagement paves the way for luxury brands to innovate in their strategic communications and product offerings, ensuring their continued relevance in the luxury sector.

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The findings of this dissertation not only fill significant gaps in the luxury marketing literature but also provide actionable strategies for luxury practitioners looking to enhance their brand appeal. From a practical perspective, luxury brands are encouraged to integrate social responsibility into their core brand strategy more deeply than ever before. This dissertation emphasizes that consumers respond positively to ethical brand practices and consider these practices when making purchasing decisions. Therefore, brands should clearly and authentically communicate their ethical initiatives to foster the formation of conspicuous ethical self-identity (Jain, 2019). Additionally, practical insights from this dissertation suggest that luxury brands should meticulously focus on the nonverbal elements of their advertisements and consumer interactions. This includes training expressers on the effective use of nonverbal cues and carefully designing digital and physical spaces to convey luxury, which are essential for enhancing consumer experience and satisfaction.

In addition, the current dissertation provides several implications for public policy makers. Encouraging consumers to engage in activities that improve individual and societal well-being is a key public policy goal today (Athwal et al., 2019). This dissertation underscores the importance of managing consumer beliefs about sustainable products to enhance consumer well-being, beyond just brand or product evaluations. The present findings advocate for strict regulations against greenwashing and deceptive promotion of sustainable products. By implementing such regulations, public policy makers can prevent socially irresponsible brand behavior and address skeptical consumer beliefs about sustainable products (Mattis, 2008). Additionally, given that the intensity of a smile and the direction of gaze in luxury advertisements can significantly impact consumer perceptions of ad credibility and endorser competence, public policy makers could enforce stricter guidelines on the appropriate use of nonverbal cues in advertising. Policies might require advertisements featuring facial expressions, especially in the

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luxury market, to clearly disclose any enhancements or manipulations made to the images, ensuring transparency and preventing misleading representations.

This dissertation underscores that facial expressions can significantly influence consumer engagement. Consequently, consumer protection agencies might consider implementing regulations to prevent the use of deceptive facial expressions in advertisements. These regulations could include guidelines on the acceptable portrayal of emotions to prevent the manipulation of consumer emotions and ensure that advertisements provide an honest representation of the advertised product or service (e.g., Yao et al., 2022). Based on current findings, I recommend that these regulations include provisions to ensure advertisements do not exploit consumers' psychological vulnerabilities, thereby promoting mental well-being by reducing the pressure and stress associated with perceived social and emotional expectations depicted in luxury advertisements.

Considering the significance of cultural variations in nonverbal communication (Matsumoto and Kudoh, 1993) and the global reach of luxury brands with their diverse consumer base, policies could encourage advertising practices to respect these cultural differences. Guidelines could ensure that advertisements are culturally sensitive and appropriate, preventing the misuse of facial expressions that might be interpreted differently across various cultures. Integrating these insights provides all accountable stakeholders with a comprehensive framework to effectively track the evolving marketplace, ensuring such strategies not only meet but also satisfy consumer expectations proactively.

The findings of this dissertation set the stage for future investigations into luxury branding literature. Firstly, future research could investigate the influence of digital transformation on consumer engagement strategies, the role of emerging technologies in enhancing nonverbal communication, and the global applicability of these strategies across different individualistic and collectivistic cultural contexts (e.g., Matsumoto and Kudoh, 1993).

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As digital platforms increasingly dominate the marketing landscape (Dwivedi et al., 2023), it will be crucial for luxury brands to understand how channels like metaverse can effectively convey nonverbal cues and sustainability messages. Additionally, understanding how cultural variations affect consumer perceptions and behaviors can help customize marketing strategies for diverse consumer segments.

Secondly, expanding the findings of the present dissertation to other luxury product categories beyond fashion could offer a wider perspective on their applicability. Examining sectors such as luxury automobiles, hospitality, and jewelry could uncover industry-specific insights and enhance the generalizability of the conceptual models developed in this dissertation (Ali et al., 2019; Lu and Ahn, 2022).

Thirdly, future research could explore the long-term impacts of sustainable luxury consumption on brand loyalty and consumer well-being. Longitudinal and qualitative studies would be particularly useful in understanding how ongoing engagement with sustainable luxury brands influences consumer attitudes and behaviors over time. Finally, integrating neuroscientific and psychological approaches to study consumer responses to luxury brand marketing could provide deeper insights into the cognitive and emotional processes underlying consumer behavior (Ames et al., 2011). Techniques such as eye-tracking, brain imaging, and psychophysiological measurements could enrich our understanding of how consumers perceive and react to nonverbal signals and social responsibility initiatives (Ferrari et al., 2016).

In summary, as luxury brands endeavor to align with the principles of social responsibility and nonverbal digital communication, this dissertation contributes to the field of consumer psychology and provides a robust foundation for future research in luxury brand marketing, paving the way for new avenues of exploration and innovation. Through rigorous empirical assessments and conceptual development, this dissertation underscores the importance of integrating multi-analytical approaches and mixed method studies to decode the complex

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interplay between luxury branding and consumer behavior. It enhances existing literature by putting the concepts of social responsibility and nonverbal communication into a cohesive framework. By further examining the relationships between consumer values, nonverbal communication, and social responsibility, scholars and practitioners alike can contribute to the development of more effective, ethical, and consumer-centric marketing practices in the global luxury industry.

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Appendix A. Integrated summary of the dissertation.

General summary of the dissertation	
Main research questions	• How can the marketing communication of luxury products be enhanced? • How can luxury brands integrate value-based social responsibility perceptions and facial expression-driven nonverbal communication signals to enhance consumer engagement? • How do multiple consumption values influence sustainable luxury purchase intentions? • What are the roles of conspicuous ethical self-identity and green advertising receptivity on the relationship between consumption values and sustainable luxury purchase intention? • How do Gen Y vs. Gen X hold different levels of consumption values, conspicuous ethical self-identity, green advertising receptivity, and sustainable luxury purchase intention? • Do less intense smiles from expressers improve the effectiveness of luxury ads? • If so, what are the underlying causes? • What factors interact with smile intensity to enliven the effectiveness of luxury ads?
Theoretical frameworks	• Theory of consumption values. • Signaling theory. • Identity theory. • Social-functional perspective of emotions. • Stereotype content model of social judgments. • Dual-process theory. • Shared signal theory.
Independent variables	• Functional, social, emotional, epistemic, conditional, and green consumption values. • Smile intensity.
Dependent variables	• Purchase intention. • Total engagement score, click-through rates, cost-per click, ad attitudes, and purchase intention.
Mediators	• Conspicuous ethical self-identity. • Perceived competence of the expresser and ad credibility.
Moderators	• Green advertising receptivity. • Eye gaze direction and lay rationalism.
Control variables	• Age, gender, education, income, employment status, and perceived social class. • Product involvement, brand familiarity, perceived luxuriousness, ad exposure time, age, education, annual income, observer gender, facial attractiveness, model ethnicity, authenticity of the smile expression, celebrity presence, co-branding promotions, number of captions per post, number of hashtags per post, and post age.
Methodological approach	• Structured survey method, hybrid PLS-SEM-ANN-IPMA modeling. • Instagram field data, content analysis, online field experiments, and controlled experiments.
Product category	• Sustainable luxury fashion products. • Jewelry, sunglasses, watch, and unisex handbag.
Brand focus	• Gucci, Michael Kors, Coach, Louis Vuitton, Ralph Lauren, Chanel, Stella McCartney, Prada, Calvin Klein, and Burberry. • Gucci, Louis Vuitton, Prada, Canyon, and Astrum.
Geographical context	• United States. • United States and China.

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Main findings	• I demonstrate that sustainable luxury and smile intensity are critical constructs to contemporary luxury branding strategies. • I identify theoretically and managerially relevant socioemotional cues (i.e., smile intensity and multiple value perceptions) and quantify their relevance in luxury engagement decisions. • I show that sustainable luxury is profoundly value-driven. After accounting for linear and non-linear patterns, functional, emotional, epistemic, conditional, and green consumption values exhibit significant positive impacts on purchase intention, with the exception of social value that shows insignificant influence on purchase intention. • I elucidate a theoretically grounded mediator (conspicuous ethical self-identity) and a moderator (green advertising receptivity) that buffer the link between consumption values and purchase intention. • I also uncover cross-generational disparities, in which millennials–compared to Gen X–display greater conspicuous ethical self-identity as well as higher levels of green advertising receptivity and purchase intention. • I elucidate that a neutral expression (vs. broad and slight smiles) leads to higher luxury advertising effectiveness in terms of total engagement score, click-through rates, cost-per clicks, ad attitudes, and purchase intentions. This effect is serially mediated by perceived competence of the expresser and ad credibility. • I further show that the detrimental effect of smile intensity on luxury advertising effectiveness is stronger in participants with a high lay rationalism score than in participants with a low lay rationalism score. This effect occurs because less lay rationalistic consumers perceive higher competence and ad credibility when the expresser displays a broad smile. • Finally, I document that the expresser's gaze direction (direct vs. averted) interacts with smile intensity (neutral vs. broad) to impact luxury advertising effectiveness. The expresser with a direct (vs. averted) gaze is more effective when paired with a neutral expression (vs. broad) smile.
Theoretical implications	• This dissertation enhances our understanding of sustainable/nonverbal luxury marketing through value and emotion based theoretical models. • It adds to literature on the nonverbal communication in advertising and the psychology of luxury consumption. • It provides a comprehensive outlook on how to leverage social responsibility and nonverbal communication effects in luxury branding.
Practical implications	• This dissertation offers actionable strategies for luxury brands to position their sustainable products effectively. • It guides luxury brand managers in integrating environmentally responsible considerations and nonverbal advertising strategies to engage contemporary luxury consumers.
Main limitations	• The dissertation findings are limited by its focus on specific luxury markets and consumer segments. • The results could vary depending on different luxury product categories and brands than those examined in this research.
Future research avenues	• Future luxury research is advised to explore demographic and cultural variations on how consumption values differentially impact sustainable luxury purchases. • Future luxury research is recommended to investigate the long-term effects of nonverbal signals on consumer-brand relationships across different gender of observer-expresser pairs, different generational groups of consumers, and interactive social media platforms.

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Notes

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2. The data that supports the findings of this dissertation are available from the author upon reasonable request. In this dissertation, all procedures involving human participants were conducted following the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or with comparable ethical standards. Informed consent forms were obtained from all individual participants included in studies.

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