AI in the Luxury In-Store Atmospherics

Serena Rovai*, Cecilia Pasquinelli**, Camen Teh***

Abstract

Although the application of new-age technologies accelerated the orientation towards the online retailing journey in the pandemic context, the role of the physical store is still central in luxury shopping. The literature highlighted the growing impact of new-age technologies and Artificial Intelligence on consumer shopping experiences and retailing. Multiple factors are influencing luxury fashion and certainly technology changes are impacting clients’ behaviours and expectations. This study explores the critical impact of AI on in-store atmospherics, influencing the consumer in-store shopping experience. Cross-fertilising the DAST (Design, Ambient, Social and Trialability) model framing consumers’ experience with the growing literature on AI in retailing, this research empirically explores Chinese millennial consumers, a segment of tech-savvy consumers with a significant impact on global luxury markets. Based on 72 interviews with consumers and 12 interviews with luxury retail experts, this research elicits and discusses a set of factors framing the transversal role of AI in in-store atmospherics, framing its impact on the customer shopping experience. The study concludes by opening future research streams and critical appraisal of AI’s transformational impacts on luxury retailing.

Keywords: Luxury Retailing; In-Store Atmospherics; AI; In-Store Shopping Experience; China; Millennials; Global Markets

1. AI: a New Era for Luxury

AI is one of the new-age technologies that today catalyse much attention for their disruptive potential, whose substantial influence on marketing and retailing (Forbes, 2022; Delbufalo, Di Bernardo, Risso, 2022) needs to be observed and sized (Davenport et al. 2020; Rust 2020). New-age technologies, such as AI, have emerged as conversational agents (Lim, Kumar, Verma, & Chaturvedi, 2022), similar to

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Edited by: Niccolò Cusano University


http://dx.doi.org/10.4468/2023.01.02rovai.pasquinelli.teh
virtual reality in the metaverse context (Lim, Rasul, Kumar, & Ala, 2022). Research is still very limited and consequently encouraged – not from the technology adoption or resistance perspective – but from the behavioural perspectives amongst others (Lim et al., 2022). There is still a need to uncover the role of AI from the consumer perspective, for brands and retailers to better integrate AI technologies into the customer journey, so that the benefit of AI exceeds its negative biases among consumers. New-age technologies have modified luxury retail management practices (Pentina et al., 2018; Phau & Park, 2014; Gupta et al., 2020; Kumar et al., 2021).

Despite the increasing orientation towards an online retailing journey (Pantano and Pizzi, 2020; Ward, 2020; Pizzi et al., 2021) increased by the pandemic context (McMaster et al., 2020) and the growing interest in online retailing impact on consumers’ behaviour (Melumad et al., 2020; Sheth, 2022), the physical store has maintained relevance in luxury brand building (Hennings et al., 2013; Kluge et al., 2013) and in new forms of retailing (Sheth, 2021). Babin et al. (2004) evidenced how a physical retail location and its atmospherics, which engage all consumers’ senses (Petermans and Van Cleempoel, 2009), activate memorable customer experiences and drive motivation to shop through a sensory store ambient (Verhoef et al., 2009; Klein et al., 2016), do influence consumers’ purchase decisions and shopping motivation. In the luxury context, the store still has a critical role (Spence et al., 2014) because it provides the customer with a multisensorial immersion (Sherry et al., 2001), an enhanced brand experience (Borghini et al., 2009) and boosts brand attachment and attitude (Dolbec and Chebat, 2013). With respect to the importance of the in-store experience, literature has highlighted the validity of a multidimensional analysis of the in- and out-of-store experience through the DAST framework composed of Design, Ambient, Social and Trialability factors of the retail atmospherics (Roggeveen, Grewal, and Schweiger, 2020).

Limited insights have been produced on the role of AI in luxury retailing and its ongoing evolution (Davenport et al., 2020; Gupta et al., 2020; Kumar et al., 2021; Rust, 2020). Consequently, there is room for explorative studies investigating whether and how new-age technologies, particularly AI, integrate and enhance the in-store shopping experience.

This paper aims to shed light on the integration of new-age technologies and particularly AI in the physical store atmospherics towards an understanding of how AI affects the luxury in-store experience. What AI-generated factors enhance the in-store DAST atmospherics? How and to what extent do these improve the customer shopping experience?

After reviewing the literature on luxury retailing with respect to luxury in-store atmospherics and introducing the DAST model, the study will focus on the integration of AI in the in-store environment. The empirical focus is on Chinese millennial consumers since, despite an increasing literature on millennials in marketing and retailing, more research is required on millennial shopping patterns in fast-growing markets (Weber and Ulrick, 2017), in relation to their specific impact on luxury retailing (Kang et al., 2022).
2. Literature Review

2.1 Luxury In-Store Atmospherics

If traditional retail atmospherics were mainly based on the in-store environment (Baker et al. 2002), the new omni-channel retailing approach redefines it as a component of the shopping journey, and its role in consumers’ shopping behaviour (Alexander & Cano, 2019; Ghiselli, 2022) throughout an unconventional customer journey (Lemon and Verhoef 2016; Grewal & Roggeveen, 2020), in creating awareness and customers/brand engagement (Russo Spena et al., 2012).

The consumer/brand experience has been focused on the process implying the consumer search for a branded product in an omnichannel purchasing context (Loureiro, 2020), where the purchasing experience has a key role in its being comprehensive and diversified (Huang, 2017; Kim and Chao, 2019). As luxury is seen as a multisensorial experience, at an emotional level (Dion and Arnould, 2011; Joy et al., 2014), the hedonic and symbolic dimensions (Amatulli et al., 2020; Holmqvist, Ruiz, and Peñaloza, 2020) are crucial to the retail experience with a critical role played by the luxury store context for the brand image building and for triggering motives to shop for consumers (Levy & Weitz, 2012; Blazquez, et al, 2019).

The contribution of the store to the luxury experience was analysed from different perspectives. The store provides a vital contribution to the luxury experience, being an opportunity to design a personalized and unique moment for consumers (Manthiou, Hickman, and Klaus, 2020). The store positively impacts brands’ competitive positioning and provides customers appropriate sensory and emotional experiences (Dhaliwal et al., 2020; Jain and Mishra, 2018). Innovative strategies have been sought to support hedonic emotions (Kang et al., 2021; Shieh and Lai, 2017). In the store, the customer can find an opportunity to spend time and shop more (Bohl, 2012), supported by an immersive context creating pertinent connections with the brand (Cristini et al., 2017; Kauppinen-Raisanen et al., 2020).

As anticipated, recent research supported the validity of a multidimensional analysis of the in- and out-of-store experience, by proposing the DAST framework in retail atmospherics (Roggeveen, Grewal, and Schweiger, 2020). This frames the store atmospherics as an important component (Kapferer and Bastien, 2017) of the luxury experience, creating symbolic, experiential and functional value for consumers (Atwal and Williams, 2009). The store atmosphere generates unique consumer shopping behaviour (Ballantine et al.; 2015; Blazquez et al, 2019). The effects of sensory attributes, entertainment, and design on customer involvement (Rigby, 2011; Spena et al., 2012), innovative and exciting components of the in-store experience (Bäckström & Johansson, 2006) were under scrutiny. The pandemic restricted the opportunity for in-store experiences and changed motivations for an offline luxury experience (Langer, 2020). This calls for additional efforts to investigate the impact of store atmospherics on the luxury experiences to analyse the current developments.
2.2 AI in Consumer Shopping Experience

The increasing impact of technology is expected to be one of the main drivers of change in luxury fashion in the next years (Sheth et al, 2002; Boccardelli, 2019; Mosca & La Rosa, 2019). Numerous premium brands utilize virtual and augmented reality to create immersive shopping environments. These technologies will most likely continue to develop and be extensively utilized. In addition, the use of artificial intelligence and machine learning to improve supply chain efficiency and personalize the shopping experience is expected to increase. New-age technologies and AI have been increasingly gaining importance in consumer studies (Evanschitzky et al., 2020; Klaus & Zaichkowsky, 2020; Kaplan & Haenlein, 2020; Davenport et al, 2020; Huang and Rust, 2021a; Pantano et al, 2022). Despite being a pertinent buzzword in the domain of retail (GlobalData, 2022; Morgan, 2019) and academic discourse (Grewal et al., 2017; Shankar, 2018), AI is lacking solid research in management and marketing.

An integrative effort to include the technological dimension (Pantano et al., 2017; Willems et al., 2017) into the luxury in-store analysis is grounded in the technology’s contribution to innovative shopping experiences (Dacko et al., 2017; Willems et al., 2017, Bonetti and Perry 2017) and retail atmospherics (Das, 2014; Roggeveen et al. 2019). New-age technologies have modified consumer experience in omni-channel retailing and oriented the in-store experience towards a multi-sensorial (Kent et al., 2015; Godey et al., 2016) approach, impacting positively consumers’ shopping attitude, engagement (Hagberg et al., 2015; Silva and Bonetti, 2021; Huang and Rust, 2021b), and brand value co-creation (Demirkan & Spohrer, 2014; Von Wallpach et al, 2017). In the retailing domain, AI has been discussed to act as a value-adding tool.

Academic literature has provided several definitions of AI. The highly-cited definition by Russell and Norvig (2016) refers to AI as systems mimicking cognitive functions associated with human attributes - including learning and problem solving. A definite consensus in AI definition has not been reached (De Bruyn et al., 2020).

Consistent research has analysed AI’s diverse functions applied to marketing and retailing concerning cost reduction or customer emotions boost (Johnson et al., 2022), increasing customer enjoyment and modifying customer interactions (Rabby, Chimhundu & Hassan, 2021) or machine learning for mobile marketing customisation (Tong, Luo, and Xu 2020). Core tasks in AI applications include supply chain management (Weber & Schütte, 2019) customer service management, including point of sales digitisation and in-store virtual assistants (Cao, 2021). AI for big data generation was also attracting research interest with respect to the improved understanding of consumer behaviour (Filieri & Mariani, 2021; Hofacker et al., 2016).

The customer-facing AI applications have transformed the way retailers manage in-store experiences and the way customers are engaged (Guha et al., 2021; Kumar et al. 2019).

Mustak et al. (2021) have identified six topics in consumer-related studies, from consumer sentiments to customer, from an analysis of electronic word of mouth (eWOM) to the use of AI for brand management, from AI stimulating customers’ loyalty and trust to the use of AI for customer relationship management. Despite AI...
increases customer satisfaction (Ransbotham et al., 2017), prior studies have highlighted the utilitarian perceived value more than the hedonic one for AI applications. Consumers seemed to prefer products and service recommendations by humans when hedonic goals are involved, while they seemed to prefer AI when utilitarian goals are sought (Ivanov et al., 2022; Longoni et al., 2019; Mende et al., 2019; Longoni & Cian, 2020; 2022).

Limited studies have examined consumers’ perception of AI use in retailing and specifically in the shopping experience. De Bellis and Johar (2020) examined the enablers and barriers to AI adoption among shoppers, finding functional benefits as the key motivation in AI technologies’ adoption. Customers have shown to opt for AI instead of human-supplied service in uncomfortable circumstances (Pitardi et al., 2021). Psychological and cultural barriers were reported in the use of AI applications, with demographical factors playing a role (Huang et al, 2022), besides technological factors (Mani & Chouk, 2018; Park et al., 2021).

AI was considered in relation to the derived autonomy in shopping, which increased the desirability of AI-enhanced shopping experiences (Hu et al., 2022). Gursoy et al. (2019) found that other factors, besides the functional ones, such as social influence, hedonic motivation, and effort expectancy, were conducive to AI technologies’ use as well as experiential and emotional scopes were listed in the value of AI for hedonic consumption, (Motoki et al., 2019).

Consumer ethics and privacy concerns remain an issue (Kopalle et al., 2022; Silva et al., 2022) in AI adoption despite customer benefits, despite the positive influence of explanations as in the case of big data collection (Querci et al, 2022), discussed in the emerging literature. However, additional studies are required to improve understanding in customer benefits in AI (Mariani et al, 2022) and in retailing.

3. Research design and methodology

The study adopted a qualitative approach to explore the critical impact of AI in enhancing the in-store experience in a specific market segment (i.e. Chinese millennials). This consumer segment is the result of a theoretical sampling leading to select the segment that, for its characteristics, allow the researcher to develop deeper understanding of the object of analysis (Eisenhardt et al., 2016). Such characteristics consist in this segment’s fundamental push to global luxury growth and the cultural values boosting digitalisation in luxury consumption (Bazi et al., 2020; Kim and Zhang, 2013; Gapper, 2018). Chinese millennials have appeared to be highly relevant to this research for their relationship with technologies in luxury shopping (Ko & Jang, 2012; Li et al., 2013). Their responses to the integration to AI into the luxury in-store atmospherics were under scrutiny.

The case design allows researchers to examine a phenomenon situated in a specific context (Hancock and Algozzine, 2017), advocating it is possible to develop an in-depth understanding of a specific case. This empirical study refers to the AI phenomenon in the context of millennial consumers in-store shopping experience; it explores situations, allowing researchers to consider different outcomes (Yin, 2014)
and to investigate a phenomenon using diversified data sources to draw out its multiple sides (Baxter and Jack, 2008). With this respect, mainly two interview perspectives on the object of analysis were adopted, the one of the customers reporting their shopping experiences and the one of practitioners reporting about their professional experience of the market, their customer and technological knowledge.

3.1. Data collection

Selected participants matched the defined sampling requirements (i.e., millennials between 18 and 39 years of age for customers, and know-how in the field for luxury experts). A convenience sample of 72 customer respondents was built through “the person on the street” method, interviewing customers exiting flagship luxury stores in two fashion districts in Beijing (i.e., Beijing Sanlitun Fashion District) and Shanghai (i.e., Shanghai Xintiandi fashion area). 12 experts were identified through the researchers’ professional network and through snowballing (Table 1). Most of the experts’ interviews were held online. Each meeting lasted approximately 45 minutes. Data related to customers’ behaviours and shopping purchase were held at one AI pervasive flagship store in Shanghai and one in Beijing. Interviews guidelines were developed, integrating open-ended questions to collect in-depth data.

**Table 1: Respondents’ Sample Description**

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</table>
3.2 Data Analysis

The study relied on the DAST framework to structure the interview scheme. Following Gioia et al. (2013), a systemic approach was structured to introduce the different resulting codes and themes (Corley and Gioia, 2011). Interviews were analysed following three analytic paths. In the first analysis, a narrative of experiences and interactions with respect to AI technologies’ terms associated to the in-store experience were identified and, through codes, transcribed into categories. The codes from the first-order analysis were narrowed down through the connection to the emergent second-order themes associated to the DAST components. The third-order analysis conceived the data into main themes-based comments and definitions mentioned by respondents and researchers’ understanding. Figure 1 illustrates the analytical framework, the analysis path and the results.
4. Findings: AI in the In-Store Atmospheres

When asked about the impact of AI applications experience in the diverse DAST components, most of millennial respondents evidenced that AI applications intertwine in-store DAST components with positive emotional impacts on their in-store customer experience. An interviewee (I3) reported that: *It is a thrilling environment; you would stay inside the store longer….it is an ongoing discovery not simply a visit to a store to choose what to buy or to try an outfit you like from that brand, or you had seen online, it is an enchanting journey into the world of the brand.*

The empirical results suggested what AI-generated factors enhance consumers in-store experience in the in-store DAST atmospheric and their role in the luxury shopping experience in the brand in-store environment. As an interviewee put it: *It is a unique shopping experience that you live…it is not as shopping online and it is neither as going to a tradition store for a moment of shopping….it is… A hyper-experience? It is a completely different store context that offers me emotions and enjoyment…and I choose to go to the store because of this (I8).* This also suggests how the in-store retailing shopping experience is regaining momentum in the post-Covid and how AI-generated factors are reinforcing it (Fortuna, Risso, Musso, 2021).

Findings revealed significant consensus on the importance of the retail and the experience that the context provides customers. 78% of respondents mentioned this aspect. No respondents reported that the atmosphere is not relevant at all, and main AI pervasive technologies and experiences were positively mentioned and could be related to a specific DAST atmospherics component.
Below the findings related to the DAST model components are reported.

4.1 Design

The store design is highly relevant from diverse perspectives; it translates brand identity into products for a satisfying shopping experience (Jones et al., 2010) but it can also increase brand awareness and value in customers’ perceptions thanks to the emotional journey (Spena et al., 2012) in a high-quality environment (Elliot and Maier, 2014).

Interviews indicated that AI-generated immersive brand experience in the Design component is crucial and significantly influencing the choice towards in-store shopping experience confirming recent studies on the subject (Guha et al., 2021; Kumar et al. 2019): the opportunity to be immersed in a virtual fashion reality, have a shopping experience that integrates an effective and on-time product delivery, and have AI-created personalised products and services in the store enhance the product-customer interaction. As explained by an interviewee: *It is so exciting that type of store [integrating AI], it is like to be in a kind of magic brand atmosphere, it is not only about purchasing a product of your favourite brand but you can even play in a certain way with products...some of them are in the shop and some of them are not so you relate to them in a different way”*(I12).

AI-generated immersive brand experience in the store DAST Design component appears a crucial factor influencing the choice towards the in-store shopping experience: the opportunity to be immersed in a virtual fashion reality or other brand related event and to be enjoying their luxury shopping experience in this context was reported to make them feel closer to the brand: *When I entered in the store, well it was not like being exactly inside the store, I felt more like being invited at the brand last fashion show and I felt in a certain way privileged to be there...I was assisting at the fashion show in front of the catwalk...simply stunning and exciting! (I58).*

Respondents enjoyed being immersed in the luxury brand and its essence is driven by the AI-generated Design. These results extend current literature related to new-age technologies in the in-store atmosphere that examined the customers feel immersed in a multi-sensorial (Godey et al., 2016) shopping experience increasing their sense of value (Demirkan & Spohrer, 2014; Von Wallpach et al, 2017).

On-time products delivery was the only utilitarian aspect of AI generated in-store experience element mentioned by respondents.

4.2 Ambient

The store ambient is considered to positively impact purchasing orientation in luxury fashion by providing a hedonic and/or utilitarian experience, in enhancing customers’ willingness to pay (Scarpi, 2006) or boosting excitement (Ashley et al.; 2010). AI technologies impact this DAST component as adjusting the ambient to the
needs and decision-making process of the customers during the in-store experience, as one of the experts highlighted: *AI is an excellent tool to analyse customers choices and profiling...through AI data analysis luxury brands can adapt the store ambient to the type of customer they want to target as well as products choices and availability to their expectations.* This extends previous research evidencing an improved understanding of consumer behaviour and needs (Filieri & Mariani, 2021; Hofacker et al., 2016) to the luxury field.

Furthermore, respondents evidenced how they enjoyed purchasing their products in an AI-pervasive store when products merchandising was also integrated in the new AI pervasive atmosphere, and the enjoyment of the experience was frequently mentioned by our respondents. This is an example: *[The store atmosphere] is breathtaking and so cool! I certainly prefer to go shopping in this stimulating context, no comparison with online or with traditional context (I52).*

The ambient in an AI pervasive store was mostly defined as unique and appealing. Only a few respondents considered it as more effective. Interviewees mentioned the pervasive presence of AI through touch screens, wearable devices, virtual shopping assistants, immersive fashion show technologies. They highlighted the interaction with the products increased by diversifying the exposition to them. Product selection beyond the in-store product availability was an important determinant of value for respondents and AI mirrors and virtual shopping assistants were reported as giving the possibility to combine, enjoy and customise outfits in a more personalised shopping approach.

A point that all interviewees clearly made concerns the integrated merchandising and interconnected service experience. As an expert said, *Chinese millennials are expecting an integrated AI store environment, and this is the winning ‘plus’ for luxury fashion brands (I22).* An AI-based experiential ecosystem characterised by a fluid and continuous experience for customers is where the luxury fashion system seems to point, according to the interviewees.

### 4.3 Social

The social factor is related to people, including other shoppers and in-store service staff (Roggeveen, Grewal, and Schweiger, 2020). Prior studies have shown the importance of the social element, particularly in the in-store shopping context. Grewal et al. (2020) also argued that in today’s socially connected world, consumers are seeking social engagement and interactive experiences while shopping in-store.

Only a few respondents mentioned positively AI on-screen shop assistants’ or virtual shop assistants’ interactions that eliminates human contact with in-store personnel. Prior research found that consumers appreciate being advised by humans in a hedonic situation but prefer AI when utilitarian goals are activated (Ivanov et al., 2022; Longoni et al., 2019; Mende et al., 2019; Longoni & Cian, 2020, 2022). In addition to courtesy, patience and respect, sales assistants may have been missed mainly for their know-how towards the brand, but this does not seem to be the case anymore as respondents mentioned that knowledge about the products can be acquired through online social media.
interactions. Respondents indicated considerable appreciation for the social interaction with human shopping assistants, as anticipated in literature by Grewal et al (2020): *When we enter into a store it is pleasant to be welcomed and also to exchange opinions about the brand or new products or simply to socialize... I don’t like at all to talk with a virtual assistant, it is absurd....there is no human connection, it is great to share also the experience with them (I64).*

Results contrast Hu et al.’ findings (2022) suggesting that autonomous shopping systems empower customers and make them more eager to shop using AI applications. An interviewee reported the following: *For me shopping in a store implies talking with the staff and also being helped by them in the shopping moment... this does not mean that I don’t like to shop in an AI store... on the contrary I love it, the innovation in the shopping experience is just WOW but I also have people that pamper me and simply smile to me! (I15)*

### 4.4 Trialability

Trialability refers to the comfort and tools through which a customer tries a product or service during the shopping experience. The significant availability and accessibility of brand information and products updates, social connections amongst shoppers were reported by 78% respondents to make a difference in enhancing their brand awareness and more specifically the brand recall. Those references were associated to the trialability components of the DAST framework: most of interviewed customers enthusiastically considered the opportunity to try outfits using AI mirrors and enjoy the innovative and more personalised experience, customised on their own appearance and desires. One interviewee mentioned that: *In a store, you can “touch and feel” the fabric, the quality of the textile and craftsmanship but I can go to a store if there is AI to play with the AI-generated outfits, and to discover and immediately try and see on me new creations of the brand (I18).*

In addition, respondents testified the comprehensive presence of brand information and products updates that is offered by AI pervasive in-store technologies, increasing accessibility and interaction with new product collections when trying them on *I don’t only try one garment on me....with the new mirrors I can try also those from the new collection that in some cases are not arrived in store yet and are not online neither....in the AI store I can try them already and see if they suit and fit me, really unique, something exclusive that the brand is doing for me (I68).*

### 5. Emerging Themes Framing the AI in the DAST Atmospherics

Four emerging themes emerged from this research framing AI-enhanced atmospherics in the in-store customer experience. Findings revealed a strong connection between the AI-enhanced atmospherics and the customer experience, responding to increasing millennial consumers’ eagerness for a digital continuum in the omnichannel retailing experience. Terms and comments from the empirical
interviews highlighted that millennials are attracted not only by the experience that the in-store offers but also by the uniqueness of AI-derived atmospherics, which emerged as a criterion to buy in the store. However, the human factor remains relevant in the interviewees’ words, and it is not understood in contrast with the AI in-store integrations.

The physical store is still central when purchasing expensive luxury goods, not only for the opportunity to check the product quality or for conventional trialability, but also for the store integration with the online and virtual customer experience. As the DAST-based analysis showed, a disconnected store experience seems to be no longer accepted and AI integration is what Chinese millennial customers expect and value from different perspectives. The AI technologies embedded in the diverse DAST components demonstrated to enhance product interaction, personalisation, and brand essence immersion, connected to the hedonic value of the experience, boosting the brand presence in the in-store luxury shopping experience, as shown in Figure 2. Time-saving is an additional theme emerging from the analysis, the only one related to the customer experience’s utilitarian dimension.

**Figure 2: AI Pervasive In-Store Luxury Experience: The Emerging Themes**

5.1 Product Interaction

In-store AI combines the physical store as a guarantee in the shopping experience with an engaging technological setting. The experts interviewed in this study

Edited by: Niccolò Cusano University

ISSN: 1593-0319
indicated that Chinese millennials rarely buy expensive luxury fashion products online, because of doubts related to products’ authenticity amongst other factors. The store keeps playing an important role, but an emerging theme concerns how digitally sensitive millennials search for unique in-store AI technologies that surprise, tempt, and allow them to enjoy an enchanting shopping experience in an “untraditional way”, extending research in the demographic aspect in consumers AI perception (Huang et al., 2022), besides technological (Mani & Chouk, 2018; Park et al., 2021) factors. AI technologies offer pioneering in-store atmospherics, generating a different impact on the luxury shopping experience in consumers’ interaction with the products and a highly immersive brand experience, consequently affecting consumer/brand engagement as anticipated (Guha et al., 2021). Our research complements prior literature that has evidenced that, beyond traditional beliefs, new-age technologies are significantly integrated in the stores, embodying Ryding et al.’s (2016) notion of in-store digitalised entertainment, debunking its traditional design, ambient, social and trialability components.

5.2 Personalisation

The ambient related DAST component complemented by AI technologies appears to be more beneficial to luxury brands than customers experience, with respect to the acquisition of consumer-related data. However, consumers indirectly benefit from this by having a more personalised experience because of an increased understanding of individual customer profiles. With more in-depth knowledge of customer needs and expectations during the luxury in-store shopping experience, an enhanced personalisation of the experience could be developed by brands. From this perspective, AI as part of the new-age or smart technologies does not simply assist in the effective customer data management and collection for retailing strategy design (Bennett and Savani, 2011; Pantano et al., 2017), or a closer customer engagement (Hagberg et al., 2015; Silva and Bonetti, 2021; Huang and Rust, 2021b), but also in offering a bespoke in-store luxury shopping experience.

5.3 Brand Immersion

It is also noteworthy that respondents attached much importance and enjoyment to the hedonic experience in the immersive AI-driven atmospherics design, principally driven by the increasing digital eagerness of millennial consumers’ segments, and dissimilarly from previous research evidencing only that customers opt more for AI instead of human-supplied service in uncomfortable circumstances (Pitardi et al., 2021). Respondents highlighted that the comprehensive AI-generated atmospherics, in its diverse components, was enhancing not only the enjoyment of the in-store experience, but it was wholly immersive into the world of the brand and its essence, thereby making them “feeling inside the brand”. Prior literature described a boost in customer satisfaction (Ransbotham et al., 2017) associated with AI, reiterating the utilitarian element rather than the hedonic scope of AI in consumption (de Bellis and
Johar (2020). This explorative research revealed contrasting findings, suggesting the need to expand the inquiry. The diverse AI-generated technologies in the DAST atmospherics components were enhancing not only the enjoyment of the in-store experience, but also immersing consumers into the brand and its essence, thereby extending the study by Gursoy et al. (2019) on the hedonic factors driving willingness to use AI technologies.

5.4 Tim Effectiveness

AI-based in-store experiences contribute to the omnichannel shopping journey. Chinese millennials seemed to search for an integration of their online brand experience and product information search with the in-store experience. The AI-connected atmospherics of the store is relevant for guaranteeing effectiveness in time management with respect to product delivery, packaging and service. This confirms previous literature focusing on in-store AI applications for ordering products, managing inventory and packaging delivery (Weber & Schütte, 2019).

Empirical results suggested that the AI environment is expected to be integrated into the whole purchasing process, from apparel search and choice to luxury item delivery, interactions with store associates and personalised customer services, check-out and real-time shipping. All these aspects contribute to more effective time management.

6. Conclusion and Future Research

The study mainly refers to the different functions and impact that AI technologies have in marketing and retailing specifically to customer hedonic enhancement (Johnson et al., 2022) and in this perspective affecting customer interactions (Rabby, Chimhundu & Hassan, 2021). Empirical results evidence that AI highly contributes to the hedonic dimension, contrary to what previously affirmed, and it explains how. Data from the empirical analysis have proven that AI makes the store atmospherics attractive, adding to its role of guarantor in the purchase, providing elements of curiosity, enjoyment, and entertainment. Beyond the "surprise" and curiosity effect, the AI impact in the long term represents an important future research avenue.

In-store luxury shopping atmospherics is highly appreciated for its unicity derived from the AI applications, extending literature on the luxury shopping experience, and providing insights for brands to incorporate a personalized and unique moment for consumers using AI technologies (Manthiou, Hickman, and Klaus, 2020). The AI-generated atmospherics appears highly relevant to keep the value of the in-store atmosphere, representing a continuing important component (Kapferer and Bastien, 2017) in the customer shopping experience. The evidence from this research addressed one segment in the Chinese market. Additional empirical research is needed to explore other geographical markets.

The findings are very interesting and further research can be considered in relation to: a) other market segments in order to measure AI impact in retail strategies (e.g.
older customers may not appreciate AI during their shopping experience because they are more familiar with the traditional in-store dynamics and don’t feel comfortable with AI; b) culture matters, so it is likely that differences in AI perception may be found by studying customers in other countries, as the authors highlighted; particularly, it would be interesting to carry on a cross-analysis about the same segment (millennials) in multiple countries.

This research was limited to an explorative study suggesting a set of emerging themes that should be further investigated towards a theory building. This would be necessary in a field with limited and fragmented literature, such as AI in luxury retailing. Further evidence is also needed towards the definition and adaptation of viable retailing strategies based on customers’ response knowledge.

In addition, from a more managerial perspective, this study results can be useful for luxury brands strategy for their in-store retailing strategy in the Chinese market and what affects millennials’ positive shopping experience and consequent purchasing decisions. However, this research is only a first step in a better understanding of millennials’ response - at a global level - to AI-pervaded in-store experience; a further comparative study may be required to analyse millennials response in diverse geographical markets – in relation to a different local culture – or different demographics consumer segment response to this type of in-store experience.

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Edited by: Niccolò Cusano University

ISSN: 1593-0319

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Edited by: Niccolò Cusano University

ISSN: 1593-0319

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Edited by: Niccolò Cusano University

ISSN: 1593-0319

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Edited by: Niccolò Cusano University
ISSN: 1593-0319


Edited by: Niccolò Cusano University

ISSN: 1593-0319

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