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Exploring Motivational Drivers for Shopping at Physical Fashion Retail Stores: Evidence from South Africa

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Abstract
This study explored the motivational drivers that influence customers' decisions to frequent physical fashion retail stores in South Africa, so as to be more competitive and customer-satisfaction driven in the face of challenges orchestrated by increased online shopping and the COVID-19 pandemic. The qualitative methodology followed an exploratory research design. Data were collected by conducting ten in-depth interviews analyzed by coding, categorization, and thematization. The findings of this study show that South African customers prefer to shop in-store due to tactile and sensory reasons, instant gratification, and social contact. Six themes were identified by analyzing the data: browsing, fitting, timeliness, therapy, socializing, and expectation. The insights gained from this study are of importance to academics, researchers, and retail administrators for deepening the understanding of why customers shop at physical fashion retail stores, and how improvement of customer experience and store attractiveness can be implemented within physical retail environments. Improving the identified motivation drivers should be attempted by fashion retailers in an effort to remain competitive, increase customer footfall and pivot on shifting customer preferences, given that it could increase customer satisfaction and loyalty.

Keywords: customer motivation, in-store shopping, store attractiveness, fashion retail, South Africa.

JEL classification: M31, L81, D12.

Introduction

The fashion retail industry, as well as numerous other industries, have been significantly impacted by the COVID-19 pandemic during which various restrictions imposed by governments constrained the movement of customers. As such, due to the decrease in customer footfall, many physical retailers experienced dwindling profits during this time, with some even having to close their stores permanently (Santamarina et al., 2020). In addition, the constant rise of online shopping, accelerated by the restrictions imposed during the COVID-19 pandemic, has contributed to the many challenges faced by physical retail stores (Sheth, 2020). A change in consumer behavior amongst customers in multiple generational cohorts has prompted customers to change their shopping habits with many preferring to shop online instead of frequenting physical retail spaces (Lissitsa and Kol, 2021). According to Shanthi and Kannaiah (2015) customers find it increasingly more convenient to shop online rather than venturing into shopping centers and physical retail stores.

A shift in consumer behavior creates the need for an in-depth analysis of the motivational drivers that influence customers' decisions to frequent physical retail spaces with the goal of enhancing competitiveness and customer satisfaction. According to Ballantine et al. (2015), customers are still motivated to shop at physical stores due to various motivational drivers like atmospheric cues, product assortment, pricing tactics, and promotional activities. These drivers need to be identified and honed to improve customer patronage at physical fashion retail stores. Physical fashion retailers are under ever increasing pressure to create experiences in store that can match or outperform online shopping alternatives. The use of tactile, sensory elements, and

social interaction that in-store physical shopping environments afford is quite distinct from what online retail environments can achieve (Grewal et al., 2017). Retailers can thus use the elements mentioned above to provide their customers with increased value by curating a positive in-store experience and maintaining a favorable image of their physical retail stores in customers' minds (Musso and Druica, 2014). This study aims to identify and explore various motivational drivers that can offer actionable insights for fashion retailers in South Africa.

The primary objective of this study seeks to establish the motivational factors influencing or driving customers to shop at physical fashion retail stores in South Africa. The secondary objectives are to identify variables contributing to a positive in-store experience and to establish what really drives customers to rather shop at physical fashion retailers instead of shopping for fashion items online.

1. Literature Review

1.1 Shopping motivation

Motivation is defined by Schiffman and Wisenblit (2019) as the innate need to prompt specific actions to meet requirements. Shopping motivations, including both internal and external factors (Horváth and Adıgüzel, 2018), drive customers toward utilitarian needs and hedonic desires (Lee and Wu, 2017). Hedonic shopping motivation is a behavioral factor that positively influences core psychological requirements such as social fulfilment and personal competency, which are predicated on diminishing unpleasant experiences and boosting pleasant experiences, and improving on these (Erdem and Yilmaz, 2021). Hedonic motivation refers to the impulses that drive customers to pursue imagination, happiness, pleasure, and sensuality (Kumar and Yadav, 2021). Task-oriented behavior in shopping, in turn, is characterized as a utilitarian shopping motivation, where a customer seeks to obtain a practical benefit or meet an economic necessity. Such customers use the shopping excursion to discover a specific product they require (Zeeman, 2013). A utilitarian customer is also an individual who is interested in analytically addressing problems. It is a customer who does not like shopping, and who is not easily swayed by emotions when purchasing items (Vieira et al., 2018).

Determinants like perception, learning, attitude, lifestyle, and personality influence customer shopping motivation (Roberts-Lombard and Parumasur, 2017). Six key shopping motives include seeking adventure, socializing, seeking gratification, searching for ideas, buying for others, and searching for value (Goworek and McGoldrick, 2015). Shopping is integral to contemporary societies, driven by individual needs and societal variables (Solomon, 2018). Recognizing customer shopping motivations assists retailers in tailored marketing, enhancing their ability to meet diverse customer needs in a dynamic marketplace (Davis, 2023).

Customer motivation is key to store attractiveness as it shapes perceptions and engagement with the physical retail environment. Customers are more likely to stay in a physical retail store longer and are likely to increase their purchases when they are enjoying the experience offered by the retailer. Retailers may improve the overall appeal of their physical retail stores and encourage profound customer loyalty and experience by understanding and accommodating customer shopping motivation (Sulaiman and Ahmed, 2017).

1.2 Customer experience

Customer experience is a phenomenon that encompasses every part of a business offering as well as the customer’s response to these offerings in every direct or indirect encounter with the business. Advertising, packaging, product and service features, simplicity of use, dependability, and customer service quality are all part of the business offering, denoting to the overall customer experience (Waqas et al., 2021). In addition, customer processes and

responses to the shopping environment, scenarios, and customer attributes are part of the customer buying experience (Gusti Ayu et al., 2021). Customer experience is a complex and comprehensive concept that is comprised of different components, namely emotional (feel), cognitive (think), physical (act), and social identity (relate) (Schmitt, 1999).

These components are described by Gentile et al. (2007) as follows: A product offering can elicit an emotional experience for the customer in order to elicit an effective relationship with the business, its brand, or products; thereby, an emotional component (feel) is a component of the customer experience that involves an individual's affective system through the generation of moods, feelings, and emotions. The cognitive component (think) is a part of the customer experience that entails thinking or conscious mental processes; a product or service offering may encourage customers to use their creativity or solve problems. The physical component (act) arises from the practical act of doing something; in this sense, the pragmatic component encompasses the idea of usability and all stages of the product's life cycle, not only the post-purchase period. The validation of an individual's system of values and beliefs, frequently via the adoption of a specific lifestyle or learned habits, is referred to as the social identity component (relate) of a customer's experience in which the product and its consumption become symbols of adherence to specific values that the business and brand represent, and that its customers share.

1.3 Experience economy

Pine and Gilmore's (1999) concept for the experience economy can help to explain the relationship between customer experience and in-store experience. According to Pine and Gilmore's model, economic value has evolved from commodity extraction to product distribution, then to service supply, and eventually to the staging of memorable events. The in-store experience becomes an important component in this transition, setting the foundation for memorable and meaningful consumer encounters. Customers seek more than just products (El-Adly and Eid, 2016); thus the in-store environment becomes a platform for immersive and engaging experiences, transforming shopping into an event. In the context of the experience economy, customer experience is inextricably linked to in-store experience, as retailers strive to create environments that go beyond mere transactions, providing customers with memorable and emotionally resonant encounters that add to the store's overall appeal and attractiveness.

However, the COVID-19 pandemic has brought significant changes in consumer behavior, especially toward in-store experiences. Recent studies highlight how customers are now seeking sensory and social experiences in physical stores, and retailers have had to adapt by incorporating contactless technologies and enhanced safety measures (Sheth, 2020).

The experience economy extends beyond the creative industries and cultural sectors; it also includes how products and services can create experiential value (Sundbo & Serensen, 2013). Pine and Gilmore (2011) created the 4E construct based on the experience economy approach to capture a complete view of the customer experience (Snel, 2011). The four realms of experiencing value, known as the 4E construct, comprise two dimensions and four types of experiences. The two dimensions and four types of experiences are depicted in Figure 1, illustrating the experience economy's realms.

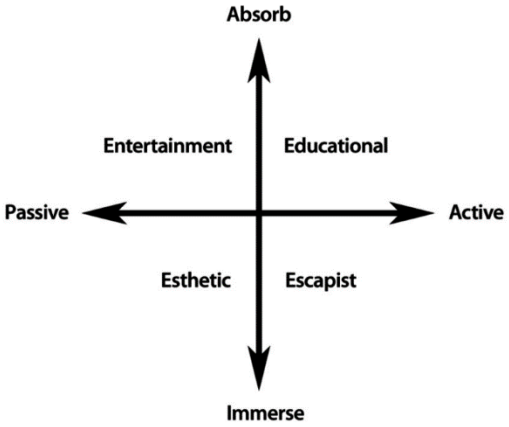

Figure 1. The experience economy realms
Source: Pine and Gilmore, 2011, p. 45

Educational experiences take place when customers actively involve themselves in the physical retail environment to learn something and acquire new knowledge. In fashion retailing, this might include the latest in fashions, materials, and styling tips (Pine and Gilmore, 2011). These can be heightened by the use of information displays, interactive workshops, and knowledgeable advice from staff.

Entertainment experiences passively expose the customer to events or performances that create enjoyment and amusement. These can be attained through in-store advertisements, live music, and interactive displays that engage and amuse customers (Pine and Gilmore, 2011). Mathwick et al. (2001) note that entertainment elements raise customer satisfaction and lengthen time spent in the store.

Escapist experiences refer to customers frequenting a store that provides them with a sense of escape from their daily routines. In fashion retailing, this could be attained through themed store environments, virtual reality experiences, or any kind of display whisking them away into another world (Pine and Gilmore, 2011). All these consumptions are bound to raise the emotional engagement of customers and provide them with long-lasting memories.

Aesthetic experiences are related to the sensory and visual appeal of the store environment. The combination of store design, lighting, color scheme, and display of products generates the aesthetic experience (Pine and Gilmore, 2011). It has been proved that more attractive environments can enhance the perception of quality and evoke positive emotions in customers' minds (Bitner, 1992).

1.4 Store attractiveness

The concept of store attractiveness is multi-dimensional, considering the activation of emotional, cognitive, behavioral, sensorial, and social responses to a retailer's offering. Lemon and Verhoef (2016) state that stores most effective in engaging customers at different levels are more likely to provide and deliver a positive, memorable shopping experience. Some of these elements include store design, product display, and customer service that all combine to create store attraction and influence customer perception (Bitner, 1992).

The experiences offered to customers by physical retail stores will generate perceived values for customers, and if these perceived values are positive, it will lead to increased levels of customer satisfaction, which in turn, will improve store attractiveness (Cachero-Martinez and Vazquez-Casielles, 2017). Fashion retailers, especially, invest a significant number of

resources in improving their store attractiveness with a view to, among others, increase customer footfall (Hilal, 2019).

The COVID-19 pandemic has further transformed store attractiveness, as retailers had to implement new health and safety protocols to meet evolving customer expectations (Gauri et al., 2021; Pantano et al., 2020). Recent studies show that customers now place greater emphasis on the tactile and social experiences provided by stores, making the integration of new technologies, like contactless payments and virtual fitting rooms (Grewal et al., 2021; Das & Debroy, 2022), essential to enhancing store attractiveness in the post-pandemic era (Grewal et al., 2023).

1.5 The South African Fashion Retail Industry

Fashion is generally defined as the style or types of clothing and accessories worn by groups of individuals at a time. The fashion retail market includes clothing, casual wear and accessory items for babies, toddlers, essentials, formalwear, formalwear-occasion, and outerwear for men, women, boys and girls (MarketLine, 2021). While the term fashion is commonly associated with the design and style of clothing, accessories, and footwear, the fashion retail industry encompasses the supply of goods, the fiscal production and interpretation methods, distribution lines, and sales of design and style items, all of which are supported by a global network of manufacturers and workforce on both the manufacturing and retail sides of the industry to streamline products to meet demand (Statista, 2022).

It has been noted that there is a clear polarity between the high end of the industry and the mass-produced side. The supply of fashion items, the production methods, distribution process, and sales of items differentiate in the fashion retail landscape today that is dominated by brands and companies in the latter group (Moeng, 2012). The fashion industry's indicator of prevailing market trends stems from the volatile and intensifying demand of customers, which lead to the increased production of fashion retail goods and sales. The global apparel market generated 1.55 trillion dollars in revenue in 2021, and it is expected to expand by more than 25 per cent by 2026 (Statista, 2022).

South Africa has an influential shopping center culture rooted in society's love for community engagement. This situation allows for much choice regarding opportunities for high and lower-end businesses to open retail locations (De Klerk, 2021). The country's shopping center retail industry is, indeed, a lucrative market. The South African retail industry, in comparison to other African countries, boasts sophisticated and well-developed shopping centers that attract versatile customers from all over the continent (De Klerk, 2021). The global fashion retail industry is a valuable commodity; it is also regarded as a necessarily innovative sector because of it being influenced by volatile style fluctuations and trends. Indeed, fashion retailers in South Africa must continuously try to foresee what customers will want in the future, as this ability to predict clothing trends (and turn them into products in a brief enough period to be lucrative) has become an indicator for success in the fashion retail sector (Ren et al., 2020).

The fashion retail industry in South Africa is a significant contributor to the economy, and is one of Africa's leading markets (Pather, 2015). The retail sales of textiles, clothes, and footwear in 2018 amounted to 175 billion Rand. The apparel and textile sector in South Africa contributes about 8 percent to the country's manufacturing GDP and 3 percent of the country's total GDP each year (De Klerk, 2021). The South African government reported that a rebound in average monthly earnings of employed industry workers to 9.7 percent y/y in the second quarter of 2021 from 3.2 percent y/y in the previous quarter, which has allowed household spending from South Africans to still make a significant contribution to the 1.2 percent q/q rise

in headline GDP during the quarter (IHS Markit, 2021) This suggests that South African customers are expected to spend more on non-essentials in the post-COVID-19 future.

Even though the demand for fashion items is on the rise in South Africa, brick-and-mortar fashion stores are losing footfall to online fashion retailers as customers are opting for the more convenient option of shopping online. The physical retail environment is transitioning from a service economy to an experience economy, and retailers are struggling to adapt to these changes in customer expectations and demand (Pine & Gilmore, 2011). Therefore, brick-and-mortar retailers should strive to provide their customers with a unique and positive in-store experience instead of merely selling products and services. This study sets out to investigate the drivers that motivate customers to shop at physical fashion retail stores in South Africa with the aim of improving customer footfall, experience, perception, and loyalty.

2. Research Methodology

This study applied an exploratory research design with qualitative methods. Ten in-depth interviews were conducted with participants who shop at physical fashion retail stores in the Gauteng province of South Africa. Open coding, axial coding, categorization, and thematization was conducted. Initially, open coding was employed to break down the data into discrete parts, where significant patterns and concepts were identified. This was followed by axial coding, where these concepts were groups into broader categories based on their relationships and similarities. Finally, thematization involved grouping these categories into overarching themes that represent key motivational drivers in customers' decisions to shop in physical fashion retail stores.

To ensure the reliability of the coding process, two independent coders analyzed the data separately. After the initial coding phase, the results were compared, and any discrepancies were discussed. This step ensured that the coding was consistent and reflected the participants' responses accurately.

A non-probability convenience and judgment sampling method was used to select participants. The sample size involved ten participants who are regular customers at physical fashion retail stores in Gauteng. The rationale for including these participants is to ensure that only those participants who had relevant experience and insights into the research topic were selected to partake in the study.

The research was conducted in South Africa's Gauteng province. Gauteng is South Africa's wealthiest province, with Sandton being the wealthiest city on the African continent. The assumption was that this would imply that customers may be able to spend more of their discretionary income on fashion-related items.

Primary data was collected through in-depth interviews, focusing on participants' in-store shopping experiences and perceptions of store attractiveness. The interviews were semi-structured, allowing for flexibility in exploring different aspects of customer motivation and experience.

Only participants aged 18 years and older were invited to participate in this study for ethical reasons. Permission was obtained from research participants prior to interviewing. Participants were asked to sign a consent form to partake in the study in which they indicated their voluntary consent to participate in the study; the form indicated that their identities and responses would remain anonymous. In cases where participants' responses were quoted verbatim as supporting evidence in an article or conference paper, participants were assigned a participant number to ensure anonymity. This participant number was assigned when transcribing the data, and by so doing, ensured participant anonymity during data analysis.

3. Results and Discussion

The analysis revealed six main themes that motivate customers to frequent physical fashion retail stores in Gauteng, South Africa: browsing, fitting, timeliness, therapy, socializing, and expectation.

Theme 1: Browsing

The study's results indicate that most participants enjoy looking at and examining a physical product when shopping at a physical fashion retail store. A large majority of the participants also indicated that they prefer touching and feeling a product when shopping, as opposed to merely viewing these items online. A few participants indicated that they specifically shop at a physical fashion retail store when they are shopping for clothing. Some of the participants also mentioned that they enjoy shopping at a physical fashion retail store to identify the latest fashion and trends, whether it is from in-store displays or by observing fellow customers, paying attention to what they are wearing or buying at the time. Participant 1 said: "*…seeing maybe even what other people are picking out, and so that also gives me an idea of what is currently the fashion or like in style*". Participant 7 said: "*You can actually see what the color really looks like…*".

The ability to touch and feel products and inspect products for quality and detail is often cited as an advantage over online shopping (Silva et al., 2021). Seeing and touching a product provides assurance and satisfaction to customers (Lennon et al., 2017). According to Grewal et al. (2017), the tactile nature of physical shopping enhances customer experience by enabling customers to discover new products and the latest trends.

Theme 2: Fitting

The results of this study indicate that most of the participants preferred to try on fashion items prior to the purchase of such products in physical fashion retail stores. Participant 1 said: "*…I like when I decide to purchase something I like to try it on and see what it looks like on me before I choose to purchase it*." Participant 2 said: "*…clothes I rarely like buy online, just because I never know if it will like fit on me*".

The fitting room experience is crucial as it allows customers to assess the comfort and fit of clothing, reducing the risk of post-purchase dissatisfaction (Park et al. 2012). The importance of fitting rooms influencing purchase intentions suggests that fitting rooms should be clean, spacious, and well-lit to increase customer satisfaction (Kim and Lennon, 2013).

Theme 3: Timeliness

The majority of participants indicated that they prefer to purchase items directly from a physical fashion retail store rather than waiting for delivery, since they could use the product immediately. Due to the simplicity and convenience of exchanging or returning items in person, a few participants stated a preference for shopping at actual fashion retail establishments. Due to the time-consuming nature of website navigation and product discovery, one participant stated that they dislike shopping online. Participant 2 said: "*…convenience in a sense of like needing it right now, driving to a store is like really helpful*". Participant 3 said: "*…sometimes you need an item of clothing tonight or tomorrow and then you need to just drive and, yea, get it*".

This preference for instant gratification is further supported by research showing that customers appreciate being able to have immediate possession and use of their purchases (Gupta and Gentry, 2016). Harris et al. (2017) reiterate that it is also convenient in terms of returns and exchanges, adding to the appeal of in-store shopping because it makes fixing size, fit, and quality problems so much easier.

Theme 4: Therapy

The results of the study indicate that most of the participants preferred to shop at physical fashion retailers as it provides a unique experience and a sense of escape. Participants mentioned that that they prefer to shop at a physical fashion retail store, because they find it therapeutic in some sense. Participant 7 said: "…*it is a whole experience going out there and buying something to wear*".

This finding is reflected in previous research conducted on the psychological benefits accruing from shopping, in which shopping has been said to be able to take on a form of leisure and provide relief from various stressors (Kang and Johnson, 2011). The in-store shopping experience has a sensory and social nature that can be considered therapeutic and that can have a positive impact on mood and well-being (Rohm and Swaminathan, 2018).

Theme 5: Socializing

The results of this study indicate that a large majority of participants enjoyed socializing in a physical fashion retail store, whether it be with friends, other customers, or with the sales staff. Participant 4 said: "*Human interaction. So, just to get out sometimes and not just be on your phone*". Participant 5 said: "*For me, it's very beneficial if I can speak to an assistant, and even if there are other clients in the store fitting with me, I like to converse with them and maybe get their opinions*". Participant 8 said: "…*I love getting out of the house and seeing people. I like the interaction with other people*".

Socializing during shopping enhances the experience by providing opportunities for interaction and shared enjoyment (Huang and Hsu Liu, 2017). The role of social interaction in customer satisfaction creates the need to train staff to be friendly, knowledgeable, and attentive (Grewal et al., 2017).

Theme 6: Expectation

The study underscores the strong preference of most participants for physical fashion retail stores over online shopping, attributing this preference to their confidence in knowing precisely what to expect with in-store purchases. This assurance stems from two vital factors: the ability to visually and tactilely inspect items, enabling them to assess color, fabric, texture, and quality, as well as try on products to gauge fit and suitability, and the in-person confirmation that ensures purchased items match expectations, eliminating the disappointments often associated with online shopping where products may not meet the mental image created during the online selection process. Participant 6 said: "*I end up spending more time or money than I intended to. That is why I prefer to go to a shop and just look for the stuff I really need*". Participant 7 said: "…*I find buying from an e-commerce store…scary…I don't know if it is going to fit, I don't know if it's going to look nice, I don't know if I am going to like the color because the color could be different and I don't like – I don't know if I'm going to like the material even. So, I did recently buy something online and I absolutely hated the material*".

The ability to inspect a product both by look and feel before buying guarantees that items are according to expectations, thus diminishing the risk of disappointment (Lennon et al., 2017). Reliability is especially important in products for which fit and material quality matter, such as fashion items (Bäckström and Johansson, 2017).

Conclusions, limitations and future directions of research

The findings from this study provide important insights for retail managers and marketers within South Africa's fashion retail sector to work on the improvement of the in-store experience and the creation of more attractive stores. Identification of these motivational

drivers – browsing, fitting, timeliness, therapy, socialization, and expectation - confirms the knowledge of the multi-faceted nature of customer preference for physical retail environments. It is through this emphasis on these elements that retailers create a much more engaging and fulfilling shopping experience, which became vital in terms of customer attraction and retention due to the challenges posed by the COVID-19 pandemic and the rise and proliferation of online shopping.

Furthermore, this study contributes to the academic literature on consumer behavior and retail management by identifying six key motivational drivers that influence customers to shop in physical fashion retail stores in South Africa. It extends existing theories on shopping motivation and the customer experience by offering a context-specific understanding of how sensory experiences and social interactions impact in-store shopping behavior. The findings provide valuable insights for advancing theoretical frameworks such as Pine and Gilmore's 'Experience Economy' while also introducing the concept of 'therapy shopping' which requires further exploration. Additionally, this research addresses a gap in the literature by focusing on the South African retail environment, offering a localized perspective that can inform global retail strategies.

Drawing from the study's findings, several actionable recommendations can be made to retailers seeking to improve their physical store environments. Most importantly, retailers should strive to create a multisensory shopping experience through optimizing store design, lighting, and music in a physical fashion retail store to make customers feel welcome and eager to explore and enjoy the shopping experience. The fitting rooms are also imperative to invest in, considering that trying on clothes forms a major part of the shopping activity. It is crucial that businesses incorporate fitting rooms that are well-designed, clean, spacious, and well-lit to ensure improved customer satisfaction and increase sales. Another critical factor is the emphasis on customer service. The staff's friendliness, knowledge, and attention can enhance the social dimension of shopping, thereby increasing customer loyalty. Since social interaction is one of the critical factors in customer satisfaction, retailers must use this to their advantage by establishing a friendly, warm, and engaging environment for all customers (Grewal et al., 2017; Huang and Hsu Liu, 2017).

Physical fashion retailers should integrate technologies like augmented reality and artificial intelligence to offer personalized shopping experiences, allowing customers a clearer view of the products. This closes the gap between online and in-store shopping, offering customers new ways of interacting with products as described by El-Adly and Eid (2016). In addition, retailers should focus on immediate gratification by emphasizing the immediacy and convenience of buying products in-store to distinguish physical stores from their online competitors. Accordingly, this would lead to a buying decision that emphasizes instant possession and easy return to draw customers who value the time utility and convenience features of a sale (Gupta and Gentry, 2016). Finally, shopping events could be created as an element of entertainment by hosting workshops, promotional events like seasonal sales or fashion shows, and by incorporating interactive displays. By offering customers memorable experiences, retailers can increase footfall and create long-term relationships (Bitner, 1992; Pine and Gilmore, 2011). Focusing on these areas allows retailers to create a more engaging and satisfying shopping experience, hence elevating their competitiveness in the market.

This study has several limitations that should be acknowledged. The qualitative nature of the research and the small sample size of ten participants may limit the generalizability of the findings. Additionally, the study was conducted in Gauteng, which, while economically significant, may not fully represent the diverse consumer behaviors and preferences across South Africa. Furthermore, the data collection relied on self-reported information from participants, which may be subject to biases and inaccuracies.

Future research should aim to address these limitations by employing quantitative methods and larger, more diverse samples to validate the findings. Expanding the study to include multiple regions within South Africa and other countries could provide a more comprehensive understanding of consumer behavior in physical fashion retail stores. Additionally, longitudinal studies could offer insights into how customer motivations and preferences evolve over time, particularly in response to changes in the retail landscape and technological advancements.

Further research could also explore the impact of specific sensory elements and customer service practices on shopping behavior in various retail settings. Investigating the role of emerging technologies, such as augmented reality and artificial intelligence, in enhancing in-store experiences could provide valuable insights for retailers looking to innovate and adapt to changing consumer expectations. By continuing to explore these areas, researchers can help retailers better understand and meet the needs of their customers, ultimately leading to improved customer satisfaction and business success.

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Corporate Social Responsibility in the Age of Artificial Intelligence

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Abstract
The present paper aims to determine the main impact of artificial intelligence (AI) tools and practices on corporate social responsibility (CSR). The center of the interest of the study is how emerging technologies have an influence on areas such as environment, society (health, education, smart cities and peace, justice, and strong institutions) and economy. The study shed light on the influence of artificial intelligence to corporate social responsibility actions by optimizing resources, enhancing access to services that are essential for living, and facilitating sustainable innovation. For this purpose, a literature review and a secondary data analysis were involved. At the same time, the paper is also approaching the topic of the risks of AI implementation. Among this, the study presents the privacy threats, cybersecurity or the ethical dilemmas in relation with the use of data.

Keywords: Sustainability, corporate social responsibility, artificial intelligence.

JEL classification: M31, D31, Q56.

Introduction

Digitalization can be considered the topic of the day, having the power to reshape all of our interactions, businesses and information and its impact is also affecting the society and economy. The concept of artificial intelligence (AI) is an emblematic part of digitalization which is already integrated into various aspects of our lives, having the capacity to analyze a lot of data, automate different tasks and solve complex problems. Taking this into account, artificial intelligence offer new opportunities for innovation and efficiency and the same time, it reshapes the concept of CSR in the digital world.

The notion of sustainability was brought to light in 1987, when the Brundtland Commission defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Nishant, Kennedy and Corbett, 2020). Corporate Social Responsibility (CSR) is definitely not a new term - it is defined as "how firms integrate social, environmental and economic concerns into their values, culture, decision-making, strategy and operations in a transparent and accountable way, thereby establishing better practices within the firm, creating wealth and improving society" (Oduro, Bruno and Macario, 2021).

The term artificial intelligence concept implies, "The study of intelligent problem solving behavior and the development of intelligent computer systems. In essence, AI encompasses the operational processes of machines that would require intelligence if performed by humans" (Mhlanga, 2021). In short, AI refers to the impact created by replicating human intelligence in computers (Zhao and Farinas, 2023). Nowadays, the topic of artificial intelligence is more and more present in almost every business sector or industry, offering the possibility to make a transformation for our lives and work and holding great promises for the economy and society (Goralski and Tan, 2020).

The most important benefits of AI that can be take into consideration are related to the automation of work, avoiding repetitive tasks, coordination of computers or others resources a to solve complex problems and even the possibility to discover key insights from enormous

amounts of data (Nishant, Kennedy and Corbett, 2020). These benefits are of interest for both public and private sectors. For instance, through AI, governments have the opportunity to respond to cybersecurity risks and in the same way, companies can benefit from it, automating investment decisions or creating customer support driven by AI (Truby, 2020).

1. Research Questions

In the context of analyzing the impact of artificial intelligence (AI) on corporate social responsibility (CSR), this research aims to answer the following questions: 1) *How can AI influence sustainability in areas of environment, society and economy? 2) What are the risk associated with the usage of AI in terms of CSR?* By addressing these questions, the paper will provide a robust understanding of the potential of AI to support responsible and sustainable development, while highlighting the importance of implementing appropriate measures to address emerging challenges.

2. Research Methods

The methodology of this research is based on conducting a review of the existing scientific literature, aiming to explore the impact of AI on CSR. This approach involved the critical analysis of relevant work in the field, including empirical studies, theoretical articles and systematic reviews, to identify key trends and conclusions of AI in the fields of environment, society and economy.

3. Literature Review

Sustainability and Corporate Social Responsibility

Sustainability is pushing companies to employ digital technologies in all fields of activity. To realize their environmental responsibilities, organizations can use advanced technologies such as AI, ML (Machine Learning), predictive analytics and IoT (Internet of Things). They should also integrate sustainability into their digital plans. Digital tools for tracking and sharing data can help identify and address environmental problems early (Rosario and Dias, 2022). Also, other studies (Feroz, Zo, Chiravuri, 2021; Goralski and Tan, 2020) talk about how digital technologies (including AI, big data analytics, mobile technologies, IoT and social platforms) bring significant improvements to society and industry. They are increasingly being used to enhance environmental sustainability, with companies developing new products and platforms to this end.

Artificial intelligence in CSR – a double-edged sword

In terms of business sustainability, artificial intelligence (AI) is like a coin with two sides. On the one hand, artificial intelligence can make a real contribution to solving difficult social and environmental problems. But on the other hand, it could also bring new problems such as biases and ethical issues (Zhao and Farinas, 2023). AI has advantages such as utilizing big data and creating new value for businesses through authenticity, augmentation and automation. In the corporate environment, AI can improve the effectiveness and efficiency of corporate social responsibility programs. Companies and stakeholders will benefit from the advantages of AI in terms of economic value and solutions to promote business resilience to sustainability threats and social challenges. However, we need to be cognizant of the potential risks and concerns associated with the use of AI to ensure that it aligns with human values (Zhao and Farinas, 2023). Artificial intelligence (AI) is revolutionizing corporate social responsibility (CSR) by improving data analytics, predicting risks, providing supply chain transparency, personalizing stakeholder engagement, automating tasks, and enabling real-time monitoring. AI-enabled CSR strategies enable companies to make informed decisions, minimize risks, involve

stakeholders effectively, and scale initiatives efficiently, driving positive change for society and the environment (The CSR Journal, 2024).

Areas of action

Environment

Artificial intelligence for sustainability research covers diverse areas and topics, focusing on environmental issues. Here, the areas of biodiversity, water, energy, and transportation are mainly impacted by AI (Nishant, Kennedy, and Corbett, 2020). Many sectors and industries are using technologies (big data analytics, IoT, mobile technology, social media or artificial intelligence) to implement sustainable solutions. Such an approach is smart water management system that can utilize AI to identify waterborne diseases (Rosario and Dias, 2022), offering a tracking system in real time and a support for decision making and enhancing productivity and reducing cost for water utilities (Goralski and Tan, 2020).

When it comes to actions for climate, AI can help to a better understanding of climate changes and the impact of it, supporting low-carbon energy systems and offer an improvement for the health of ecosystems. For instance, the oil spills in the ocean can be instantly detect by algorithms or desertification and land degradation can be supervised by AI techniques. It is also important to note that the use of non-carbon-neutral energy sources could thwart efforts to combat climate change, given that AI applications require a large amount of energy. (Vinuesa et. al., 2020). Overall, by using these digital tools, companies, governments and other organizations can work towards a more sustainable future (Rosario and Dias, 2022).

> „All these environmental impacts are expected to escalate considerably, with the global AI energy demand projected to exponentially increase to at least 10 times the current level and exceed the annual electricity consumption of a small country like Belgium by 2026" (Harvard Business Review, 2024).

At the same time, IT is the essential infrastructure for improving public and private services, including governance efficiency, business innovation, cultural development, and sustainability. The vast data generated by IoT can be analyzed by AI to support the governance, culture, and functioning of a smart city (Nishant, Kennedy and Corbett, 2020). Digital technologies are changing how pollution is monitored and managed. They're making a big difference in dealing with issues like air pollution, carbon emissions, wastewater treatment, disaster response, and climate change. Artificial intelligence is being used more and more to control environmental pollution because it's good at dealing with complex environmental problems. Similarly, big data is crucial in getting large-scale green vehicles on the road and supporting low-carbon transportation, which helps cut down on CO2 emissions. For example, using big data to set carbon dioxide emission limits for decision-making units can reduce environmental harm at a lower cost (Feroz, Zo and Chiravuri, 2021).

Society

Health

Digitalization and digital technologies are key to improving access to healthcare and promoting well-being. Quality of life is a subjective perception, which includes physical, mental and social well-being, and mobile apps and computers facilitate communication between patients and healthcare providers. Implementing eHealth gives individuals the power to manage their health, improve their well-being, and prevent future health problems. Internet of Health Things (IoHT) applications contribute to improving the quality of life of patients with chronic conditions, and those involved in e-health achieve positive results similar to those

in traditional care. The utilization of telemedicine and digital resources aids in diminishing medical resource usage and expediting care attention (Mondejar et. Al., 2021).

As Secinaro et al., (2021) discuss, artificial intelligence (AI) is transforming healthcare across several fronts. It enhances health services management by providing real-time updates, coordinating patient information, and predicting outcomes, especially crucial during the COVID-19 pandemic. Predictive medicine benefits from AI's ability to identify disease patterns, predict outcomes, and personalize treatments. In clinical decision-making, AI accelerates processes and improves cost-effectiveness. Moreover, AI aids in patient data management and diagnostics, analyzing vast data sets, aiding in diagnostics, and supporting surgical procedures and rehabilitation. Overall, AI revolutionizes healthcare by streamlining processes, improving outcomes, and advancing patient care.

Similarly, Guo et al. (2020) show that the use of AI in healthcare improves the diagnosis, treatment, and management of diseases, providing benefits to both patients and professionals in the field. AI accelerates diagnosis and increases accuracy, creating valuable opportunities for improving disease management and patient care. This progress suggests that AI is becoming crucial for the development of the healthcare sector, with the potential to transform the delivery and receipt of healthcare.

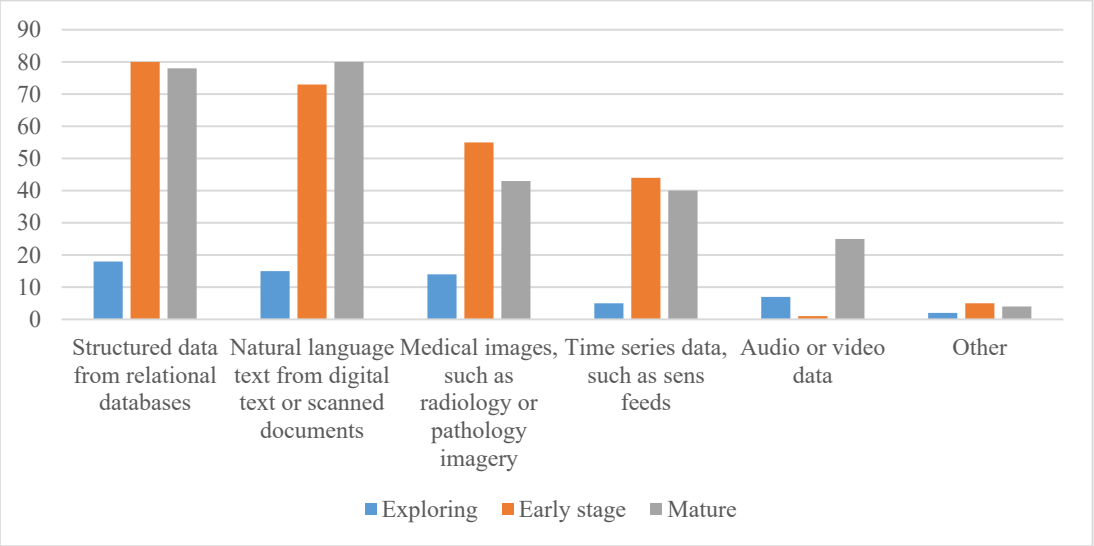

Figure 1. Share of applications of AI models on health data worldwide as of 2021, by adoption stage
Source: Statista, 2024

The figure above shows that the maturity level in the use of data types by respondents, divided into three stages: exploration, early stage and maturity. Structured data from databases and digital texts are the most advanced, with 80% of respondents in the maturity stage. Medical images are at an intermediate level, with 55% at maturity state, showing that this type of data is used, but with some challenges. Time serios data are also used quite often, but the distribution between states is more balanced, suggesting greater complexity. Audio/video and other data types are the least mature, with only 25% and 5% at the maturity states. Overall, structured data and digital text are the most used, followed by medical images and time serios, and audio/video remain the least developed.

Education

The integration of artificial intelligence in education (AIED) offers promising opportunities for optimizing learning applications and supporting students. However, the implementation of these solutions represents a significant challenge for researchers and

professionals, requiring both technical skills and knowledge from various fields. The development of intelligent tutoring systems and adaptive learning systems requires programming skills and the ability to simulate human intelligence. Therefore, it is crucial to have a detailed understanding of the possibilities and limitations of AI technology to ensure the effective implementation of these applications and to explore important issues in the field of AIED (Hwang et al., 2020). Also, the use of AI-assisted assessment in education is a key opportunity for meaningful transformation. Instead of traditional assessments, which focus on final results, AI facilitates the implementation of continuous feedback systems, integrated directly into the learning process. This opens up new possibilities for monitoring gradual progress and allows for the creation of personalized learning paths. Therefore, AI has the potential to revolutionize the way we approach assessment in education (Cope, Kalantzis, & Searsmit, 2021).Smart learning analytics supports educators in adapting content to students' progress and performance, giving them the chance to track their progress and compare themselves with their peers. It helps teachers identify gaps in students' knowledge and skills, encouraging them to develop their skills at a pace adapted to their needs. Additionally, the system includes services that respect student consent, ensuring data privacy and control over how it is used (Yang et al., 2021).

„75% of higher education leaders believe that AI will play a critical role in shaping the future of their institutions" (Shalwa, 2024).

Smart cities

Technology plays a key role in shaping smart cities, contributing significantly to their progress through innovative uses. In the context of these cities, information and communication technologies (ICT) are used to automate various processes, aiming to improve the quality of life in urban environments. At the same time, integrated intelligence technologies are applied to optimize municipal infrastructure and ensure more efficient governance, involving the community in the administration of the city. Various modern technologies and innovative methods enable the development of smart service models that increase efficiency and improve operations in sectors such as health, transportation, energy, and education (Herath and Mittal, 2022). In smart city projects, areas such as smart transport, cybersecurity and smart grids are of particular importance. Big Data analytics and the use of techniques based on artificial intelligence (AI), machine learning (ML) and deep reinforcement learning (DRL) profoundly influence these sectors, increasing the efficiency and scalability of smart city projects. For example, modern intelligent transport systems (ITS) rely heavily on ML and DRL techniques to develop autonomous vehicles, ensure the security of connected vehicles, optimize passenger transport, and guarantee safe travel. Cybersecurity is a fundamental aspect for achieving the ideal concept of a smart city, having an essential role in this context. In order to implement the security plan presented in the figure, it is necessary to develop a robust, dynamic and comprehensive cybersecurity plan for all components of the proposed architecture. The impact of AI, ML, and DRL-based techniques on cybersecurity is significant and has influenced almost all sectors of a smart city (Ullah et al., 2020).

Tabel 1. Smart cities dimensions for AI applications

Dimension	Examples
AI for governance	urban planning, tailored subsidy provision, disaster prevention and management
AI for living and livability, safety, security and healthcare	smart policing, personalized healthcare, noise and nuisance management and improved cyber security

AI for education and citizen participation	locally accurate, validated and actionable knowledge supporting decision-making.
AI for economy	resource (cost and time) efficiency and improved competitiveness through, sharing services, efficient supply chains and customer tailored solutions
AI for mobility and logistics	autonomous and sustainable mobility, smart routing and parking assistance, supply chain resiliency and traffic management
AI for infrastructure	optimized infrastructure deployment, use and maintenance, including waste and water management, transportation, energy grids, and urban lighting
AI for the environment	biodiversity preservation, urban farming and air quality management.

Source: European Parliament, 2021

Peace, justice, and strong institutions

The use of technology and big data in maintaining peace and security offers significant opportunities for improving conflict prevention and peacebuilding approaches. However, the deployment of these technologies faces challenges related to limited internet access in conflict-affected areas and ethical data privacy dilemmas (Wahlisch, 2020). Artificial intelligence systems have a considerable impact on human rights, expanding the state's obligations in this area. As the use of data and algorithmic systems becomes more frequent, respect for human rights can no longer be restricted to data protection and non-discrimination alone. Automated systems are used in various fields, such as banking, insurance, education and armed conflicts, influencing democratic processes. The use of algorithmic technologies can influence human rights in various areas, such as education, social assistance, and democracy (Završnik, 2020).

> „Some estimates suggest that 69% of the work done by legal assistants can be automated by existing technology, including AI. The same is true for between 16% and 21% of the work done by judges. Through natural language processing (NLP) for example, algorithms can get to work to review documents and contracts, validate, and find relevant ones. Not only does this reduce the amount of time required to process cases, it also decreases the cost of providing legal services" (Capgemini, 2021).

Economy

In theory, the use of digital technologies plays a crucial role in stimulating economic growth, according to the World Bank (2015). One of the ways in which these technologies contribute to economic growth is by transforming the way transactions are carried out, especially through e-commerce and online business, which facilitates the flexibility of banking operations and improves communication, which ultimately leads to increased productivity and economic development (Myovella, Karacuka, & Haucap, 2020). Advances in artificial intelligence (AI) have also led to lower costs in traditional automation and the introduction of intelligent automation, which not only provides a new virtual workforce but also contributes to economic development. An enhancement in labor activity and productivity and in the quality of capital is noticed through the relation between real workers and machines (Qin et al., 2023).

One benefit of AI that companies can take advantage of is replacing human workers and reducing the need for labor by integrating artificial intelligence technologies into their production and business processes. This change means an increased productivity and it is not

translated only into improved quality but also into reduced productions cost which support economic growth. (Qian et al., 2023).

> „45% of total economic gains by 2030 will come from product enhancements, stimulating consumer demands. This is because AI will drive greater product variety, with increased personalization, attractiveness and affordability over time" (PwC, 2018).

Risks of AI in CSR

Despite the fact that, on a short-term basis, AI technology can bring economic benefits, on the long-term, it can also involve some certain threats like ethical problems, unemployment risks (Zhao & Farinas, 2023) or privacy (Qin et al., 2023) and security concerns (Truby, 2020).

Cybernetic risk

Artificial intelligence technologies used for environment involve enormous datasets from different source, each with different formats and structures. Increased cybersecurity risks and the complexity of data management require skills in navigating data standards and integration protocols. While isolated approaches can reduce cyber risks to some extent, they are often ineffective and may not deliver the desired results. Careful integration is crucial to prevent hackers from accessing critical data (Nishant, Kennedy, & Corbett, 2020). As artificial intelligence and related technologies progress, proposals for regulating them have also increased in recent years (Galaz et al., 2021).

Labor force

New technologies and artificial intelligence bring risks and can create situations where some win and others lose. For instance, employees who perform repetitive tasks and without a digital component could be replaced or face stagnant or even declining incomes. Income gaps between different categories of workers could increase due to changes in skills requirements. On the one hand, with proper management, artificial intelligence has the potential to stimulate productivity and increasing income, and also to create a way to more socially inclusive and environmentally responsible initiatives. On the other hand, the misuse of AI tools can have negative consequences and generate a backlash against them (Goralski & Tan, 2020).

Ethical risks

Artificial intelligence faces significant challenges in managing complex decision-making situations such as emotions, habits or beliefs. In present, there are many concerns regarding the way in which AI will influence the human control and generate unknown social risks (Guan, Dong, & Zhao, 2022).

Personal privacy

Among the negative effects of AI is also the privacy issue. Organization must be very vigilant when it comes to usage of private data of users. A responsible and social conscious way to use AI that check and reduce the associated risk is mandatory (Zhao and Farinas, 2023).

> „AI will be one of the leading components in innovation, competitiveness, and productivity. But, as there are exponential values to the technology, so are the ethical and societal risks - a technological negative spill-over. Unintended consequences of AI, like discrimination, privacy intrusion, lost autonomy, social exclusion, and deep fakes, must be avoided. These consequences will violate Human Rights as well as have severe negative financial and reputational impacts. Organizations must stand accountable for how their use of data and AI affects

people and society. Business models need to take account of the "tech-spill" to ensure sustainable profits and financial growth. Sustainable AI is hence a natural component in CSR and ESG reporting. The screening and risk assessment of these unintended ethical and societal risks will be an important step to embrace AI in a responsible and ethical way – to create innovations humans can trust. Also, in the wake of the organization's actions to get ready for the upcoming EU regulation on AI, this is a moment to see the positive effects on competitiveness from the proposed EU regulation on AI" (European Commission, 2022).

Conclusions

The accelerated integration of digitalization into multiple aspects of our lives is reconfiguring the way we interact, conduct business and access information, generating promises to increase efficiency, connectivity and innovation across the economy and society. Artificial Intelligence (AI) is at the heart of this transformation, representing an example of the profound impact of digital technologies. With its ability to automate processes, analyze huge amounts of data, and solve complex problems, AI opens up new possibilities for innovation and optimization, while also redefining the concept of social responsibility in the digital context.

However, as AI develops, it becomes essential to implement it in a responsible and ethical way to support its continued progress. In the absence of this approach, there is a risk that its efficiency and ethical standards will be affected. The spread of AI also brings with it new challenges, such as privacy breach risks and algorithmic bias trends, which requires a careful framework of accountability and oversight. By adopting regulations that encourage the responsible use of AI and carefully monitoring and managing related risks, we can exploit its potential to generate positive social impact while minimizing possible negative effects.

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Consumer Self-Identity, Emotions, Ethical Beliefs, and Authenticity about Ethical Purchasing of Consumer Goods for a Circular Economy Model

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Abstract
We examine how consumers' feelings of guilt and their ethical beliefs—precisely idealism and relativism—impact their purchasing decisions related to Greece's Circular Economy Model (CEM). By focusing on customer satisfaction and engagement, we aim to understand better how consumers interact with sustainable products within the circular economy, building upon Burke and Reitzes' (1981) Self-Identity Theory (SIT). Additionally, we explore how consumer authenticity influences the relationships between moral beliefs, guilt, and ethical purchasing behavior. A structured online questionnaire was distributed via Google Forms to address three research objectives. It included nine demographic and six structured questions. A convenience sample of 371 respondents from Athens, Thessaloniki, Patras, and Heraklion, consisting of Hellenic Open University students and coworkers buying eco-friendly products, participated. Statistical analysis tested seventeen research hypotheses, supporting eleven, rejecting five, and yielding inconclusive evidence for one. The study reveals a nonlinear positive association between ethical beliefs and three key factors: ethical purchasing behavior, purchase intention, and adopting sustainable consumer practices. Additionally, a linear positive relationship exists among adopting sustainable consumer behaviors, ethical purchasing behavior, and ethical purchase intention. The connections between ethical beliefs and the adoption of sustainable consumer practices, as well as those between ethical beliefs and ethical purchase intention, are influenced by consumer authenticity. The findings of this study have critical theoretical, research, managerial, and practical implications for academics and marketing managers, supporting the initial assumptions.

Keywords: Circular Economy Model, Ethical Beliefs, Self-conscious Emotions, Ethical Purchase Intention, Consumer Authenticity, Ethical Purchase Behavior, Adoption of Sustainable Consumption Practices.

JEL classification: M31, M39.

1. Introduction

1.1. Research aim and research problem

To transform into a competitive, low-carbon, sustainable economy, the EU must adopt a circular economy that reduces waste while preserving the value of goods and resources. This approach presents opportunities for Europe (European Commission 2015, 2017) and revamping the Greek economy (e.g., Trigkas et al., 2020). However, challenges arise in a social media-driven environment where consumer behavior is influenced by authenticity (Khan & Abbas, 2023; Sarkar et al., 2023). The effectiveness of sustainable consumption practices in business has been widely studied.

The literature needs to address consumer roles in ethical purchasing practices better. Santos-Corrada et al. (2024) highlight the importance of understanding consumer psychological mechanisms and behavior constructs. This research will examine the effects of consumers' ethical beliefs (idealism and relativism) and guilt on ethical purchasing behavior within Greece's Circular Economy Model (CEM). We will build on the theoretical work of

Mostaghel and Chirumalla (2021) and Santos-Corrada et al. (2024). Our research intention is to explore how consumer authenticity, ethical beliefs, and self-conscious emotions influence ethical purchase intentions and sustainable consumption practices.

1.2. Research objectives and initial assumptions

Mostaghel and Chirumalla's (2021) work builds on Santos-Corrada et al. (2024) and significantly contributes to the field. Khan and Abbas (2023) highlight the importance of ethical beliefs and consumer authenticity, while Barbeta-Viñas (2023) examines self-conscious emotions.

The research objectives of this study are: (1) To explore the relationships between ethical belief systems (idealism and relativism), ethical purchase intentions, behaviors, and sustainable consumption practices among Greek consumers regarding consumer goods toward CEM. (2) To analyze the relationships among self-conscious emotions, ethical beliefs, ethical purchase intentions, behaviors, and sustainable consumption practices of Greek consumers concerning consumer goods toward CEM. (3) To thoroughly investigate the moderating role of consumer authenticity on the relationships between ethical beliefs, self-conscious emotions, and their effects on ethical purchase intentions, behaviors, and sustainable consumption practices of Greek consumers regarding consumer goods toward CEM.

This study begins with three key assumptions: (1) Ethical beliefs (idealism and relativism) guide consumers in evaluating ethically questionable behavior toward CEM and sustainable consumption. (2) These beliefs and self-conscious emotions affect ethical purchase intentions, behaviors, and adopting sustainable practices as part of social responsibility. (3) As personal traits, consumers' expressions reflect their true selves, influencing the relationships among ethical beliefs, purchase behavior, and outcomes.

1.3. Importance of the topic expected contributions and justification for the focus of the study

Steg and Vlek (2009) highlight that cultural norms influence consumer behavior. Understanding Greek customers' ethical beliefs and self-perception is essential for developing culturally sensitive and sustainable projects. Santos-Corrada et al. (2024) build on the work of Mostaghel and Chirumalla (2021) and Khan and Abbas (2023), focusing on ethical beliefs and consumer authenticity. Barbeta-Viñas (2023) adds insights into the role of self-conscious emotions in this context.

The study integrates psychological concepts to connect consumption and sustainability. It examines the factors that influence ethical consumer behavior in circular economy practices and improves our understanding of ethical purchasing and consumption. We focus on self-identity, ethical beliefs, self-conscious emotions, and consumer authenticity to provide practical insights to marketers. The field of consumer behavior is essential for promoting sustainable consumption and circular economy principles, particularly for Greece's economic recovery (Kirchherr et al., 2017; Trigkas et al., 2020).

2. Theoretical framework, research model and literature support

2.1. Self-identity theory

Carl Rogers, a prominent psychologist, greatly influenced self-identification theory (Birdwell, 1968). He introduced the concept of self-concept, which refers to an individual's perception of themselves and their place in society. According to Rogers, people assess their identity through actions and achievements, comparing their self-perception to their "ideal self." A person's self-identity also encompasses various responsibilities and is shaped by factors like social identity and self-worth.

Self-perception significantly influences behavior by shaping how individuals evaluate themselves. This evaluation leads to adjustments in behavior to align with self-expectations. For instance, if someone sees themselves as feminine and connects that identity with affection, they will modify their behavior accordingly. Participation in graduate studies and planning activities reflects high academic responsibility and influences behavior. Identity shapes choices and activities, leading to selections that align with individual identities. The effects of actions on various facets of identity show intricate relationships between identification and attribution. Performance is influenced by identity and other factors, highlighting the complexity of activities related to one's sense of self (Burke & Reitzes, 1981).

2.2. Theoretical model for ethical purchase intention, and ethical purchase behavior of consumer goods toward the Circular Economy Model

Mostaghel and Chirumalla (2021) investigate the critical factors influencing purchasing intentions and customer behavior toward the retail sector's Closed Cycle Economy Units (CBMs). Customer input has often been overlooked despite the growing interest in CBMs. The study contributes three key insights: (1) it broadens the understanding of CBMs by incorporating a customer perspective; (2) it offers a theoretical framework examining ethical purchasing and consumer sensitivity towards social and environmental issues; and (3) it enhances knowledge of customer perceptions, aiding businesses in aligning their strategies with consumer expectations (Mostaghel & Chirumalla, 2021). The theoretical model by Mostaghel and Chirumalla (2021), adapted by Santos-Corrada et al. (2024), is relevant for this study as it addresses gaps in the literature through Burke and Reitzes' self-identity theory (1981). It examines how consumers' ethical beliefs (idealism and relativism) and feelings of guilt influence ethical purchasing behavior toward the Circular Economy Model (CEM) in Greece.

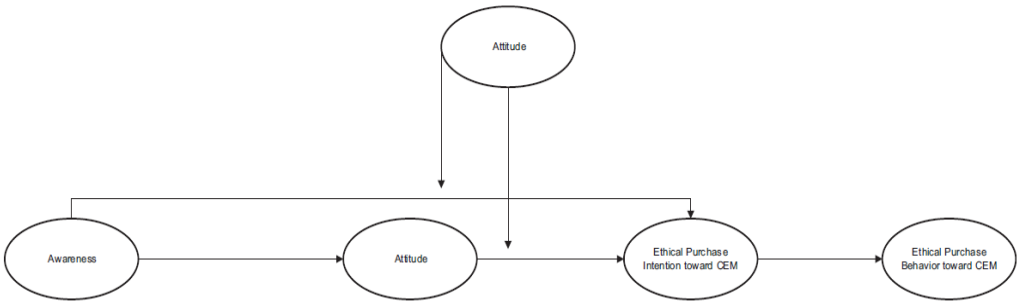

Figure 1. Theoretical model
Source: Santos-Corrada et al. (2024), p. 233

2.3. Hypotheses development

Research by Khan and Abbas (2023), Forsyth et al. (2008), and Henle et al. (2005) indicate that the intention to purchase environmentally friendly products positively influences consumer confidence and preference for retailers with a Green Comprehension Metric (CBM) (Mostaghel & Chirumalla, 2021; Wei et al., 2017). This recognition reflects a shift toward sustainable consumption and highlights consumers' growing awareness of environmental sustainability, leading them to choose products that align with their values. Therefore, we can state:

H1: Ethical beliefs positively influence ethical purchase behavior.

Recent research by Khan and Abbas (2023), along with prior studies by Forsyth et al. (2008) and Henle et al. (2005), highlights a distinction in ethical behavior in markets. Moral beliefs are categorized into idealism and relativism. Relativism deals with overarching moral standards, whereas idealism focuses on the collective benefit and the desire to buy eco-friendly

products (Santos-Corrada et al., 2024). This difference highlights the intricate nature of ethical reasons behind consumer decisions. Consequently, we can assert:

H2: Ethical beliefs positively influence ethical purchase intention.

Recent studies by Khan and Abbas (2023) and earlier works by Forsyth et al. (2008) and Henle et al. (2005) categorize moral beliefs into two main types: idealism and relativism. Relativism is based on generalized rules, while idealism focuses on the common good, which can positively impact ethical consumption and sustainable choices. It showcases the intricate motivations behind individual ethical beliefs and consumer behaviors. Further contributions by Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015) deepen this complex discussion.

According to the recent study by Khan and Abbas (2023) and previous research by Forsyth et al. (2008) and Henle et al. (2005), moral beliefs can be divided into two categories: idealism and relativism. Relativism focuses on principles derived from generalized rules, whereas idealism emphasizes the greater good, impacting sustainable purchasing choices. This underscores the intricate nature of ethical beliefs and consumer behavior. Insights from Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015) enrich this multidimensional topic, and thus, we can state:

H3: Ethical beliefs positively influence adoption of sustainable consumption practices.

Recent studies, including those by Barbeta-Viñas (2023) and Luan (2016), have shown that emotions like embarrassment, pride, guilt, and shame can arise when individuals question their self-perceptions. These emotions positively shape the ethical intent to purchase environmentally friendly products (Santos-Corrada et al., 2024; Mostaghel and Chirumalla, 2021; Malik et al., 2017). This study underscores the role of emotions in ethical decision-making and consumer behavior, and therefore, we can state:

H4: Self-conscious emotions positively influence ethical purchase intention.

Studies by Barbeta-Viñas (2023), Luan (2016), Scheier and Carver (1985), and Fenigstein et al. (1975) show that emotions like embarrassment, pride, guilt, and shame arise when individuals question their self-perceptions or how others perceive them. These conscious emotions significantly influence ethical buying behavior. Additionally, choosing to buy from retailers that embrace sustainable practices, as shown by Mostaghel and Chirumalla (2021) and Wei et al. (2017), further reinforces ethical purchasing intentions, promoting products with minimal environmental impact and consequently, we can state:

H5: Self-conscious emotions positively influence ethical purchase behavior.

According to several studies (Barbeta-Viñas, 2023; Luan, 2016; Scheier and Carver, 1985; Fenigstein et al., 1975), the emotions in shaping beliefs and self-perceptions are vital. Conscious emotions like embarrassment, pride, guilt, and shame significantly influence decisions and behaviors. These emotions can promote sustainable consumer practices by enhancing awareness, attitudes, and purchasing intent. Therefore, ethical consumption becomes a crucial tool for encouraging sustainable practices essential for development and environmental protection. Consequently, we can conclude that:

H6: Self-conscious emotions positively influence adoption of sustainable consumption practices.

Recent empirical works (e.g., Santos-Corrada et al., 2024; Mostaghel & Chirumalla, 2021; Malik et al., 2017) indicate that the intention to buy environmentally friendly products positively influences ethical consumer behavior, especially when purchasing from retailers committed to Corporate Social Responsibility (CSR). Highlighting these works the crucial role of environmental awareness in shaping sustainable purchasing habits, therefore, we conclude:

H7: Ethical purchase intention positively influences ethical purchase behavior.

Recent studies by Santos-Corrada et al. (2024), Mostaghel and Chirumalla (2021), and Malik et al. (2017) show that the intention to purchase environmentally friendly products positively influences sustainable consumer practices. This intention enhances consumer awareness, attitudes, purchasing intentions, and purchases. The research emphasizes ethical consumption as a critical factor in sustainable practices, with contributions from Schuitema and De Groot (2015) and Khan and Abbas (2023), alongside foundational work by Creyer (1997), and thus we can state:

H8: Ethical purchase intention positively influences adoption of sustainable consumption practices.

Ethical buying behavior is a complex phenomenon explored by various researchers. Mostaghel and Chirumalla (2021) and Wei et al. (2017) highlight that consumers are inclined to purchase from retailers using behavioral marketing (CBM), which encourages sustainable practices that are seen as a social dilemma. This process involves consumer awareness, market attitudes, buying intentions, and actual purchases. Ethical consumption is also viewed as a social good supporting sustainable practice. Critical insights from Schuitema and De Groot (2015) and Khan and Abbas (2023), along with Creyer's (1997) framework, further enhance understanding of this issue. Therefore, we can state:

H9: Ethical purchase behavior positively influences adoption of sustainable consumption practices.

Moral beliefs, as discussed by Khan and Abbas (2023), Forsyth et al. (2008), and Henle et al. (2005), serve as a framework for addressing ethical dilemmas, with idealism emphasizing others' well-being and relativism rooted in universal moral standards. Additionally, Mostaghel and Chirumalla (2021) and Wei et al. (2017) highlight that purchasing with environmental considerations promotes sustainable consumer practices. This awareness drives consumer choices, particularly toward retailers utilizing Behavioral Marketing (CBM) (Santos-Corrada et al., 2024; Mostaghel & Chirumalla, 2021; Wei et al., 2017), and therefore, we conclude:

H10: Ethical beliefs positively influence ethical purchase behavior through the intermediate effect of ethical purchase intention.

Conscious emotions, as described by Barbeta-Viñas (2023), Luan (2016), Scheier and Carver (1985), and Fenigstein et al. (1975), arise when individuals question how others perceive their value. These self-evaluative emotions include embarrassment, pride, guilt, and shame. They influence ethical purchase intentions, which can reduce environmental impacts and promote sustainable consumer practices. This relationship is framed within ethical consumption and social good, as noted by Santos-Corrada et al. (2024) and further explored by Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015). Therefore, we can state:

H11: Self-conscious emotions positively influence adoption of sustainable consumption practices through the intermediate effect of ethical purchase intention.

Consumer authenticity refers to how genuinely consumers express themselves, independent of external influences (Khan & Abbas, 2023; Kernis & Goldman, 2006). This concept differs from authentic consumption and brand authenticity. Authentic consumption relates to the overall experience of a consumption event and can influence the link between moral beliefs and ethical buying behavior. Moral beliefs, categorized as relativism (based on universal principles) and idealism (focused on others' well-being), help individuals evaluate ethical dilemmas (Khan and Abbas, 2023; Forsyth et al., 2008; Henle et al., 2005). Lastly, ethical buying behavior is indicated by a customer's purchasing decisions from shops that engage in consumer-based marketing (CBM) (Mostaghel and Chirumalla, 2021; Wei et al., 2017). Therefore, we can state:

H12a: Consumer authenticity moderates the relationship between ethical beliefs and ethical purchase behavior.

Consumer authenticity, as defined by Khan and Abbas (2023) and Kernis and Goldman (2006), refers to how true a consumer's expressions are to themselves rather than influenced by external factors. It differs from authentic consumption, focusing on the overall experience during a consumption event, and helps bridge the gap between moral beliefs and ethical buying behavior. Moral beliefs, which include idealism (concern for others) and relativism (basing morals on universal principles), guide individuals in evaluating ethical dilemmas (Khan & Abbas, 2023; Forsyth et al., 2008; Henle et al., 2005). Furthermore, as highlighted by Santos-Corrada et al. (2024), ethical buying intent is the desire to purchase items with minimal negative environmental impact. Therefore, we can state:

H12b: Consumer authenticity moderates the relationship between ethical beliefs and ethical purchase intention.

Consumer authenticity is the extent to which a consumer expresses their true self, independent of external influences (Khan & Abbas, 2023; Kernis & Goldman, 2006). Unlike authentic consumption and brand authenticity, which focus on the overall experience, consumer authenticity emphasizes genuine self-expression. This authenticity can moderate the relationship between conscious emotions—such as embarrassment, pride, guilt, and shame—and moral purchase intent. According to Barbeta-Viñas (2023), emotions arise when people question their or others' perceptions of value. Moral purchase intent refers to buying products that minimize environmental impact (Santos-Corrada et al., 2024). Therefore, we can state:

H12c: Consumer authenticity moderates the relationship between self-conscious emotions and ethical purchase intention.

Consumer authenticity, as defined by Khan and Abbas (2023) and Kernis and Goldman (2006), refers to the degree to which a consumer's expressions reflect their true self rather than external influences. This concept differs from authentic consumption, which refers to the holistic experience of consuming. Moreover, moral convictions, highlighted in various studies (Khan & Abbas, 2023; Forsyth et al., 2008; Henle et al., 2005), provide a framework for evaluating ethical behavior and fall into two categories: idealism (concern for others' well-being) and relativism (morality based on universal principles). As explored by Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015), adopting sustainable consumer practices involves awareness, attitudes, purchasing intentions, and ethical consumption, viewed as a social good that facilitates sustainable practices. Therefore, we can state:

H12d: Consumer authenticity moderates the relationship between ethical beliefs and adoption of sustainable consumption practices.

Consumer authenticity, as defined by Khan and Abbas (2023) and Kernis and Goldman (2006), refers to aligning a consumer's expressions with their true self, distinct from external influences. Authentic consumption represents the holistic experience during a consumption event, which can influence the link between conscious emotions and ethical buying behavior. According to Barbeta-Viñas (2023), emotions arise when individuals question their or others' perceived value, including embarrassment, pride, guilt, and shame. Ethical buying behavior, as noted by Mostaghel and Chirumalla (2021) and Wei et al. (2017), reflects consumers' purchasing practices from retailers with a conscious brand mission (CBM). Therefore, we can state:

H12e: Consumer authenticity moderates the relationship between self-conscious emotions and ethical purchase behavior.

Consumer authenticity, as defined by Khan and Abbas (2023) and Kernis and Goldman (2006), refers to the degree to which a consumer's expressions align with their true self rather than being influenced by external factors. This differs from authenticity and brand authenticity

and pertains to the overall consumption experience. Authentic consumption can influence the link between emotions and sustainable consumer practices. Barbeta-Viñas (2023) notes that emotions arise when one's value is questioned, with conscious emotions like embarrassment, pride, guilt, and shame being categorized as self-evaluative feelings. According to Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015), adopting sustainable consumption is viewed as a social dilemma, influenced by awareness, attitudes, and ethical consumption to promote social good. Therefore, we can state:

H12f: Consumer authenticity moderates the relationship between self-conscious emotions and adoption of sustainable consumption practices.

Table 1. Operational definitions of the key constructs

Constructs	***Definitions***	***Sources***
Ethical Beliefs	A set of moral principles or ethics that give people a framework for evaluating and resolving morally dubious actions. There are two categories of ethical beliefs: idealism and relativism. While relativism refers to the extent to which individuals base their moral philosophies on universal ethical rules, idealism refers to people's concern for the benefit of others.	Khan and Abbas (2023); Forsyth et al. (2008); Henle et al. (2005)
Self-conscious Emotions	Emotions are brought on when circumstances make one question one's own or other people's perceptions of their worth or value. Self-conscious emotions include embarrassment, pride, guilt, and shame. They are likewise known as self-evaluative emotions.	Barbeta-Viñas (2023)
Ethical Purchase Intention	Refers to the intention to purchase products that minimize the environmental impact.	Santos-Corrada et al. (2024)
Consumer Authenticity	The degree to which a consumer's expressions are true to themselves rather than a reaction to outside influences is known as consumer authenticity. Authentic consumption and brand authenticity are not the same as consumer authenticity. On the other hand, the subjective, holistic experience of a consumption event is what is meant to be meant by authentic consumption.	Khan and Abbas (2023); Kernis and Goldman (2006)
Ethical Purchase Behavior	The extent to which the consumer has made a purchase from retailer with a CBM.	Mostaghel and Chirumalla (2021). Wei et al. (2017)
Adoption of Sustainable Consumption Practices	Characterized as a social dilemma, it acts on awareness, attitude, purchase intention, and product purchase, and it is examined through ethical consumption, which is used as a social good to explain sustainable consumption practices.	Mostaghel and Chirumalla (2021); Schuitema and De Groot (2015)

Source: Authors

Adapting the model by Santos-Corrada et al. (2024) confirms its relevance and grounds our study in established theory. We address gaps in the literature using Burke and Reitzes' self-identity theory (1981), which is critical to understanding our research motivations and behaviors. The hypotheses derived from international literature are shown in Figure 1.

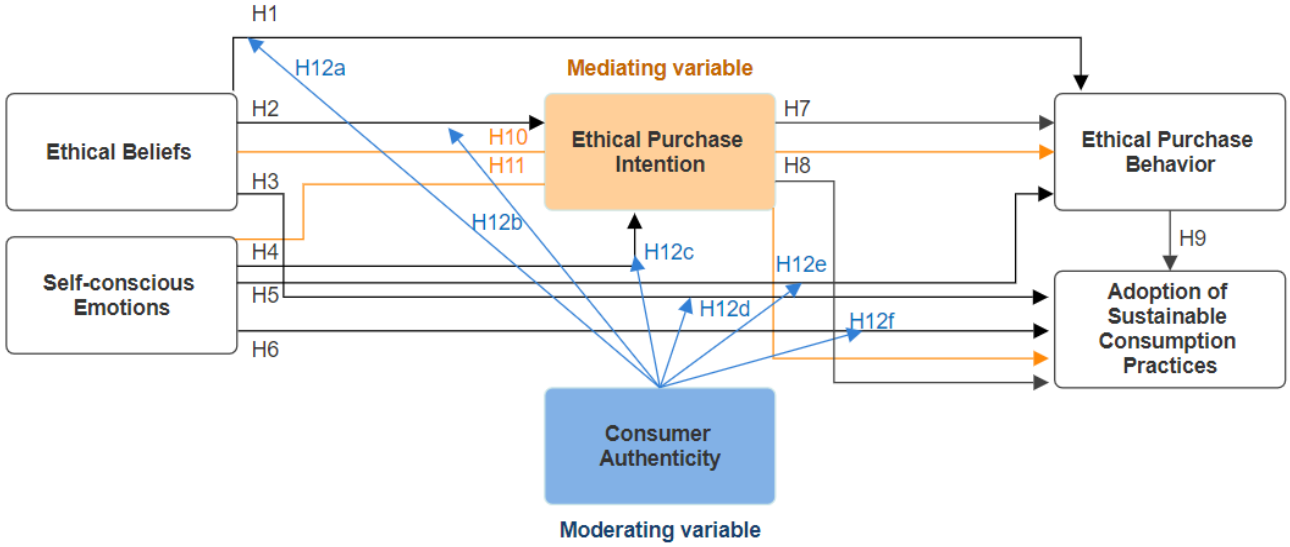

Figure 2. Research model
Source: Authors

3. Methodology

3.1. Research method, sample, sampling strategy, process and data collection

Our study uses a questionnaire survey method to gather quantitative data from a predefined group. We employ a self-administered structured questionnaire (SAQ), eliminating interviewer bias and enhancing data quality. Based on Chowdhury et al. (2022), a questionnaire consists of written or printed multiple-choice questions for statistical analysis. The study focuses on Greek consumers' ethical beliefs, purchase intentions, and sustainable consumption practices regarding consumer goods. We distributed the questionnaire online using Google Forms. Accurate data collection is essential for effective research (Berenson et al., 2015), and while analyzing an entire population yields authentic conclusions, sample analysis remains practical (Berenson et al., 2015).

3.2. Measures, measurement of variables and variables' level of measurement

We created a structured questionnaire for our study, consisting of 15 closed-ended Likert scale questions ranging from "strongly disagree" to "strongly agree". The participants indicated their level of agreement using a 5-point scale. The questionnaire includes both nominal variables (like gender and age) and ordinal variables. The nominal data are collected through closed-ended questions, reflecting categories without inherent ordering (e.g., Sanchez, 2023). Regarding the ordinal variables are crucial in indicating a predetermined ranking, and nominative variables categorize data related to social attitudes, beliefs, and behaviors. Ordinal variables, however, often mirror levels of satisfaction or agreement, as seen in a survey that asks participants to rate satisfaction from "strongly disagree" to "strongly agree" (e.g., Agresti, 2010). We incorporated measures from prior studies within the current context, employing a 5-point Likert scale for participant responses.

Our study measures "Moral Beliefs" as ordinal. Following Khan and Abbas (2023) who explore of how ethical principles guide individuals in evaluating and addressing morally questionable actions, a crucial aspect of ethical consumption. The second construct is about the

mindful feelings of "information-seeking satisfaction", which refers to emotions triggered when questioning one's or others' perceptions of value, as supported by studies including Barbeta-Viñas (2023), reinforcing the validity of our findings. The third construct, "Ethical Purchase Intention", refers to the intention to buy products that reduce environmental impact, as noted in various studies (Santos-Corrada et al., 2024). It is measured at an ordinal level.

The fourth construct, "Consumer Authenticity" aligns with studies (Khan & Abbas, 2023; Kernis & Goldman, 2006) and refers to how accurate a consumer's expressions are to themselves rather than influenced by external factors. It is measured at an ordinal level. The fifth construct, "Ethical purchasing behavior", aligns with studies (Mostaghel & Chirumalla, 2021; Wei et al., 2017) and reflects how much consumers buy from retailers with CBM. It is measured on an ordinal scale. The "Adoption of Sustainable Consumption Practices" construct, as outlined by Mostaghel and Chirumalla (2021) and Schuitema and De Groot (2015), is viewed as a social dilemma influencing awareness, attitude, purchasing intention, and product purchase. It focuses on ethical consumption to promote sustainable practices, measured at an ordinal level.

4. Research results

4.1. Reliability analysis

The highest value is 0.918, for Ethnical beliefs, which is excellent reliability and are highly consistent with each other, indicating a strong internal consistency. An alpha value of 0.783 is above the acceptable threshold, suggesting that the items measuring self-conscious emotions are reasonably consistent and reliable. This construct also demonstrates excellent reliability. With an alpha value of 0.867, the items assessing ethical purchase intention show a high level of internal consistency.

4.2. Hypothesis testing

H1: There is a nonlinear positive monotonic relationship between the 2 variables (ρ=0.411, $p<0.001$). The equation that explains the relationship is:

$$y=-2,93+5,5*x - 1,59*x^2+0,16*x^3$$

H2: There is a moderately positive correlation (ρ=0.381, $p<0.001$). Further, there is a nonlinear positive monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=-2,34+5,4*x - 1,44*x^2 + 0,13*x^3$$

H3: There is a moderately positive correlation (ρ=0.373, $p<0.001$). Further, there is a nonlinear positive monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=-1,63+4,53*x3 - 1,24*x^2+0,12*x^3$$

H4: There is a weak negative association, and the low p-value indicates that this association is unlikely due to random variation (ρ=-0.175, $p<0.01$). Further, there is a nonlinear and monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=-3,65+8,77*x - 3,06*x^2+0,34*x^3$$

H5: There is a weak negative association, and the low p-value indicates that this association is unlikely due to random variation (ρ=-0.196, $p<0.001$). Further, there is a nonlinear and monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=-1,91+6,01*x - 2,11*x^2+0,24*x^3$$

H6: Conscious emotions positively influence the adoption of sustainable consumption practices. The Spearman's rho coefficient (ρ=0.072, p=0.169). Further, there is a positive nonlinear monotonic relationship. The equation that explains the relationship is:

$$y=-2,41+7,29* x - 2,62*x^2+0,3* x^3$$

H7: There is a strong positive correlation (ρ=0.638, $p<0.001$). Further, there is a linear positive monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=4,01+0,03*x$$

H8: There is a modest positive correlation (ρ=0.555, $p<0.001$). Further, there is a linear positive monotonic relationship between the two variables. The equation that explains the relationship is:

$$y=2,08+0,34*x$$

H9: There is a moderately positive correlation (ρ=0.569, $p<0.001$). Further, there is a linear positive monotonic relationship between the 2 variables. The equation that explains the relationship is:

$$y=1,86+0.52*x$$

H10:

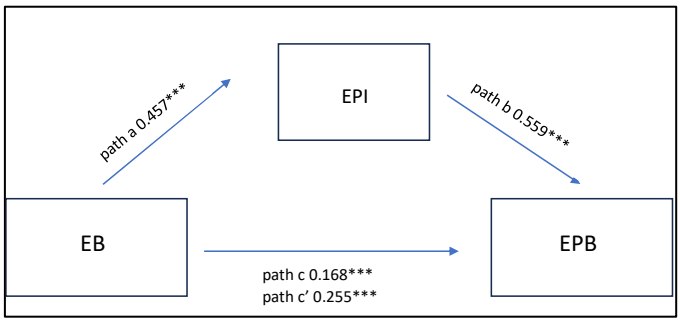

Figure 3. Indirect effect of ethical beliefs to ethical purchase behavior through ethical purchase intention

Source: Authors

H11:

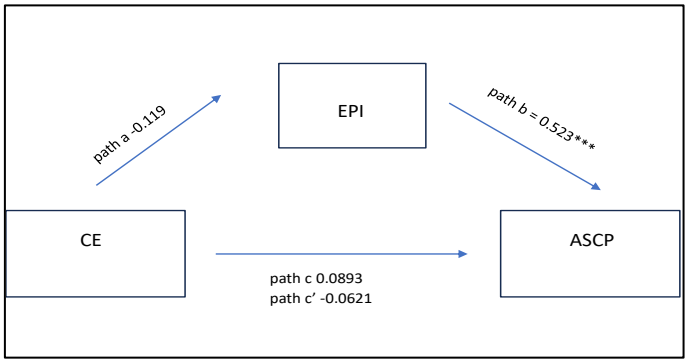

Figure 4. Indirect effect of Self-conscious emotions to adoption of sustainable consumption practices through ethical purchase intention

Source: Authors

H12a:

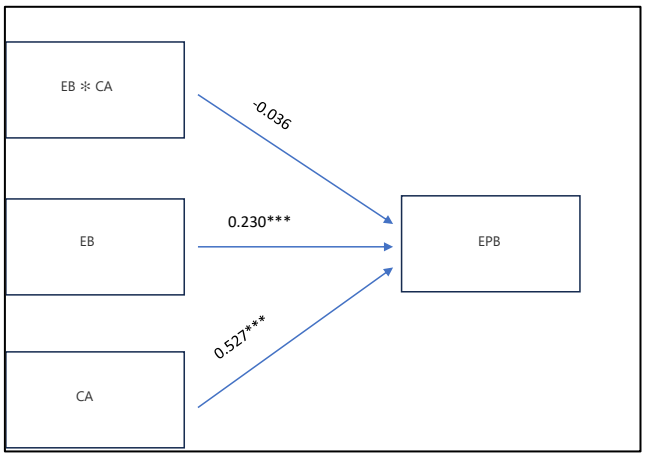

Figure 5. Moderating effect of consumer authenticity on the relationship between ethical beliefs and ethical purchase behavior

Source: Authors

The regression equation follows.

$$EPB = 1.657 + 0.527*CA + 0.23*EB - 0.036*EB*CA$$

(Where: EPB= ethical purchasing behavior, CA= Consumer Authenticity, EB= Ethical beliefs)

H12b:

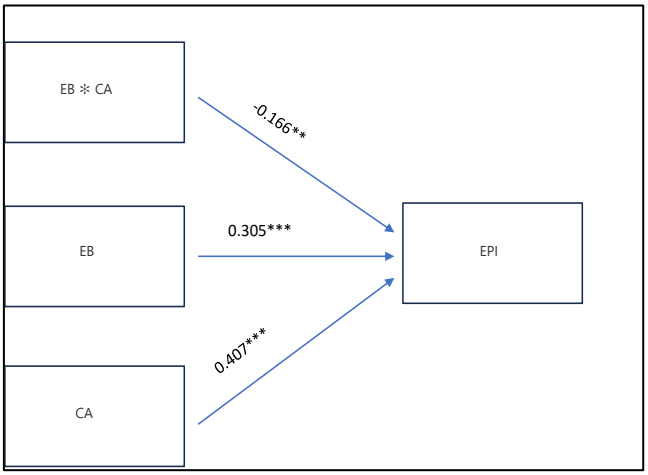

Figure 6. Moderating effect of consumer authenticity on the relationship between ethical beliefs and ethical purchase intention

Source: Authors

$$EPI=2.423+0.407CA+0.305EB-0.166EB*CA$$

(Where: EPI= ethical purchase intent, CA= Consumer Authenticity, EB= Ethical beliefs)

H12c:

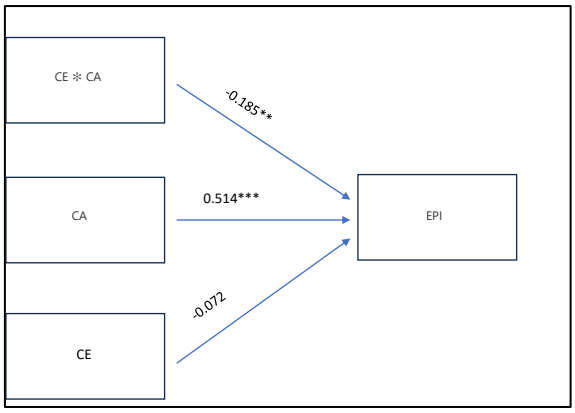

Figure 7. Moderating effect of consumer authenticity on the relationship between self-conscious emotions and ethical purchase intention

Source: Authors

$$EPI= 2,416-0,072*SCE + 0,514*CA - 0,185*CE*CA$$

(Where: EPI= ethical purchase intent, SCE= Self-conscious Emotions, CA= Consumer Authenticity)

H12d:

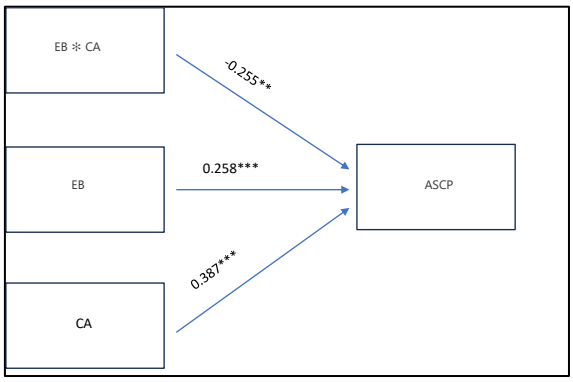

Figure 8. Moderating effect of consumer authenticity on the relationship between ethical beliefs and adoption of sustainable consumption practices

Source: Authors

$$ASCP= 1.636 + 0.387*CA + 0.258*EB - 0.255*EB*CA$$

(Where: ASCP= adoption of sustainable consumption practices, CA= Consumer Authenticity, EB= Ethical beliefs)

H12e:

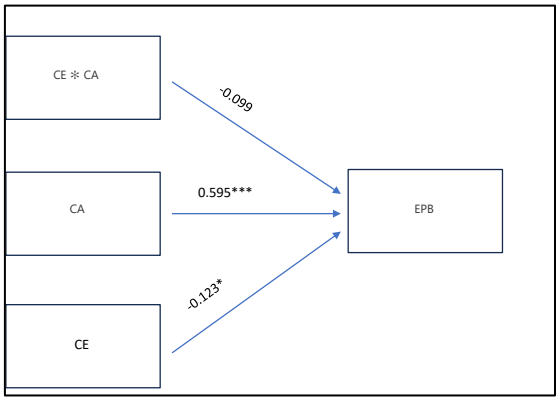

Figure 9. Moderating effect of consumer authenticity on the relationship between self-conscious emotions and ethical purchase behavior

Source: Authors

$$EPB = 2.219 - 0.123*CE + 0.595*CA - 0.099*CE*CA$$

(Where: EPB= ethical purchasing behavior, CE= Self-conscious Emotions , CA= Consumer Authenticity)

H12f:

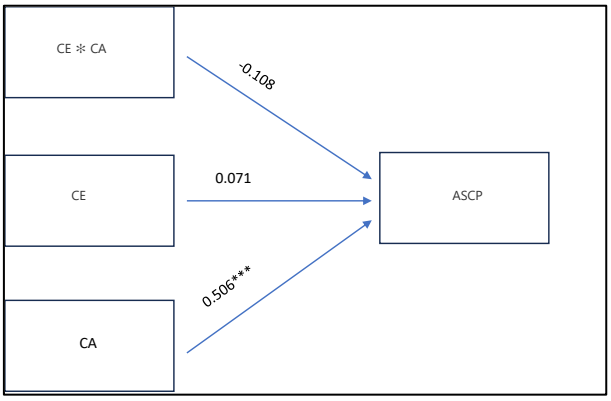

Figure 10. Moderating effect of consumer authenticity on the relationship between self-conscious emotions and adoption of sustainable consumption practices

Source: Authors

$$ASCP = 1.837 + 0.506*CA + 0.071*CE - 0.108*CE*CA$$

(Where: ASCP= adoption of sustainable consumption practices, CA= Consumer Authenticity, CE= Self-conscious Emotions)

4.3. Summary of research results

The following figure presents the research model including the research hypotheses results (see Figure 11).

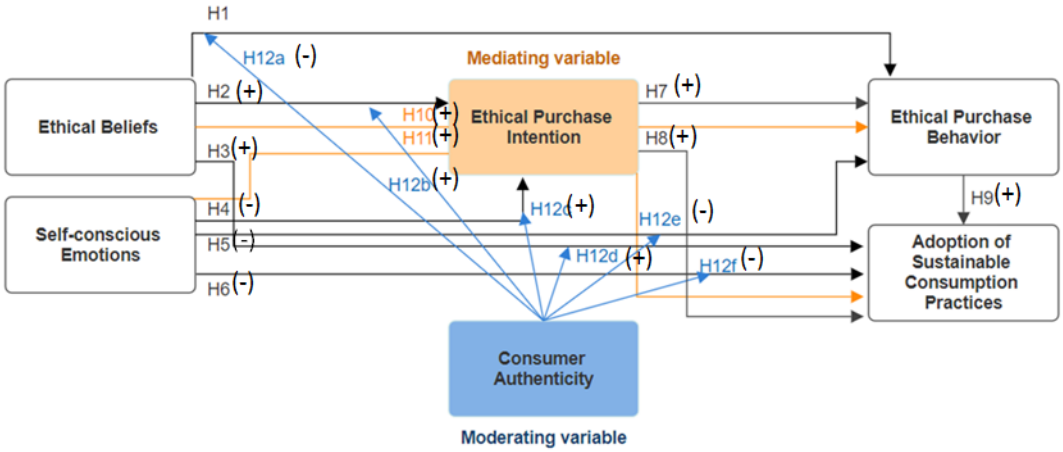

Figure 11. The research model including the research hypotheses results

Source: Authors

The hypotheses' testing results are presented in the following table including the level of significance (see Table 2).

Table 2. Hypotheses' testing results

Research Hypothesis	Support	Significance level
H1: Ethical beliefs positively influence ethical purchase behavior.	Supported	a=0.05
H2: Ethical beliefs positively influence ethical purchase intention.	Supported	a=0.05
H3: Ethical beliefs positively influence adoption of sustainable consumption practices.	Supported	a=0.05
H4: Self-conscious emotions positively influence ethical purchase intention.	Not supported	a=0.05
H5: Self-conscious emotions positively influence ethical purchase behavior.	Not supported	a=0.05
H6: Self-conscious emotions positively influence adoption of sustainable consumption practices.	Inconclusive	a=0.05
H7: Ethical purchase intention positively influences ethical purchase behavior.	Supported	a=0.05
H8: Ethical purchase intention positively influences adoption of sustainable consumption practices.	Supported	a=0.05
H9: Ethical purchase behavior positively influences adoption of sustainable consumption practices.	Supported	a=0.05
H10: Ethical beliefs positively influence ethical purchase behavior through the intermediate effect of ethical purchase intention.	Supported	a=0.05
H11: Self-conscious emotions positively influence adoption of sustainable consumption practices through the intermediate effect of ethical purchase intention.	Supported	a=0.05
H12a: Consumer authenticity moderates the relationship between ethical beliefs and ethical purchase behavior.	Not supported	a=0.05
H12b: Consumer authenticity moderates the relationship between ethical beliefs and ethical purchase intention.	Supported	a=0.05
H12c: Consumer authenticity moderates the relationship between self-conscious emotions and ethical purchase intention.	Supported	a=0.05
H12d: Consumer authenticity moderates the relationship between ethical beliefs and adoption of sustainable consumption practices.	Supported	a=0.05
H12e: Consumer authenticity moderates the relationship between self-conscious emotions and ethical purchase behavior.	Not supported	a=0.05
H12f: Consumer authenticity moderates the relationship between self-conscious emotions and adoption of sustainable consumption practices.	Not supported	a=0.05

***Inconclusive:** p-value>a, evidence is inconclusive regarding the relationship being tested.

Source: Authors

4.4. Empirical tested model

Considering the real-world applications of our study findings, 46.2% of the explanation is adequate to meet our research goals and is exploratory. While 46.2% is an excellent place to start, it should be considered in the larger context of our research goals and industry standards.

The regression equation follows:

ASCP = 0.203 + 0.092 * EB + 0.076 * SCE + 0.291 * EPI + 0.229 *CA + 0.335 * EPB

(Where: ASCP= adoption of sustainable consumption practices, EB= Ethical beliefs, SCE= Self-conscious Emotions, EPI= ethical purchase intent, CA= Consumer Authenticity, EPB= ethical purchasing behavior)

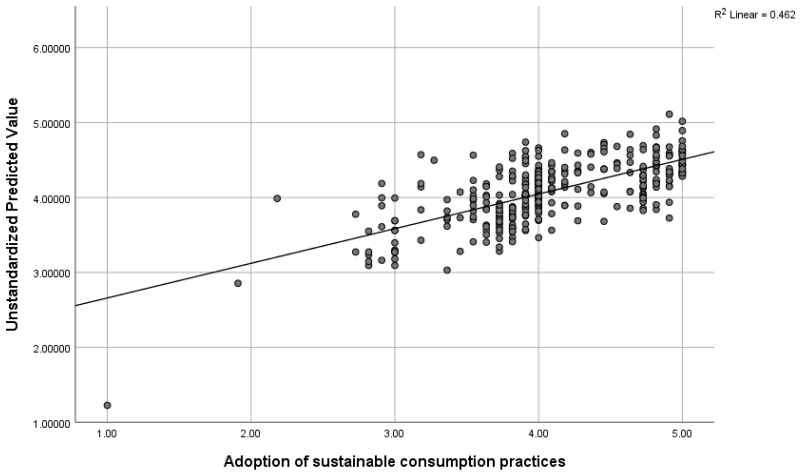

Figure 12. Regression fitted line

Source: Authors

Based on the research results and the relative interpretation, the empirical tested model forms as follows:

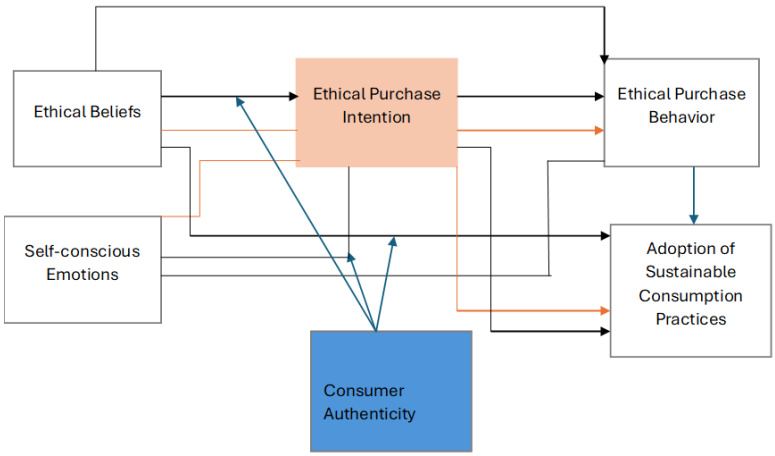

Figure 13. Empirical tested model

Source: Authors

5. Discussion

Our study focuses on three key research objectives. First, we examine how the ethical belief system (idealism and relativism) affects ethical purchase intentions, behaviors, and the adoption of sustainable practices among Greek consumers regarding consumer goods and CEM. Second, we explore the relationships between self-conscious emotions and ethical beliefs and their influence on ethical purchasing and sustainability. Lastly, we investigate how

consumer authenticity moderates the connections between ethical beliefs and self-conscious emotions and their impact on purchasing behavior and sustainable practices among Greek consumers. Previous studies by Tukker (2015) and Ghisellini et al. (2015) emphasize understanding consumer behavior in sustainable practices. Our aim is to dissect the psychological mechanisms that play a role in ethical consumption, and we underscore that moral beliefs and emotions are key in a consumer's ethical decision-making process. Idealism and relativism are positively influencing consumer buying intentions; on the other hand, consumer authenticity has a mediating effect on both idealism and relativism effects.

The results align with previous studies, including Santos-Corrada et al. (2024), reinforcing our understanding of ethical purchasing. The present study analyzes the psychological mechanisms influencing ethical purchasing behavior in Greece's Circular Economy. Findings show that consumers' authentic and emotional behaviors are major contributors in the aim to purchase ethical products, thus marketers of sustainable consumption are facing an opportunity to think creatively.

This study correlates with previous studies, such as Wang and Udall (2023), which explored moral self-identity's impact on green product adoption, and Zahid et al. (2023), examining social identity in secondary clothing purchases. They emphasize the significance of understanding the psychological factors driving ethical consumption. Based on the studies by Wood et al. (2008) on consumer authenticity and Whitmarsh and O'Neill (2010) on green identity, we enhance our understanding of ethical purchasing behavior. It enriches the literature on ethical consumption by examining the roles of ethical beliefs, emotions, and authenticity. The findings also have practical implications for creating marketing strategies that promote sustainable consumption in Greece, supporting the Circular Economy.

Compared with previous studies, this study highlights the importance of psychological mechanisms in shaping ethical consumption and the need for further research in this field. This study offers an essential addition to the literature, proposing a new model of understanding ethical consumption that incorporates ethical beliefs, conscious emotions, and consumer authenticity.

5.1. Theoretical and research implications

Self-identity theory states that people mold their self-concept according to their beliefs and values. For example, a person who considers himself or herself an ethical consumer is likely to purchase only the products that he or she perceives to be compatible with his or her values. Solid ethical self-identity (ESI) people are more likely to adopt behaviors that align with the Circular Economy Model (CEM); they prioritize sustainability and waste reduction, choosing long-lasting or recycled products over repaired ones. Studies indicate that high ESI individuals tend to select green products that match their moral beliefs (Hanel & Basil, 2023). It highlights the importance of ethical choices in reducing environmental impact.

For Hanel and Basil (2023) consumer authenticity involves being true to oneself and expressing oneself honestly. However, SIT may not fully address the complex relationship between authenticity, moral beliefs, and actions, particularly as self-conscious feelings like pride or guilt can change over time. Although there is a correlation between ethical beliefs and the intended actions, additional external factors such as situational constraints and peers' influence may affect actual purchasing behavior. In addition, SIT may neglect the process involving consumer authenticity and self-conscious emotions, especially in the context of CEM. Additional theories (e.g., Consumer Culture Theory, Self-Perception Theory) may be needed to get a complete picture of these dynamics, according to Waqas et al. (2021).

Within the Circular Economy Model, the role of SIT in ethical beliefs and purchasing behavior is significant and urgent, and our study underscores the pivotal role of ethical self-

identity in socially conscious consumer behavior. Consumers and citizens who adhere to their ethical values tend to make the right choices for the environment, playing a critical role in the efficient operation of the Circular Economy, according to Li et al. (2021). Also, reminding them of past green initiatives can motivate them even more to help the planet (Hanel & Basil, 2023).

However, understanding is key to marketing strategies aimed at promoting Circular Economy concepts. Bhutto et al. (2022) claim that customers' intentions to purchase environmentally friendly goods, such as green cars, examine the role that consumption values and ethical self-identity play, demonstrating how the relationship between sustainable consumption intentions and consumption ideals with ethical self-identity as mediator. Recent studies have examined how religious beliefs and attitudes influence purchasing habits (e.g., Zaman et al., 2023). Understanding how people make purchasing choices in a circular economy is essential. It is urgent because the connection between an individual's moral identity and purchasing decisions is complex.

Enhancing consumers' ethical self-identity can significantly support the principles of the circular economy and promote sustainable purchasing behaviors, according to Arman and Mark-Herbert (2022). Consumer Ethical Motivation emphasizes the importance of understanding the gap between consumers' beliefs and actions (Hanel & Basil, 2023) as well as examining conflicting consumer priorities. Thus, we can confidently assert that this knowledge is essential for understanding consumer behavior in a circular economy.

5.2. Practical implications

Retail businesses need to understand that consumers' identity and ethical beliefs influence their purchasing decisions to create marketing strategies that prioritize sustainability and ethical behavior, as emphasized by CEM (e.g., Hanel & Basil, 2023). Retailers should more effectively adapt their strategies to align with customers' values and understand how customers perceive their identity. Such recognition of self-identity allows retailers to tailor their approaches to meet these values, naturally influencing consumer behavior (e.g., Hanel & Basil, 2023).

Consumers seeking authenticity are more likely to engage with organizations that project a commitment to ethical standards. Therefore, retailers should ensure that their messaging aligns with the principles of the Circular Economy—a point agreed upon by researchers over the past decade (e.g., Escalas, 2013). This alignment helps retailers effectively influence customer behavior by addressing emotions such as pride in ethical choices and remorse for unsustainable practices. Retail environments can embody the circular economy model by creating authentic in-store experiences that resonate with customers' ethical values (Escalas, 2013).

Businesses should focus on developing authentic retail environments that significantly shape consumer behavior (Hanel & Basil, 2023), implementing loyalty programs. Loyalty programs promote ethical purchases aligned with personal identity can enhance customer engagement according to Arman and Mark-Herbert (2022). Luan (2016) highlight the role of brand partnerships upholding sustainability principles to enhance the retailer's reputation. Further, they can draw in important market segments that value ethical consumption (e.g., Luan, 2016).

It is very important for retail stores to listen to what their customers want and provide them with feedback. This helps stores understand how to make their customers happy (Burke & Reitzes, 1981).. Additionally, when stores share information about how they help the environment, it builds trust with their customers. In this way, people who care about doing the right thing will feel good about shopping there. When stores incorporate these values into their marketing strategies, it encourages people to make ethical purchases supporting not only the CE Model but most importantly in a way that is good for the planet (e.g., Larsen et al., 2020).

5.3. Further research and limitations

Researchers should conduct longitudinal studies to track trends in circular economy behaviors, revealing enduring factors and evolving dynamics. While quantitative analysis offers valuable insights, qualitative research can uncover underlying motivations and perceptions. Methods like in-depth interviews and focus groups can capture personal narratives often missed in quantitative data. Cross-cultural studies can highlight how cultural values influence perceptions of the circular economy. Exploring varied sustainable product strategies can also identify practical design principles for enhancing engagement. Finally, examining factors like trust, privacy concerns, and financial considerations can provide a comprehensive understanding of sustainable product adoption.

Conclusions

The study has two main objectives: to understand what motivates people to buy environmentally friendly products and to help everyone make better shopping choices. Researchers found that individuals who strongly believe in doing what is right are more likely to purchase items that are good for the Earth. According to some experts, the desire to make good choices when shopping connects our self-understanding and beliefs with how we behave.

This study helps us learn more about how people choose to shop in a way that is good for the world. It examines what makes people want to shop ethically and finds that being true to oneself is important. The study also suggests that we should consider emotions such as being genuine and self-aware when trying to understand how people shop responsibly. Ethical purchasing intent is identified as a critical mediator in promoting ethical consumption. The findings empower manufacturers and policymakers in Greece to create strategies that encourage sustainable consumption and support the circular economy by fostering authenticity and self-awareness in consumers.

Our study highlights critical areas for further exploration into the factors influencing ethical consumer behavior across different cultures. It offers valuable contributions to understanding ethical purchasing within the Circular Economic Model. By integrating psychological factors like ethical beliefs and consumer authenticity, we enhance the literature and provide practical guidelines for promoting sustainable practices in Greece. The findings can inform strategies that encourage sustainable consumption and support the transition to a more sustainable future.

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Validating a Proposed Model on the Factors that Influence Consumers' Unique Phygital and Memorable Shopping Experiences in Phygital Retail Outlets

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Abstract
Our study, grounds in Social Exchange Theory, examines how customer needs, hedonic factors, cross-channel integration, and consumer experiences impact the physical shopping experience. The research aim is to validate a proposed model by surveying Greek consumers at phygital stores and examining the moderating effects of gender and generation to strengthen the foundation for future research. We survey 229 Greek consumers using a structured questionnaire, testing twelve hypotheses—eight were supported. Consumer needs, expectations, and experiences in phygital shopping are positively correlated, according to our findings, which are confirmed by linear regression and confirmatory factor analysis. Notably, hedonic factors improve interactions with customers, especially in distinctive retail settings. Additionally, we find a positive but non-linear relationship between cross-channel integration and customer experiences that is consistent across generations and genders. For marketing scholars and marketing managers in the retail sector, this study has important implications.

Keywords: Phygital retail, phygital shopping experience, customer experience, hedonic factors, cross-channel integration, explainable artificial intelligence.

JEL classification: M31, M39.

Introduction

Consumers can now shop from home and make in-store purchases thanks to innovations like "buy online, pick up in-store" (BOPIS). Mobile retail sales are expected to reach $856 billion by 2027, demonstrating the rapid expansion of digital commerce (Coppola, 2024). Consumers achieve hybrid buying behavior, combining convenience from online and offline shopping as the pandemic fades away. The era of digitalization has taken the retail sector to phygital retailing, as will be studied today, a combination of digital and physical activities to provide consumers with a better shopping experience.

According to the term "phygitality", coined in 2021, consumers want a mixed shopping experience. This study investigates how shopping characteristics are influenced by gender and generation and how cross-channel integration and explainable AI can improve in-person experiences by using recommendation systems. The investigation of shopping characteristics affected by different genders and generations is the prime focus of this study, as how cross-channel integration uses explainable AI-enhanced in-person experiences using recommendation systems. As Batat (2019) explained, "phygital "emphasizes that purchasing behaviors require a different perspective on how physical stores can co-exist alongside — and potentially connect with — digital buying experiences. Additionally, Bonfanti et al. (2023)

highlight the increase in digital engagement across retail and see this mix as causing a physical response.

Research on 'phygitality' is still in its infancy, despite its growing presence in everyday retail practices. Empirical studies examining the nuanced impact of gender, generation, and cross-channel integration on phygital shopping experiences remain sparse, although discussions on this hybrid consumer experience have emerged in journals like the Journal of Strategic Marketing (2021). This study seeks to fill that gap by comprehensively analyzing how these variables shape consumer behavior in phygital retail environments while integrating the role of explainable AI in recommendation systems. Yao et al. (2024) highlight the importance of understanding consumer behavior in phygital contexts, suggesting that AI integration enhances decision-making during the consumer journey, highlighting that the influence of AI on consumer behavior is significant through personalized recommendations. Yazdani and Darbani (2023) note that emotional connections with AI tools can also impact behavior, making explainable AI essential for fostering trust and engagement. Mele et al. (2023) identified four key elements: objects and applications, context, customer journey, and buying experience. Our study focuses on consumer behavior in omnichannel retail, drawing on insights from phygital retailing and shopping (Bonfanti et al., 2023). We aim to explore how AI advancements, hedonic factors, explainable recommendations, cross-channel integration, and consumer expectations of in-store technologies influence memorable shopping experiences in phygital retail outlets. This study explores the above characteristics that shape memorable phygital shopping experiences in retail. We validate a proposed model by surveying Greek consumers at phygital stores, examining the moderating effects of gender and generation to strengthen the foundation for future research.

The research objectives of our study are based on the critical works by Banik and Gao (2023), Mishra et al. (2023), Bonfanti et al. (2023), and Zimmermann et al. (2023). *First, we investigate the impact and the nature of the relationships between consumer needs and expectations within in-store technologies for utilitarian, playfulness, hedonic, and social experiences and memorable phygital shopping experiences of Greek consumers who shop from phygital retail outlets. Second, we investigate the impact and the nature of the relationships between explainable artificial intelligence (AI) in recommendation systems and memorable phygital shopping experiences of Greek consumers who shop from phygital retail outlets. Third, we investigate the mediating effect of consumer experiences in phygital retailing between hedonic factors and memorable phygital shopping experiences of Greek consumers who shop from phygital retail outlets. Fourth, we investigate the mediating effect of consumer experiences in phygital retailing between consumers' ability to control their purchase choices ("cross-channel integration") and memorable phygital shopping experiences of Greek consumers who shop from phygital retail outlets. Fifth, we investigate the moderating roles of gender and generation in the relationships among hedonic factors, cross-channel integration, and Greek consumers' experiences in phygital retailing who shop from phygital retail outlets.*

Below are the initial assumptions of the study, highlighting the thoroughness of our research:

Consumers are looking to be engaged mentally and emotionally to have a satisfying phygital retail experience, and this the retailer amplifies through appealing environments and meaningful connections. Even though omnichannel approaches present personalized experiences, inexperienced shoppers may feel confused due to perceived risks. Mobile and interactive devices play a significant role as they advance the technological development that supports continuity of digital-physical media, therefore enhancing the consumer digital transformation experience.

1. Theoretical framework, research model and literature support

1.1. Social Exchange Theory

Social exchange theory (SET) views relationships as exchanges to balance benefits and costs. SET, developed by George Homans in his 1958 essay and later expanded by Richard Emerson and Peter Blau, suggests that social interactions create mutual responsibilities. People rationally act to minimize costs and maximize benefits, including intangible socioemotional outcomes and tangible resources (e.g., Banik & Gao, 2023). Redmond (2015) outlines five critical aspects of Social Exchange Theory, emphasizing that economic principles influence human decisions and shape social behavior through costs and incentives. In social interactions, people aim to maximize their gains and minimize their losses. Interdependence arises when resources benefit both sides. Because asking for advice promotes reciprocal relationships, especially when equity is upheld, sociologists should modify economic assumptions to fit interpersonal relationships.

Relative studies place a great emphasis on status, affiliation, pleasure, and attachment as intangible resources for the motivations of consumers (Blau, 1964, as cited in Banik & Gao, 2023). By this, it presupposes that consumers consider the socioemotional aspects while valuing a firm's offering. Phygital retailing triggers cognitive processes like mental attachment and emotional expression that eventually upgrade the consumer retail experience. In contrast, Mishra et al. (2023) observe that consumers could feel discouraged from investigating physical options, given that perceptions of retailer unreliability may be in the way, especially in some markets, where such unreliability derails overall satisfaction.

1.2. Theoretical model and assumptions

To comply with these consumers' needs for experiences that must be rational, useful, economic, and practical, retailers use various technologies. Bofanti et al. (2023) illustrate that their model involves six in-store technologies: (3) wireless communication technologies, including proximity devices such as NFC tags and RFID; in-store activation involving light, screen, sound; support devices, which include chargers to let customers charge their smartphones; mobile apps to order, request, scan, or check on the availability of not-in-store products; and smartphones, tablets, displays, touchscreens, computers.

Wait times are decreased by in-store digital devices, which make it simple to shop on laptops, tablets, or smartphones. In a high-tech retail setting, features like "scan-and-go" improve transaction experiences, and digital tools encourage interaction between customers and employees. Through mobile devices and messaging apps, technology meets customer needs and promotes community-based brand experiences. Retailers blend digital and physical channels to create enjoyable shopping experiences using three strategies: physical (in-store), digital (electronic), and phygital (smart store immersion). Emerson (1976) highlights reciprocity in social exchange, though Homan's theory has faced criticism (Cook et al., 1983).

The fundamental assumptions are: (1) Participants try to raise their gains in an exchange; (2) Human beings derive gratification from social exchange; (3) Because of access to social, economic, and psychological information, people can perceive more rewarding alternatives for interaction, which promotes goal-directed exchange within the bounds of cultural norms; (4) Social credit is preferred to social debt and the value of an act is directly related to its deprivation. Last assumptions are that humans act rationally; profitable competition is preferred as punishment is readily avoided.

1.3. Hypotheses development

Bonfanti et al. (2023) highlight that integrating digital technologies in physical stores enhances consumer experiences by addressing utilitarian, hedonic, entertainment, and social needs. They find that technology fosters immersive experiences in phygital retail. Zimmermann et al. (2023) reviewed AI recommender systems and stated that AI improves interactivity, offering a unique shopping experience. Batat (2022b) has argued that today's consumers push retailers to develop innovative experiences at the intersection of digital and physical. Batat (2022a) identifies key pillars of phygital customer experience, including practicality, sociability, sensoriality, and technicality. A survey by Mosquera et al. (2018) shows a positive relationship between in-store digital technology use and purchase intentions. Therefore, we can state:

H1: *Consumer needs and expectations within in store technologies for utilitarian, hedonic and social experiences positively influence the unique phygital and memorable shopping experiences.*

It furthers states that consumers also gain from the incorporation of digital technologies into physical **retail** stores in ways that may enhance their decision-making capability, make access to product information more accessible, and provide them with a feeling of saving time. The connection will improve the relationship of retailers with their customers. Research by Stein and Ramaseshan (2020) indicates that retail technology impacts consumers motivated by hedonic factors more significantly than those with utilitarian needs. Zimmermann et al. (2023) found that AI recommender systems enhance utility and entertainment in-store. While Zhang et al. (2024) stress that convenience in the use of retail technology would lead to superior customer experiences, Bonfanti et al. (2023) have researched whether technology is applied to satisfy customer expectations. In contrast, Pusceddu et al. (2023) depict scenarios where tech-savvy customers remained unsatisfied with the technology and less tech-savvy ones had difficulty using it, thus abandonment of purchases took place. Consequently, we can assert:

H2: *Consumer needs and expectations within in store technologies for utilitarian, hedonic and social experiences positively influence the consumer experiences in phygital retailing.*

The use of AI in marketing is on the rise, with 73% of U.S. companies employing it in 2023 (Kshetri et al., 2024). Research by Zimmermann et al. (2023) shows that AI enhances customer experience in physical retail by serving as a personal recommender. However, some consumers report increased irritation due to AI usage. Bilal et al. (2024) also found that AI positively influences customer experience and purchase intention on social media. Personalization in AI positively impacts customer experience (Kshetri et al., 2024). AI creates tailored content by processing extensive data and interacting with online sources. Consumers expect high service levels from AI, as highlighted by Song and Kim (2022) in their study on retail service robots. Wang et al. (2024) note that the perceived experience with AI affects customer engagement. Retail technologies like voice assistants, chatbots, and image search also enhance customer experience (Quinones et al., 2023), and thus, we can state:

H3: *Explainable artificial intelligence positively influences the unique phygital and memorable shopping experiences.*

Hedonic factors such as emotions and creativity can greatly improve a consumer's shopping experience (Sachdeva & Goel, 2015). Research shows that these factors, such as joy and delight, lead to better customer involvement and loyalty especially in the field of technology (Stein & Ramaseshan, 2020). Banik and Gao (2023) highlight that mental imagery and aesthetics impact experiences in phygital stores. Similarly, Kumar et al. (2024) found that emotional factors influence customer intentions in the phygital banking sector. Banik (2021) also noted that pleasure affects consumer engagement and willingness to continue shopping in phygital settings, and thus we can state:

H4: *Hedonic factors including mental imagery, entertainment and aesthetics, positively influences the consumer experiences in phygital retailing.*

Zhang et al. (2024) highlight that cross-channel integration is the wave of the future and will give a better consumer experience because it will be interconnected and provide personalized content for utilitarian and hedonic purposes. This better experience increases loyalty. According to Nguyen (2021), perceived transparency, content consistency, channel availability, and flexibility are all critical factors in the omnichannel consumer experience and loyalty in cross-channel integration. While Gao et al. (2021) explore how the degree of integration among different variables (marketing promotions, customer service, etc. influences the customer experience and facilitates omnichannel shopping, Quach et al. (2022) corroborate these findings. These results are consistent with Mosquera et al. (2018) theoretical framework. Therefore, we can state:

H5: *Cross-channel integration positively influences the consumer experiences in phygital retailing.*

According to Sachdeva and Goel (2015), unforgettable shopping moments can enhance consumer loyalty and repurchase intentions through a great consumer experience (Khan et al., 2020a; Stein & Ramaseshan, 2020). Strong brand attachment often arises from intense consumer encounters (Huaman-Ramirez & Merunka, 2019). According to Bonfanti et al. (2023) in store technology will create unique in person shopping experiences and this will be a necessity for stores to differentiate themselves from their competitors. Banik and Gao (2023) states that the consumer experience is a positive factor in satisfaction in physical retailing. Batat (2022b) states that a tactile experience is one way a business can distinguish itself from the competition. Nonetheless, Pusceddu et al. (2023) state that some consumers may have problems with the technology, leading to dissatisfaction. Therefore, we can state that:

H6: *Consumer experiences in phygital retailing positively influences the unique phygital and memorable shopping experiences.*

Past research states that to provide a unique shopping experience, retailers must provide cognitive and emotional stimulation in their stores. Since shopping atmospheres affect shoppers' moods and behaviours, hedonic attributes that stimulate consumers' senses are a must (Sachdeva Goel, 2015). All these factors are imperative for a differentiated physical customer experience (Batat, 2022a). Bonfanti et al. (2023) highlight how in-store technologies enhance consumer experiences by fulfilling hedonic needs through emotional and immersive interactions. By enhancing customer loyalty and extending in-store time, this combination can draw target markets (Sachdeva & Goel, 2015), and thus we can state:

H7: *Hedonic factors including mental imagery, entertainment and aesthetics, positively influences the unique phygital and memorable shopping experiences through the intermediate effect of consumer experiences in phygital retailing.*

Research shows that seamless cross-channel integration leads to higher customer satisfaction (Mishra et al., 2023; Asmare & Zewdie, 2022; Lemon & Verhoef, 2016) have noticed that it suits customer loyalty. This integration allows real-time interaction with retailers, price comparisons, and increased customer retention because it allows the customer to interact on multiple channels simultaneously. As Nguyen (2021) points out, an integrated experience can lead to customer loyalty. As Batat (2022a) states offering differentiated experience in brick-and-mortar atmospheres is a whole different story. Also, Banik and Gao (2023) state that 50% of shoppers (even those in high maintenance sectors) favor combined brick and mortar and electronic shopping. Therefore, we can state:

H8: *Cross-channel integration positively influences the unique phygital and memorable shopping experiences through the intermediate effect of consumer experiences in phygital retailing.*

Banik and Gao (2023) found that female consumers are more influenced by hedonic factors like mental imagery, entertainment, and aesthetics in their retail experiences, highlighting the moderating role of gender in phygital retailing. Ameen et al. (2021) confirmed that women prioritize aesthetics, while men focus on in-store technologies. For example, in the UAE, male consumers showed greater interest in luxury offerings. Jayasingh et al. (2022) reported that women have higher hedonic motivation in omnichannel shopping. Tarka et al. (2023) noted that women are drawn to hedonistic experiences for emotional rewards, contrary to men's tendency to avoid shopping. Kim et al. (2021) discovered that men and women react differently to mental imagery, with men showing heuristic responses and women displaying cognitive approaches, and thus we can state:

H9a: *Gender moderates the relationship between hedonic factors and consumer experiences in phygital retailing.*

Research indicates that men and women have different priorities when integrating marketing channels. Joshi et al. (2024) found that men prioritize a quick purchase process, on-time delivery, low shipping costs, and convenience, while women focus on accessible product returns and combined shipments. Mosquera et al. (2018) noted that men emphasize utility (discounts, availability), whereas women seek a more extensive product assortment and easier fitting room access. Natarajan et al. (2023) discovered that female customers value service transparency, detailed information, and personalized service. For instance, in fashion retail, Pandey and Chawla (2018) found men are more likely to use online channels and are more sensitive to poor online service than women. Jayasingh et al. (2022) reported that women demand higher performance from integrated channel technology, and therefore, we conclude:

H9b: *Gender moderates the relationship between cross-channel integration and consumer experiences in phygital retailing.*

Consumers from different generations respond to marketing stimuli in distinct ways. Younger consumers spend more time evaluating product information and seeking engaging, emotionally charged marketing, while older generations prioritize utilitarian factors and display more emotional control. Khan et al. (2020b) found that younger generations tend to be more emotionally attached to brands, this in turn leads to greater brand loyalty. Furthermore, Tarka et al. (2023) found that younger shoppers are more interested in a stimulating shopping experience than older shoppers who place a higher value on usability. Burnsed and Bickle (2015) states that millennials and Gen Xers are searching for entertainment when they shop. In contrast, Liang and Xu (2018) found that Millennials perceive higher hedonic value in second-hand fashion than Gen X. Therefore, we can state:

H10a: *Generation moderates the relationship between hedonic factors and consumer experiences in phygital retailing.*

Research indicates that different generations have varying preferences for marketing channels. Younger consumers prioritize convenience, fast checkouts, and secure payments (Joshi et al., 2024). Late Generation X and early Millennial women favor omnichannel shopping (Mosquera et al., 2018), while Baby Boomers are less inclined to use mobile shopping (Lissitsa & Kol, 2021). Younger consumers also prefer companies with a solid online presence (Khan et al., 2020a). Most phygital retail consumers are Gen Z (Banik & Gao, 2023), though older generations hesitate to adopt phygital technologies (Pusceddu et al., 2023). However, recent studies show that older generations increasingly use cross-channel retail and engage with digital technologies (Chandra & Islam, 2024). Thus, we can state:

H10b: *Generation moderates the relationship between cross-channel integration and consumer experiences in phygital retailing.*

Table 1. Operational definitions of the key constructs

Constructs	***Definitions***	***Sources***
Consumer Needs and Expectations on In-Store Technologies	*Customer needs, the benefits the customer aims to obtain, and expectations, customer predictions about the purchase journey, regarding in-store technologies for utilitarian, hedonic and social experiences.*	*Bonfanti et al. (2023)*
Explainable Artificial Intelligence	*The use of AI systems that provide understandable explanations for their decision-making processes in phygital retail stores, e.g. in recommender systems*	*Zimmermann et al. (2023); Minh et al. (2022)*
Hedonic Factors (Mental Imagery, Entertainment, Aesthetics)	*Mental imagery – the pre-consumption image the consumer holds about the product, entertainment – the pleasurable state of mind during the purchase journey, and aesthetics – the sensory stimulation qualities of the product.*	*Banik amd Gao (2023)*
Cross-Channel Integration	*The integration of different marketing channels to benefit both the retailer and its customers.*	*Mishra et al. (2023)*
Consumer Experiences in Phygital Retailing	*The mental, emotional, physical, sensory, and social aspects that characterize a customer's interaction with a phygital retail store.*	*Banik and Gao (2023)*
Unique Phygital and Memorable Shopping Experiences	*The differentiated and memorable combination of physical and digital shopping experience simultaneously, in a physical retail store.*	*Bonfanti et al. (2023); Batat (2022a)*

Source: Authors

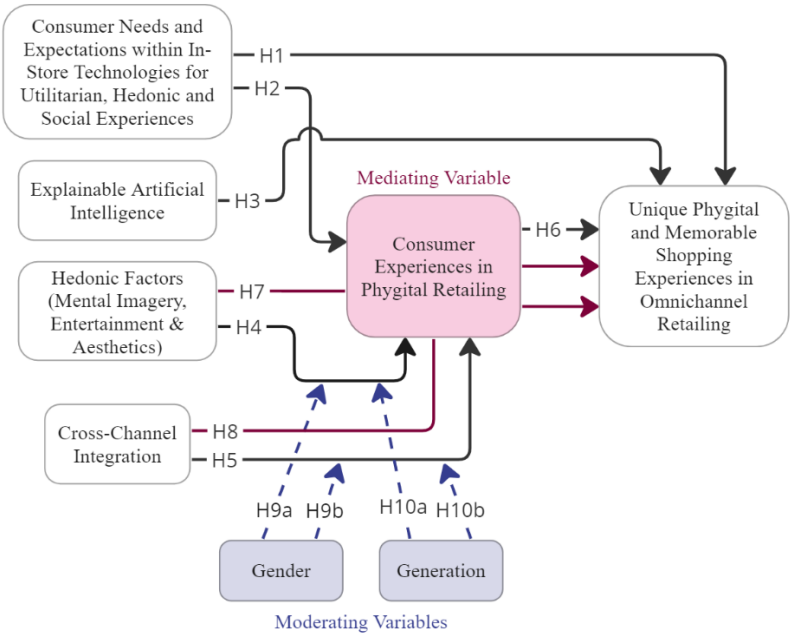

Figure 2. Research model
Source: Authors

2. Methodology

2.1. Research method, sample, sampling strategy, process and data collection

Our study uses a questionnaire survey method to gather quantitative data from a predefined group. We employ a self-administered structured questionnaire (SAQ), eliminating interviewer bias and enhancing data quality. Our questionnaire survey used convenience sampling, recruiting students from the Hellenic Open University and colleagues willing to complete the online questionnaire. We shared the survey on Greek public forums and Facebook. The sample includes Greek consumers from the Baby Boomers, Generation X, Millennials, and Generation Z who have experienced phygital retail. The study sample includes (1) Greek consumers visiting retail stores with advanced digital technologies; (2) Consumers from various generations (Baby Boomers, Generation X, Millennials, Generation Z) who have shopped at phygital stores; (3) Data collected from major Greek cities (Athens, Thessaloniki, Patras, Xanthi, Piraeus); (4) Data collection period: March 1 to May 18, 2024.

2.2. Measures, measurement of variables and variables' level of measurement

To meet the study's requirements, we created a structured questionnaire of fifteen closed-ended questions measured with a Likert scale. Participants indicate their agreement on a 5-point scale from "strongly disagree" to "strongly agree" (Taherdoost, 2019). We chose the point scale based on the foundation of related studies. The questionnaire includes both nominal and ordinal variables. Ordinal scales categorize values with a ranking, while nominal scales do not imply order. For example, gender and age are nominal variables. Ordinal variables involve predetermined rankings in questionnaire responses.

In our study, we define several key concepts: (1) "Consumer Needs and Expectations (CNE)": Benefits sought from in-store technologies for utilitarian, hedonic, and social experiences (Bonfanti et al., 2023), (Measurement: ordinal). (2) "Explainable Artificial Intelligence (EAI)": AI systems providing understandable insights into decision-making in phygital retail (Banik & Gao, 2023; Zimmermann et al., 2023), (Measurement: ordinal). (3) "Hedonic Factors (HEF)": Consumer imagery of products, entertainment, and sensory qualities during the purchase journey (Banik & Gao, 2023), (Measurement: ordinal). (4) "Cross-Channel Integration (CCI)": Integration level among various marketing channels (Mishra et al., 2023), (Measurement: ordinal). (5) "Consumer Experiences in Phygital Retailing (CEPR)": Emotional, physical, sensory, and social interactions in phygital stores (Banik & Gao, 2023), (Measurement: ordinal). (6) "Unique Phygital and Memorable Shopping Experiences (UPMSE)": Distinctive and memorable shopping experiences combining physical and digital elements (Bonfanti et al., 2023), (Measurement: ordinal).

3. Research results

3.1. Confirmatory Factor Analysis

Model specification

Confirmatory factor analysis was conducted to assess the validity of our constructs using the Lavaan package within JASP software. There are 6 factors (QI10_CNE1 to QI15_CNE6) that make up CNE which is the customer's needs and desires from in-store technologies. The standard errors range from 0.029 to 0.044 and the estimates from 0.689 to 0.858.CNE Factor 1": CNE has 6 indicators (QI10_CNE1 to QI15_CNE6) which determine the customer's needs and wants from in-store technologies. The standard errors go from 0.029 to 0.044, and the estimates go from 0.689 to 0.858.

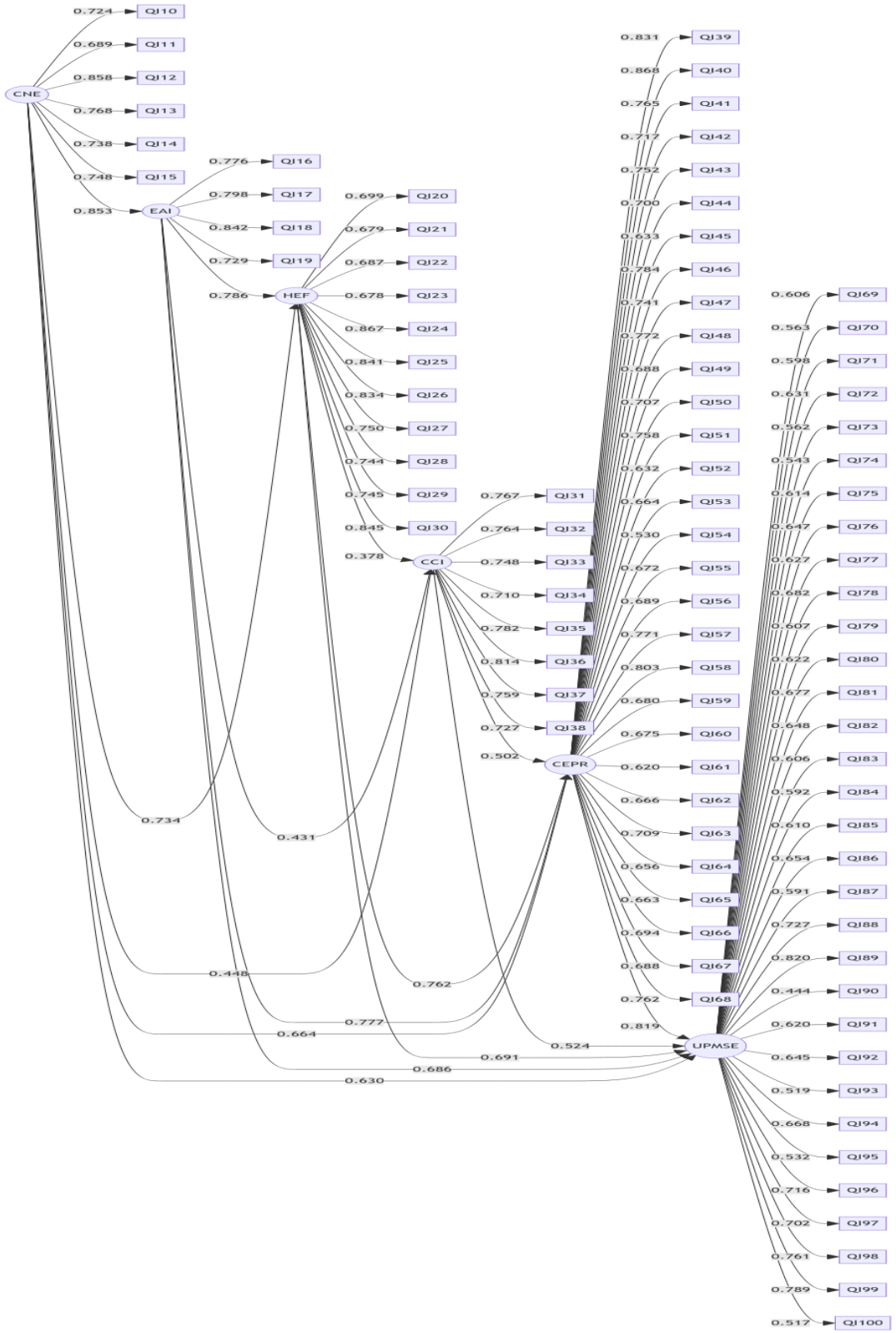

Figure 3. CFA path diagram CNE: Consumer Needs and Expectations on In-Store Technologies, EAI: Explainable Artificial Intelligence, HEF: Hedonic Factors (Mental Imagery, Entertainment, Aesthetics), CCI: Cross-Channel Integration, CEPR: Consumer Experiences in Phygital Retailing, UPMSE: Unique Phygital and Memorable Shopping Experiences.

Source: Authors

"Factor 2: EAI" focuses on explainable AI, with four indicators (QI16_EAI1 to QI19_EAI4), estimates from 0.729 to 0.842, and standard errors from 0.029 to 0.03. "Factor 3: HEF" deals with hedonic aspects like mental imagery and aesthetics, including 11 indicators (QI20_HEFmi1 to QI30_HEFa4), estimates from 0.678 to 0.867, and standard errors from 0.019 to 0.046. "Factor 4: CCI" concerns cross-channel marketing benefits, with eight indicators (QI31_CCI1 to QI38_CCI8), estimates from 0.710 to 0.814, and standard errors from 0.035 to 0.043. "Factor 5: CEPR" covers in-store consumer experiences, consisting of 30 indicators (QI39_CEPRe1 to QI68_CEPRt12), with estimates from 0.530 to 0.868 and standard errors from 0.018 to 0.049. "Factor 6: UPMSE" relates to unique shopping experiences in Phygital retail, featuring 32 indicators (QI69_UPMSEfe1 to QI100_UPMSEpe13), estimates from 0.444 to 0.820, and standard errors from 0.023 to 0.049.

A diagonally weighted least squares (DWLS) estimator was used with robust standard errors, as recommended for ordinal data and a sample size close to our N=229 (e.g., Doval et al., 2023).

Model fit assessment

The estimates indicate strong construct validity, with high standardized estimates and narrow confidence intervals; all p-values are less than 0.001, reflecting high statistical significance. The CFA model shows an acceptable fit (RMSEA=0.098, SRMR=0.089, CFI=0.963, NFI=0.946, TLI=0.962, GFI=0.953) based on Schermelleh et al. (2003). The chi-square test was insignificant ($p<0.001$), which is justifiable given the sample size and model complexity.

Factor loadings, significance, reliability and internal consistency

All loadings are significant ($p < 0.01$), with confidence intervals excluding zero. The overall mean estimate for 91 indicators is 0.698. Mean estimates per factor are: CNE: 0.754, EAI: 0.786, HEF: 0.761, CCI: 0.759, CEPR: 0.710, and UPMSE: 0.629. Most factors have mean loadings >0.7, except UPMSE. Notably, 45 loadings are ≥ 0.7, 45 are ≥ 0.5 but <0.7, and 1 is <0.5. The highest loading is 0.868 (QI 40, CERP) and the lowest is 0.444 (QI 90, UPMSE). Reliability analysis using Cronbach's alpha and McDonald's ω coefficients showed Cronbach's alpha ranged from 0.823 to 0.953, with the CEPR scoring 0.953, suggesting possible redundancy. McDonald's ω coefficients also exceed 0.8, confirming good reliability.

3.2. Hypothesis testing

H1: There is a linear positive monotonic relationship between consumer needs and expectations on in-store technologies (CNE) and unique phygital and memorable shopping experiences correlation (UPMSE). The equation that explains the relationship is:

$$Y = 1.93 + 0.43 \times X$$

H2: There is a linear positive monotonic relationship between consumer needs and expectations on in-store technologies (CEPR) and consumer needs and expectations on in-store technologies (CNE) and consumer experiences in phygital retailing CEPR), therefore H2 is supported. The equation that explains the relationship is:

$$Y = 1.69 + 0.49 \times X$$

H3: There is a nonlinear positive monotonic relationship between consumer needs and expectations on in-store technologies (CNE) and consumer experiences in phygital retailing (CEPR). The equation that explains the relationship is:

$$Y = 1.62 + 1.21 \times X - 0.35 \times X^2 + 0.05 \times X^3$$

H4: There is a positive linear monotonic relationship between hedonic factors (HEF) and consumer experiences in phygital retailing (CEPR), therefore H4 is supported. The equation that explains the relationship is:

$$Y = 1.58 + 0.6 \times X$$

H5: There is a nonlinear positive monotonic relationship between cross-channel integration (CCI) and consumer experiences in phygital retailing (CEPR). The equation that explains the relationship is:

$$Y = 3.19 - 0.3 \times X + 0.09 \times X^2$$

H6: There is a linear positive monotonic relationship between consumer experiences in phygital retailing (CEPR) and unique phygital and memorable shopping experiences (UPMSE). The equation that explains the relationship is:

$$Y = 0.83 + 0.77 \times X$$

H7: The mediation analysis results a significant model ($p<0.01$) showing a significant effect of CEPR on UPMSE ($p<0.01$), a significant effect of HEF on CEPR ($p<0.01$) and a significant direct effect of HEF on UPMSE ($p<0.05$). The bootstrapped confidence interval confirms significance at the 0.05 level. The results are consistent with mediation.

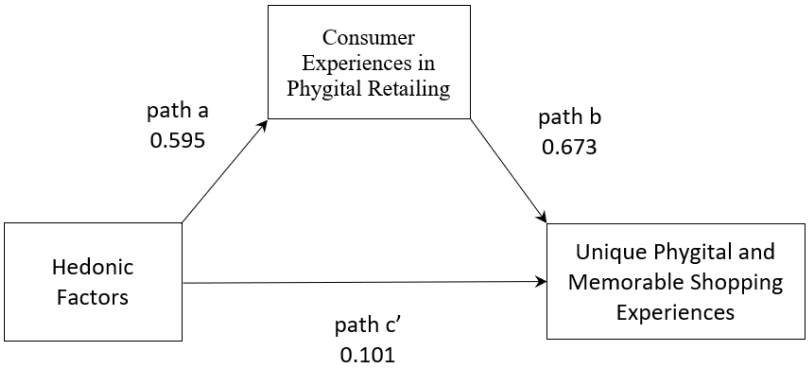

Figure 4. Indirect effect of Hedonic Factors on Unique Phygital and Memorable Shopping Experiences through Consumer Experiences in Phygital Retailing

Source: Authors

H8: The mediation analysis results a significant model ($p<0.01$) showing a significant effect of CEPR on UPMSE ($p<0.01$), a significant effect of CCI on CEPR ($p<0.01$) and a significant direct effect of CCI on UPMSE ($p<0.01$). The bootstrapped confidence interval confirms significance at the 0.05 level. The results support mediation.

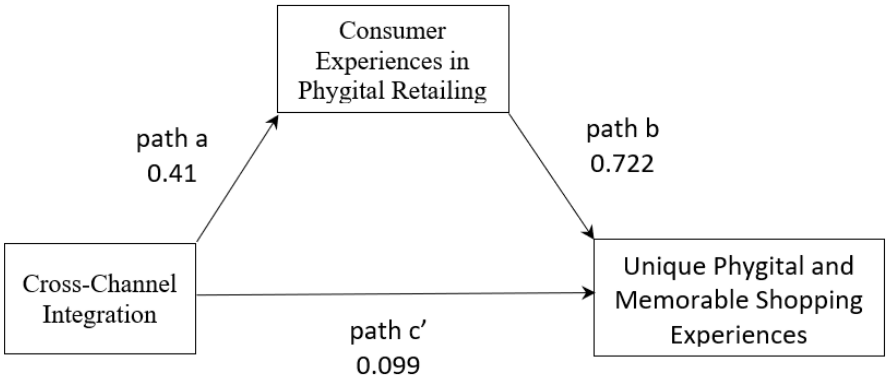

Figure 5. Indirect effect of Cross-Channel Integration and Unique Phygital and Memorable Shopping Experiences through Consumer Experiences in Phygital Retailing

Source: Authors

H9a: The analysis results a significant model ($p<0.01$) showing a significant effect of HEF on CEPR ($p<0.01$) and an $R2=0.572$. However, neither the effect of gender on CEPR ($p=0.812>0.05$), nor the effect of the product interaction term of gender and HEF ($p=0.124>0.05$) was significant on the 0.05 level. Bootstrapping produced similar results

because the bootstrapped confidence intervals include zero. As a result, there is insufficient evidence. The regression equation follows.

$$CEPR = 3.477 + 0.64 \times HEF - 0.011 \times GENDER - 0.108 \times HEF \times GENDER$$

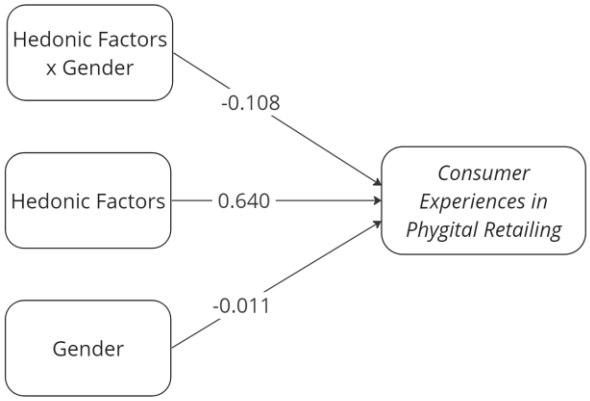

Figure 6. Moderating effect gender on the relationship between hedonic factors and consumer experiences in phygital retailing
Source: Authors

H9b: The analysis results a significant model ($p<0.01$) showing a significant effect of CCI on CEPR ($p<0.01$) with a low R2=0.195. However, neither the effect of gender on CEPR ($p=0.89>0.05$), nor the effect of the product interaction term between gender and CCI ($p=0.953>0.05$) was significant on the 0.05 level. Bootstrapping confirms the results because the bootstrapped confidence intervals include zero. In summary there is insufficient evidence to support the hypothesis. The regression equation follows.

$$CEPR = 3.466 + 0.413 \times CCI + 0.09 \times GENDER - 0.007 \times CCI \times GENDER$$

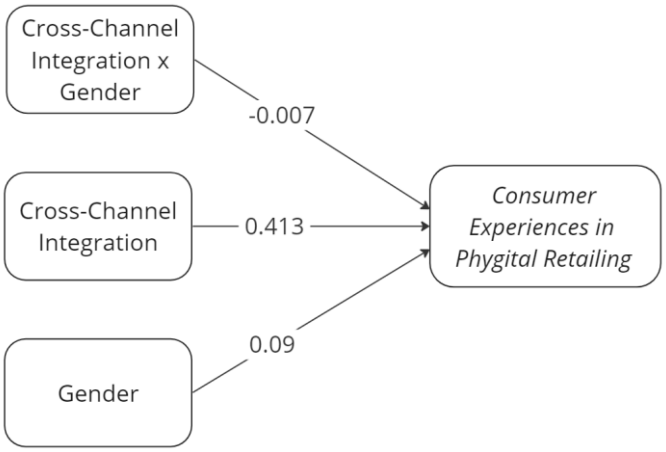

Figure 7. Moderating effect gender on the relationship between hedonic factors and consumer experiences in phygital retailing
Source: Authors

H10a: The analysis results a significant model ($p<0.01$) showing a direct effect of HEF on CEPR ($p<0.01$) and R2=0.576, however neither any of the generation indicator variables, nor any of the product interaction terms were significant at the 0.05 level (product terms: Gen-Z=reference, Millennials: $p=0.791>0.05$, Gen-X: $p=0.615>0.05$, Baby Boomers:

p=0.993>0.05). As a result, there is insufficient evidence to support the hypothesis. The regression equation follows.

$$CEPR = 3.537 + 0.646 \times HEF - 0.028 \times MILLENNIALS - 0.12 \times GEN\_X - 0.056 \times BABY\_BOOMERS - 0.038 \times HEF \times MILLENNIALS - 0.074 \times HEF \times GEN\_X + 0.02 \times HEF \times BABY\_BOOMERS$$

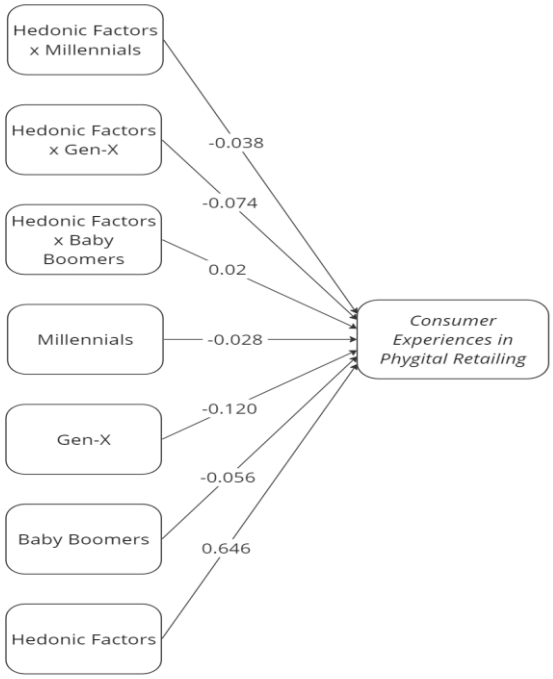

Figure 8. Moderating effect generation on the relationship between hedonic factors and consumer experiences in phygital retailing

Source: Authors

H10b: The analysis results a significant model (p<0.01) showing a direct effect of CCI on CEPR (p<0.05) and a low R2=0.207, however neither any of the generation indicator variables, nor any of the product interaction terms were significant at the 0.05 level (product terms: Gen-Z=reference, Millennials: p=0.599>0.05, Gen-X: p=0.902>0.05, Baby Boomers: p=0.845>0.05). As a result, there is insufficient evidence to support the hypothesis. The regression equation follows.

$$CEPR = 3.576 + 0.463 \times CCI - 0.139 \times MILLENNIALS - 0.088 \times GEN\_X - 0.037 \times BABY\_BOOMERS - 0.113 \times CCI \times MILLENNIALS + 0.027 \times CCI \times GEN\_X + 0.07 \times CCI \times BABY\_BOOMERS$$

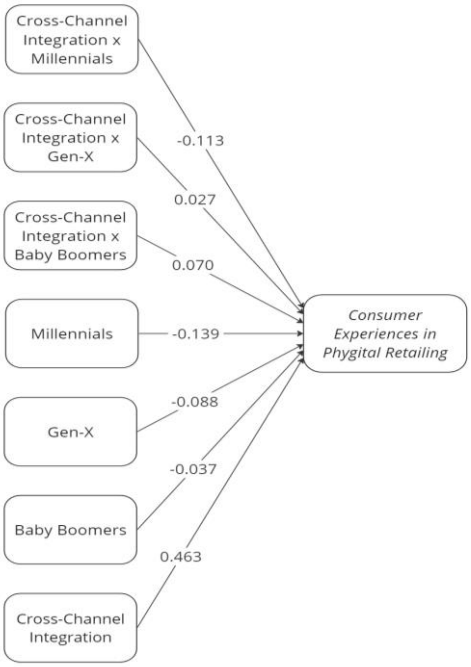

Figure 9. Moderating effect generation on the relationship between hedonic factors and consumer experiences in phygital retailing.
Source: Authors

3.3. Summary of research results

The following figure presents the research model including the research hypotheses results (see Figure 10).

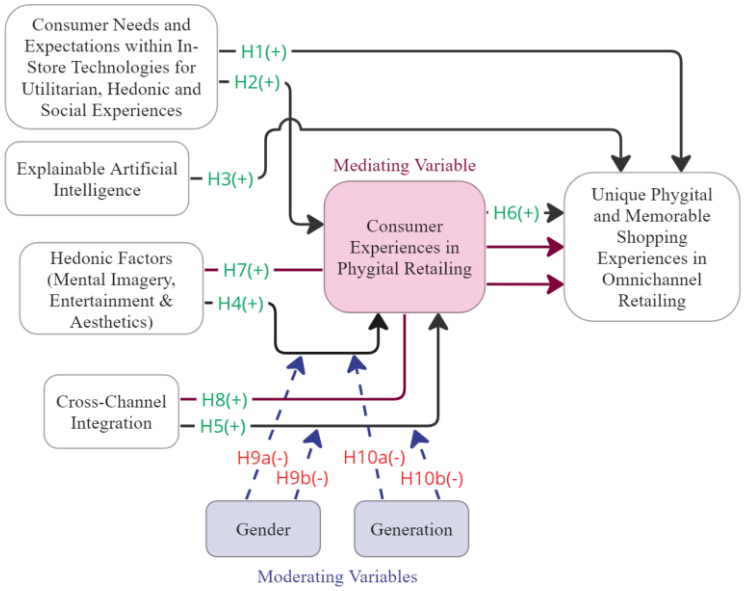

Figure 10. The research model including the research hypotheses results
Source: Authors

The hypotheses' testing results are presented in the following table including the level of significance (see Table 2).

Table 2. Hypotheses' testing results

Hypothesis	Support	Significance level
Research Hypothesis 1 (H1)	Supported	a=0.01
Research Hypothesis 2 (H2)	Supported	a=0.01
Research Hypothesis 3 (H3)	Supported	a=0.01
Research Hypothesis 4 (H4)	Supported	a=0.01
Research Hypothesis 5 (H5)	Supported	a=0.01
Research Hypothesis 6 (H6)	Supported	a=0.01
Research Hypothesis 7 (H7)	Supported	a=0.05
Research Hypothesis 8 (H8)	Supported	a=0.05
Research Hypothesis 9a (H9a)	Not Supported	a=0.05
Research Hypothesis 9b (H9b)	Not Supported	a=0.05
Research Hypothesis 10a (H10a)	Not Supported	a=0.05
Research Hypothesis 10b (H10b)	Not Supported	a=0.05

Source: Authors

3.4. Empirical tested model

We conduct a multivariate linear regression to estimate UPMSE based on CNE, HEF, CCI, and CEPR, excluding EAI for its insignificant effect (p=0.992) and CNE (p=0.247). After removing one outlier (Z-score > 3.29), the final sample size was N=228. The model explained 69.2% of the variance in UPMSE ($R^2 = 0.692$), showing a good fit with normally distributed residuals and a Durbin-Watson statistic of 1.923, indicating no autocorrelation. Building on Bonfanti et al. (2023), we explore what phygital shoppers seek in in-store technology and present a model merging digital and physical strategies. Retailers looking to increase customer engagement and loyalty will find this information useful. Figures 11 and 12 show the fitted line plot and the empirical tested model. The final regression equation follows.

$$\text{UPMSE} = 0.612 + 0.1 \times \text{HEF} + 0.097 \times \text{CCI} + 0.633 \times \text{CEPR}$$

$$where\ UPMSE = Unique\ Phygital\ and\ Memorable\ Shopping\ Exeriences, HEF = Hedonic\ Factors, CCI = Cross - Channel\ Integration, CEPR = Consumer\ Experiences\ in\ Phygital\ Retailing$$

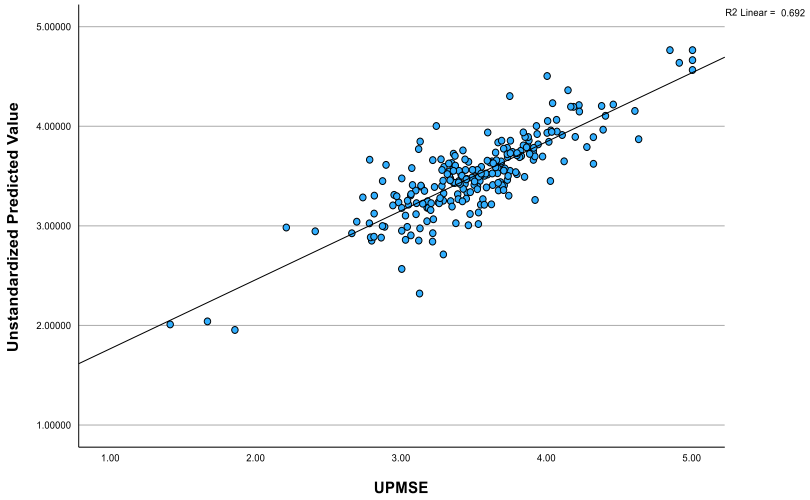

Figure 11. Regression fitted line

Source: Authors

Based on the research results and the relative interpretation, the empirical tested model forms as follows:

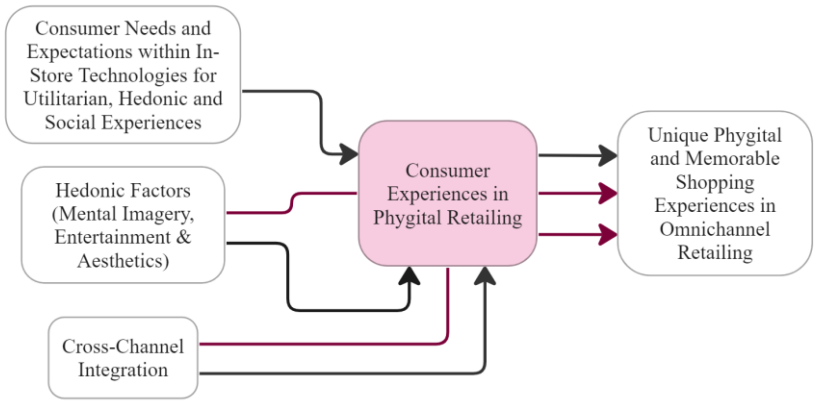

Figure 12. Empirical tested model
Source: Authors

4. Discussion

We accept H1, which states that consumer needs enhance the phygital shopping experience, and H2, which suggests these factors influence phygital retail experiences. The results align with the Bonfanti model (Bonfanti et al., 2023) and supports findings from Batat (2022a) and Mosquera et al. (2018). Concerning the second research objective, while Hypothesis 3 is supported, our regression model showed no distinct impact of explainable AI on the phygital shopping experience. Instead, we agree with Batat (2022a, 2022b) that phygital contexts should be viewed holistically. Our results contrast with those of Bilal et al. (2024) and Zimmermann et al. (2023).

The acceptance of H4 and H7 highlights that hedonic factors influence both in-store experiences and the overall phygital experience, linking mental imagery, entertainment, and aesthetics to retail shopping, consistent with several studies (Kumar et al., 2024; Banik & Gao, 2023; Banik, 2021; Stein & Ramaseshan, 2020; Sachdeva & Goel, 2015). Additionally, the acceptance of H5 and H8 emphasizes the positive impact of cross-channel integration on creating a unique phygital shopping experience, aligning with the integrated approach phygital offers and findings from other researchers (Zhang et al., 2024; Mishra et al., 2023; Quach et al., 2022; Gao et al., 2021; Nguyen, 2021).

Both hedonic factors and cross-channel integration significantly impact phygital customers, with a slight preference for the hedonic approach. Our study emphasizes the direct influence of in-store experiences on phygital shopping, supporting the idea that consumers assess offerings through socioeconomic criteria, as suggested by social exchange theory. These findings, aligned with Bonfanti et al. (2023), Banik and Gao (2023), and Batat (2022b), highlight the added value of phygital experiences for customers.

Our study could not identify any moderating effects of gender or generation on the relationships between hedonic factors, cross-channel integration, and the unique phygital shopping experience. Consequently, we rejected H9a and H9b and cannot confirm the findings by Banik and Gao (2023) and others on gender. Additionally, with H10a and H10b rejected, we cannot validate the generational effects that Khan et al. (2020b) and others noted.

4.1. Theoretical and research implications

The Social Exchange Theory (SET) is crucial for understanding consumer behavior in omnichannel retailing, particularly in creating memorable phygital shopping experiences. SET highlights the importance of reciprocity and trust, as customers expect seamless interactions across all channels. When retailers meet these expectations, consumers are more likely to be loyal and make repeat purchases (Salvietti et al., 2022). They also evaluate the benefits and drawbacks of their shopping experiences. Omnichannel retailers can enhance positive experiences by balancing effort and value through personalized offers and efficient logistics (Ahmad et al., 2023).

Exchanges are the foundation of any relationship, and nowhere is this truer than in retail. Retailers can make that bond even closer using data to personalize customer touchpoints. Identifying what financial, informational, and social currencies consumers exchange in a physical setting better provides an enhanced shopping experience. Consumers appreciate fairness, and those who feel that omnichannel retailers are equitable-that is, consistent and transparent-in their pricing are more likely to be loyal. It would be useful for retailers looking to deliver effective omnichannel strategies to understand research into the psychological drivers of consumer behavior, the facilitation of technology in ensuring transactional fairness, and the long-term consequences for customer loyalty and brand image.

Moreover, SET provides a framework for analyzing customer interaction with in-store phygital technologies balanced between hedonic and utilitarian dimensions. It thus allows insight into understanding how perceived value affects consumer satisfaction and loyalty, according to Ahmad et al. (2023), and it will describe how these technologies improve the shopping experience and strengthen brand loyalty. According to this viewpoint, SET highlights consumer expectations in social contexts and advances research into how such technologies satisfy needs and impact the shopping experience.

The theory focuses on factors influencing consumer acceptance of new in-store technologies, especially perceived usefulness, dependability, and ease of adopting the technology. It also examines the effects of personalization through these technologies on consumer behavior with a fair idea of reciprocity in an exchange.

Explainable AI, in addition to a SET-based recommendation system, will contribute to increasing in-store experiences by establishing user trust. Transparence in AI recommendations increase user confidence in the potential of having more meaningful phygital experiences. By making recommendations toward user preference, explainable AI provides the user with a more personalized experience, which aligns with the emphasis on reciprocity in exchanges proposed by SET.

Repeat business and brand advocacy will likely follow when customers' needs are satisfied. By emphasizing the advantages of products, explainable AI improves convenience and the shopping experience (Mökander & Schroeder, 2022). Social Exchange Theory states that any transaction must be fair. Explainable AI boosts customer satisfaction by offering objective advice (Ahmad et al., 2023). According to Cropanzano et al. (2015), AI systems progressively improve their recommendations based on user feedback, which highlight the need to consider ethics to avoid consumer biases and maintain a trustworthy shopping environment, especially when developing explainable AI.

The study of consumer behavior in physical retail-e.g., Halibas et al. (2023)-and omnichannel retailing-e.g., Asmare and Zewdie (2022)-offers some interesting avenues for applying SET in the work of Gonzalez and Ferrandi (2021). Reciprocal behavior is crucial to evaluate how explainability impacts customer satisfaction and trust. The inquiry on ethical implications of AI recommendations in retail will provide useful outputs to help merchants exploit explainable AI to improve phygital shopping experiences.

4.2. Practical implications

The Social Exchange Theory increases the impacts of omnichannel retail because customers' experiences are influenced by the quality of the transactions. Chou and Hsu (2016) extend the idea of presenting the emotional and rational aspects of satisfaction and trust. It is appropriate for the different exciting experiences in phygital retail to show the value of a product and develop positive feelings. SET suggests that exchanges depend on perceived benefits and costs, so retailers can attract customers and encourage loyalty by offering tangible (like discounts) and intangible (such as exclusive experiences) incentives.

To improve interactions in physical retail through high-quality service—a strategy that improves both online and in-store shopping experiences—trust is essential, according to Social Exchange Theory. Phygital stores can draw consumers by using SET principles when advantages, such as convenience and time savings, exceed disadvantages by adopting mobile payments, self-checkout kiosks, and customized recommendations. The shopping experience is further enhanced by technologies like gamification, virtual reality, and interactive displays, which result in more satisfying transactions.

SET emphasizes the critical role of social interactions and relationships in the retail industry. These ideas can be applied in physical retail settings using linked technologies like social media and product reviews. Augmented reality fitting rooms and AI assistants improve personalization during shopping and produce memorable experiences. Marketers can develop technologies that satisfy consumer needs and ultimately lead to more fulfilling experiences by applying SET principles in a digital context.

4.3. Further research and limitations

The study draws attention to Greece's fledgling physical retail industry's small market size and potential cultural biases. Generalizability may be limited by a sample that is biased toward early enthusiasts. The underrepresentation of Gen-Z and Baby Boomers may affect the results, even though there are no discernible physical differences between the generations. Future studies should concentrate on changing consumer preferences in physical settings, stressing demographic engagement and its impact on purchasing decisions, and using larger sample sizes for more accurate comparisons (Sharma & Dutta, 2023). Research should explore how AI, VR, and AR enhance cross-channel and in-store shopping, focusing on effective integration. Supply chain efficiency depends on giving timely delivery and customer satisfaction top priority. Effectively addressing omnichannel retail challenges requires strategic frameworks that match business models with physical strategies.

Conclusions

A positive linear relationship exists between consumer needs for in-store technologies and their experiences in phygital retailing, particularly in utilitarian, hedonic, and social aspects. A nonlinear positive relationship also exists between explainable AI and memorable phygital experiences. In physical retailing, hedonic factors also improve customer experiences and create memorable shopping moments. For the fourth goal, cross-channel integration and consumer experiences in physical retailing have a positive nonlinear relationship that improves distinctive shopping experiences. However, for the fifth objective, we find no moderating effects of gender or generation on the relationships between hedonic factors and consumer experiences or between cross-channel integration and consumer experiences.

SET standard targets phygital retail spaces in omnichannel marketing by illustrating the flow of transactions between buyers and sellers, since it aids in understanding and enhancing the customer experience. New SET applications can be developed by examining consumer behavior in these settings. Future research must focus on how consumer preferences and

attitudes change in physical environments to improve growth and profitability, retailers can evaluate the alignment of their phygital strategy with their business model.

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Egocentrism Among Generation Z: The Influence on Sustainable Behavior

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Abstract
Generation Z is among the youngest cohorts defined by specialists. Thus, the research questions for this study are 'How does egocentrism influence the behavior of Generation Z?', respectively 'What other factors dictate the sustainable behavior of this generation?'. As the methodology, we built an egocentrism index (aggregate variable) to measure individuals' egocentrism. Also, we looked at whether the expressed/materialized behavior is influenced by individuals' concern for their person and their role in society. Thus, we conducted a quantitative research among the young people who make up Generation Z, the sampling method being convenience sampling. The results obtained from this research showed us that the value of the egocentrism index is lower for the young people of Generation Z compared to other cohorts (for example, Generation X). At the same time, within this scientific approach, we could observe that care for the environment, the desire for involvement and to change unpleasant aspects in the community are not influenced, in a significant way, by the value of the egocentrism index. For our work, the research novelty is represented by the analysis of the influence that the egocentrism index has on sustainable behavior.

Keywords: Generation Z, egocentrism index, sustainable behavior, Theory of Planned Behavior, recycling.

JEL classification: Q01, Q56, M31.

Introduction

Now, pollution is a phenomenon that individuals face more and more frequently. Starting from throwing away clothes to the waste of food, natural resources, energy, or water and continuing with the packaging of the products we use every day, individuals contribute, through the behavior they adopt, to the pollution of the environment and the reduction of available resources for future generations. In recent years, companies have been trying to combat these behaviors by educating consumers, implementing sustainable principles in production processes, and running programs to help consumers in the process of recycling and reusing products they no longer need.

In carrying out this study, we followed the analysis of consumers' recycling behavior regarding aluminum cans and plastic packaging resulting from consumption and daily activities. For example, recent studies (McCarthy, 2020) show that, currently, worldwide, consumers in China generate the largest amount of waste (8.8 million metric tons of mismanaged plastic waste), with 3.53 million metric tons of it ending up in the ocean (McCarthy, 2020). The large amount of waste resulting from daily activities was the main argument based on which we chose this category of packaging.

Starting from the premise that consumers exhibit heterogeneous behavior, the study aims to identify the importance of the rewards they receive as a result of the recycling process. Thus, we aim to find out if the main motivation behind the recycling process is the desire to live in a cleaner environment, to conserve the resources we have at our disposal and preserve them for

future generations, or on the contrary, we only recycle when we are appreciated for our actions. In other words, we look to see if the recycling process undertaken by a consumer is based on extrinsic or intrinsic motivation. In the category of intrinsic motivations, we distinguish rewards such as appreciation from the reference group, the community, or material rewards that customers receive in the form of vouchers or discounts. Based on the assumption that, at a generational level, Baby Bloomers or Generation Z represents the consumer segment that pays the most attention to the environment and engages in actions aimed at protecting and preserving it (Dabija et al., 2019; Lan, 2014), we believe that the study should be based around the analysis of the behavior of the young people of Generation Z.

Similarly, starting from the premise that these young people have a higher level of egocentrism, in this study we aim to identify the link between the recycling intention of young people and how it is influenced by the egocentrism index. Egocentrism indices are measures that assess the extent to which individuals exhibit egocentric thinking in various domains, such as social, moral, or cognitive domains. These measures typically involve presenting participants with hypothetical scenarios and asking them to respond to questions that require considering others' viewpoints (Hart, 1991).

Research has shown that individuals who exhibit higher levels of egocentrism may be less likely to engage in pro-environmental behavior, such as recycling (Klockner, 2013; Vining & Ebreo, 1990). This may be because egocentric individuals are more likely to prioritize their interests over the interests of others, and may not see the benefits of recycling for the broader community and the environment. One study found that individuals who scored higher on a measure of egocentrism were less likely to engage in recycling behavior, even when controlling for other factors such as environmental concern and knowledge (Klockner, 2013). This suggests that egocentrism may be an important factor to consider when designing interventions to promote recycling behavior.

Given the negative impact of egocentric thinking on recycling behavior, it is important to develop interventions that take this factor into account. One potential approach is to frame recycling behavior in a way that highlights the personal benefits to individuals, rather than focusing solely on the broader environmental benefits. For example, one study found that emphasizing the personal benefits of recycling, such as saving money or creating a cleaner living environment, was more effective in promoting recycling behavior among individuals who scored high on measures of egocentrism (Moser & Dilling, 2004). This suggests that interventions that appeal to individuals' self-interest may be more effective in promoting recycling behavior among egocentric individuals.

Another potential intervention is to use social norms to promote recycling behavior. Research has shown that individuals are more likely to engage in pro-environmental behavior when they perceive that others are also engaging in that behavior (Schultz et al., 2007). This approach may be particularly effective among egocentric individuals, who may be more influenced by the behavior of others than by broader environmental concerns.

1. Literature review

1.1. The theory of planned behavior in recycling

Recycling is the process of converting waste into reusable materials. Recycling has become an important part of waste management in recent times due to the increasing concerns about environmental pollution and resource depletion. Recycling behavior is the action that an individual takes to recycle waste materials. Recycling behavior is influenced by several factors, including attitude, knowledge, convenience, and social norms. Studies have shown that attitude is a key determinant of recycling behavior (Kaciak & Kushner, 2009; Knussen et al., 2004; Mannetti et al., 2004). Attitude refers to an individual's positive or negative evaluation of

recycling behavior (Kondrotiene et al., 2024). People who have positive attitudes toward recycling are more likely to have strong recycling intentions (Ajzen, 2012) and are more likely to recycle. Knowledge of the benefits of recycling is also an important factor that motivates people to recycle. Therefore, educating people about the environmental, social, and economic benefits of recycling is important.

Under these conditions, we can state that the Theory of Planned Behavior (TPB) provides the theoretical framework that can explain sustainable behavior, particularly recycling, by considering the factors that influence behavioral intentions. Some research (Mehmood et al., 2024) suggests that proper advertising and information can improve recycling intentions, in this case, information acts as a factor that shapes positive attitudes toward recycling. Some studies (Xie & Wang, 2024; Van den Broeck et al., 2016) demonstrate that recycling behavior is directly related to the individual's physiological needs. Once these are satisfied, consumers acquire control over their behavior, an aspect that materializes in intrinsic motivations, which causes the consumer to engage in a certain behavior.

Physiological needs lead the individual to adopt a recycling behavior. Some authors (Xie & Wang, 2024) believe that people with a higher sense of autonomy have a higher level of self-satisfaction. This aspect materializes through a high level of involvement.

Thus, these people believe that the actions they undertake have the possibility of helping the community in which they live and can contribute to protecting the environment. We can also conclude that these individuals are aware of the importance of their actions, and can satisfy their own needs, without compromising the chances of future generations. Practically, for recycling behavior the desire to recycle is seen as a moderating variable (Xie & Wang, 2024), which facilitates the emergence of the analyzed behavior. Depending on the motivation felt and its intensity, the individual can act to satisfy that desire and implicitly, in adopting the recycling behavior.

Recycling intentions are also an important predictor of recycling behavior. Recycling intentions refer to the degree to which individuals plan to recycle in the future (Vijayan et al., 2023). Understanding recycling intentions can provide insights into how to promote and sustain recycling behavior.

Studies consider that recycling intentions represent the direction to follow to adopt sustainable resource management (Knickmeyer, 2020), their role becoming more important with the development of the circular economy (Taouahria, 2024). The intention to recycle reflects the desire of individuals to extend the life of materials and to reduce the excessive consumption of exhaustible resources. Subjective norms refer to the degree to which an individual perceives social pressure to engage in a behavior (Anderson, 2023), in this case in a recycling behavior. People who perceive that their social group or community values recycling are more likely to have strong recycling intentions (Ajzen & Fishbein, 2005).

As a part of the Planned Behavior Theory (TPB), the subjective norms reflect the individual beliefs about the surrounding environment, providing directions to comply with these rules (Wahyuniet al., 2019). Recent studies (Wang et al., 2023; Zhou et al., 2024) demonstrate that social pressures and expectations can accelerate the adoption of sustainable practices, not only influencing behavioral intentions but also contributing to the creation of a favorable framework for the development of environmentally friendly behavior on a broader scale.

Perceived behavioral control refers to an individual's perceived ability to engage in recycling behavior. People who perceive they have control over their recycling behavior are likelier to have strong recycling intentions (Ajzen, 2012). The lack of access to recycling infrastructure can lead to a reduction in perceived control while facilitating access increases the likelihood of participation in the recycling process (Panda et al., 2024).

Environmental concern refers to an individual's concern for the environment. People who are more environmentally concerned are more likely to have strong recycling intentions (Bolderdijk et al., 2013). Convenience is another important factor that influences recycling behavior. People are more likely to recycle if the recycling process is easy and convenient (Soon, 2024). Therefore, it is important to provide convenient recycling facilities such as recycling bins in public places and homes.

Social norms also play a role in shaping recycling behavior. People are more likely to recycle if they perceive that recycling is the norm in their social group or community (Thomas & Sharp, 2013). Therefore, it is important to promote recycling as a social norm by highlighting the benefits of recycling and encouraging people to recycle.

1.2. Recycling packaging

Packaging is an essential component of our daily lives, and it plays a critical role in protecting and preserving the products we use. However, the negative environmental impacts of packaging waste cannot be ignored. In recent years, there has been a growing concern about the disposal of packaging waste and its impact on the environment. Recycling is the responsibility of individuals, being an eco-friendly attitude (Roger-Loppacher et al., 2022) and can be a successful process only to the extent that they are aware of the negative impact that packaging has on the environment (Ding & Zhu, 2023).

Packaging waste is a significant environmental problem, with millions of tons of packaging waste generated annually around the world. The disposal of packaging waste in landfills and incinerators contributes to greenhouse gas emissions, water pollution, and other negative environmental impacts (OECD, 2022). Additionally, the production of new packaging materials requires energy and natural resources, further contributing to environmental degradation (Kirwan, 2011).

Currently, it has been shown that the most attractive material that can be recycled is aluminum. It is a material that, after recycling, does not lose its properties, by running this process achieving a 95% reduction in energy consumption when manufacturing new products. At the same time, aluminum is a material used in numerous packaging, so consumers are familiar with it (Roger-Loppacher et al., 2022).

However, according to its universal character, since the 1940s, plastic has occupied an increasing share of packaging materials. Of course, the expansion was also supported by the low cost required to procure plastic packaging (Gritsch, et al., 2024). However, in recent years, consumer perception towards these packaging has changed, registering a negative outlook. Consumers are becoming increasingly aware of the harmful effects that plastic can have both on the items for which the packaging is made, and on the environment, since it has a long life, and individuals have not yet learned the habit of recycling. Some studies state that paper currently accounts for 36% of packaging materials, followed by plastic (34%) (Gritsch et al., 2024).

Recycling plays a critical role in reducing the negative impacts of packaging waste. Recycling allows for the recovery of materials from packaging waste, reducing the need for new materials and conserving natural resources (Kirwan, 2011). Recycling also creates jobs and supports the economy, contributing to sustainable development (Ellen MacArthur Foundation, 2017).

Despite the benefits of recycling, the current state of packaging recycling is not satisfactory. In many parts of the world, the recycling of packaging materials is limited, and the amount of packaging waste sent to landfills and incinerators remains high (Kirwan, 2011). Additionally, the quality of recycled packaging materials can be compromised by contamination and other factors, reducing their usefulness and value (OECD, 2022).

The recycling rate of municipal waste in the European Union was 48% in 2020. According to the latest analyses carried out, the EU member states do not meet the target imposed at the community group level, aiming to reach a threshold of 60% by 2030 (Figure 1).

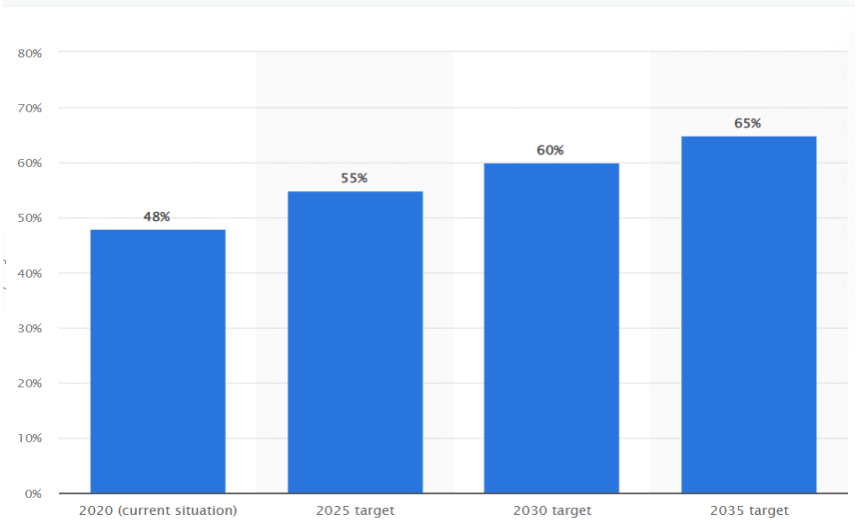

Figure 1: Municipal waste recycling targets in the European Union
Source: (Tiseo, 2023a)

Also, at the level of the European Union, the targets that we must reach are set according to the materials from which the packaging is made (Figure no. 2).

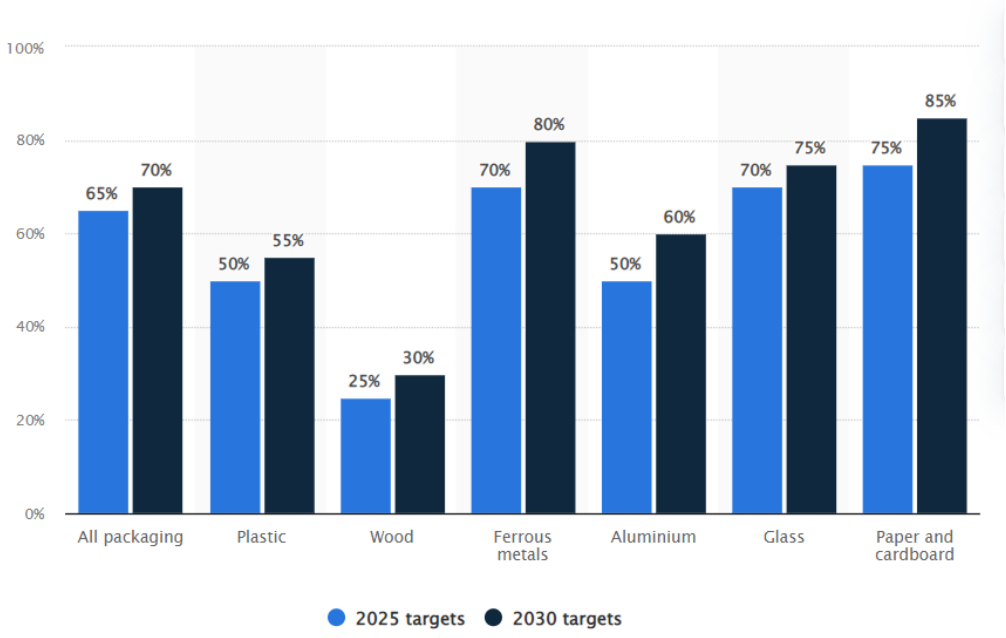

Figure 2: Packaging recycling targets by type
Source: (Tiseo, 2023b)

In our country, the waste collection industry increased by 153,2 million euros in 2020 in comparison to the previous year. Analyzing these data, we can say that citizens are increasingly concerned about protecting the environment and want to get involved more and more in actions aimed at collecting packaging. Regarding the opinion of the members of Generation Z, a study conducted in 2021 shows us that the usage of sustainable methods and materials for the production of goods by companies was cited as highly important to Romanian Gen Z

representatives; to compare, the promotion of sustainable products had no relevance to eight percent of the survey participants.

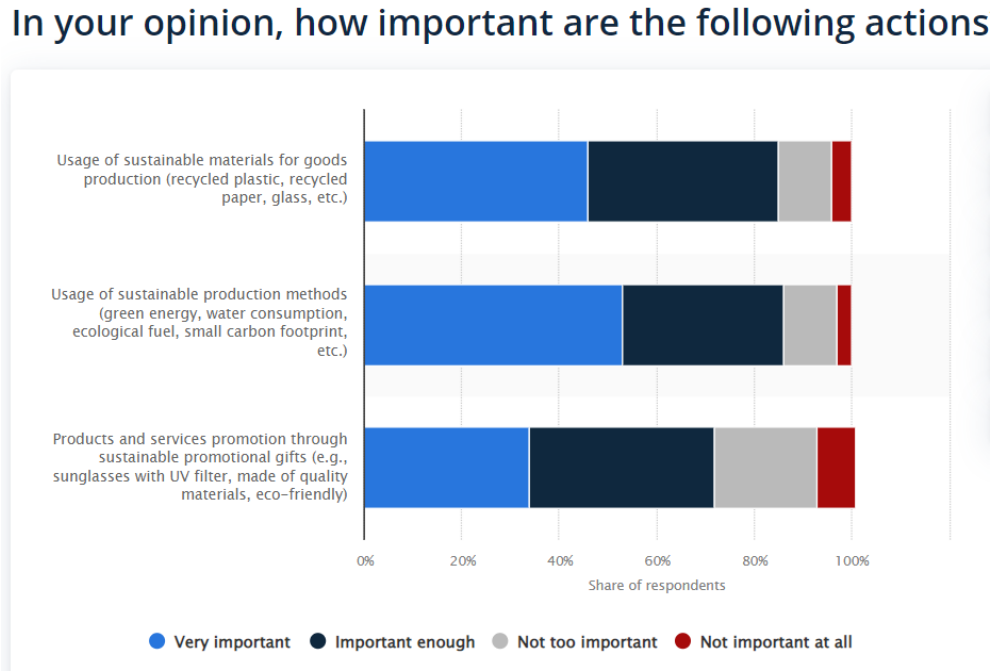

Figure 3: The importance of some sustainable actions
Source: (Statista Research Department, 2022)

One of the solutions identified over time that has the possibility of increasing the recycling rate is represented by educating consumers, especially those from the urban environment (Hou et al., 2020; Yang et al., 2024). They represent a target segment both from the perspective of high product consumption and access to recycling infrastructure. In analyzing recycling behavior, we must also consider the cost of packaging. Many consumers indicate that they are willing to pay more for products that use eco-friendly packaging and to participate in recycling it, being aware of the role they need to play in the recycling process (Lin & Wang, 2023).

1.3. Egocentrism index

Consumer behavior is influenced by various psychological factors, including individual differences in personality traits, motivations, and attitudes (Efrat & Zait, 2024). One such factor is egocentrism, a tendency to view oneself as the center of attention (Tajmirriyahiet al., 2020). Thus, people with a high level of egocentrism tend to see themselves only in a favorable manner (Burrus & Mattern, 2010). Egocentrism can influence consumer behavior by affecting how individuals process information about products and brands (Todd & Tamir, 2024).

For example, Hwang and Kandampully (2012) used the egocentrism index to investigate how self-referential processing influences brand loyalty. They found that individuals with higher egocentrism index scores were more likely to exhibit brand loyalty, suggesting that self-referential processing plays a role in brand attachment. In another study, Nguyen et al. (2017) used the egocentrism index to examine how self-referential processing influences the evaluation of luxury products. They found that individuals with higher egocentrism index scores had a more positive attitude toward luxury products, suggesting that self-referential processing plays a role in the perception of luxury products.

The egocentrism index has also been used to investigate the influence of self-concept on consumer behavior. For example, Wang, Yeh, and Liao (2013) used the egocentrism index to

study how self-concept affects online purchase intentions. They found that individuals with higher egocentrism index scores were more likely to make online purchases, suggesting that self-referential processing plays a role in online purchase intentions.

Given the existing differences between individuals, egocentrism can represent an explanation for social conflicts, differences of opinion, or attitudes that they display (Campbell et al., 2000). Over time, some researchers have associated egocentrism with the idea of narcissism, which is used to measure the degree of egocentrism of people (Campbell et al., 2000; Smith et al., 2019; Robbins & Patton, 1985). Of course, the definition of egocentrism can be different depending on the population we are referring to. For example, among adolescents and young people, egocentrism is seen as the failure to distinguish self from non-self (Cohn, 1988). The argument consists in the fact that, during adolescence, the personality of young people is not defined in a definitive way, an aspect that leads to taking over certain traits and behaviors from the people around them (Shende & Kadam, 2024; Wang et al., 2024).

Despite its usefulness as a measure of self-referential processing, the egocentrism index has some limitations in consumer behavior research. One limitation is that it assumes that self-referential processing is the only factor that influences consumer behavior. Other factors such as social influence, situational factors, and individual differences may also affect consumer behavior. Another limitation is that the egocentrism index only provides a relative measure of self-referential processing, rather than an absolute measure.

2. Methodology

Starting from the theory of planned behavior, we analyzed the impact of subjective norms, environmental concern, and perceived behavioral control on recycling intention and consumer recycling behavior (figure no. 4). Also, we analyzed the impact of the egocentrism index on behavioral attitudes and behavioral intentions. For this research, we added a new component to the Theory of Planned Behavior.

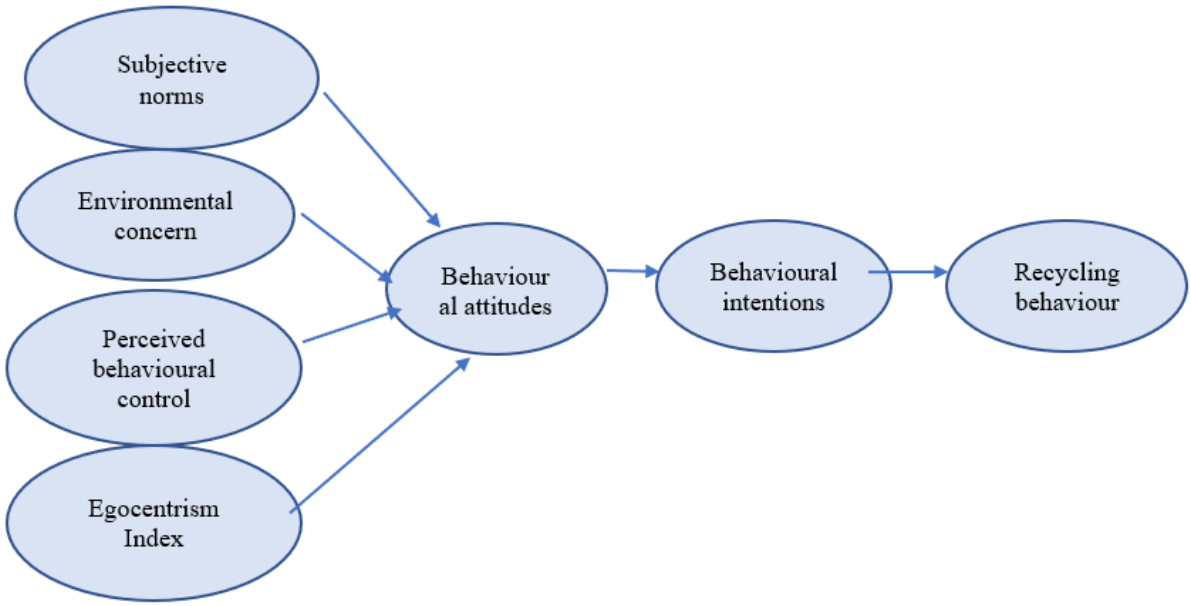

Figure 4: The proposed conceptual model
Source: made by the authors

For this conceptual model, we used the theory of planned behavior (TPB). TPB posits that behavior is determined by three factors: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). For this study, quantitative research was carried out using a questionnaire to measure the constructs of TPB, as well as demographic information such as

gender, education level, and income. The TPB constructs will be measured using established scales, including attitudes toward sustainable behaviors, subjective norms, and perceived behavioral control (Ajzen, 1991). In addition, the questionnaire will include questions about past behavior, current behavior, and intentions to engage in sustainable behaviors in the future.

Regarding the egocentrism index, it was measured using the scale developed by Tajmirriyahi et al. in 2020. I chose this scale because it puts more emphasis on personality traits, emphasizing, through statements, the individuals' perspective, without taking into account the possibility that they shape their behavior taking into account the opinions of the people around them. The measurement scale included 14 statements related to individuals' perceptions and personality traits.

For this research, the sample consists of young people from Generation Z, also known as the iGeneration. Generation Z is the first cohort to grow up entirely in the digital age, and as such, they are digital natives who are comfortable with technology and social media (Madden et al., 2013). They are also the most diverse generation in history, with a higher proportion of racial and ethnic minorities and greater acceptance of LGBTQ+ individuals (Parker et al., 2019). Generation Z is also socially conscious and more likely to support social justice causes and environmental sustainability (Ozkan, 2017).

Despite their unique characteristics, Generation Z faces several challenges, including economic uncertainty, political polarization, and mental health issues (Twenge, 2019). Additionally, the COVID-19 pandemic has further exacerbated these challenges, with many Zoomers experiencing disrupted education and job prospects (United Nations, 2020). However, Generation Z also has several opportunities, including their digital savvy, diversity, and social consciousness, which can be leveraged to drive positive change in society.

The research was conducted during this spring (March – April 2024), and the sample consisted of approximately 600 individuals from Generation Z. The questionnaire was administered online, using the convenience sampling method.

3. Results

Starting from the 14 statements included in the egocentrism measurement scale, we created an aggregate variable - the egocentrism index. Thus, based on this, we were able to appreciate the level of egocentrism of the individuals: low, medium, and high. In the analysis of the behavior of the individuals, we took into account the level of the egocentrism index and the behavior shown by the individuals.

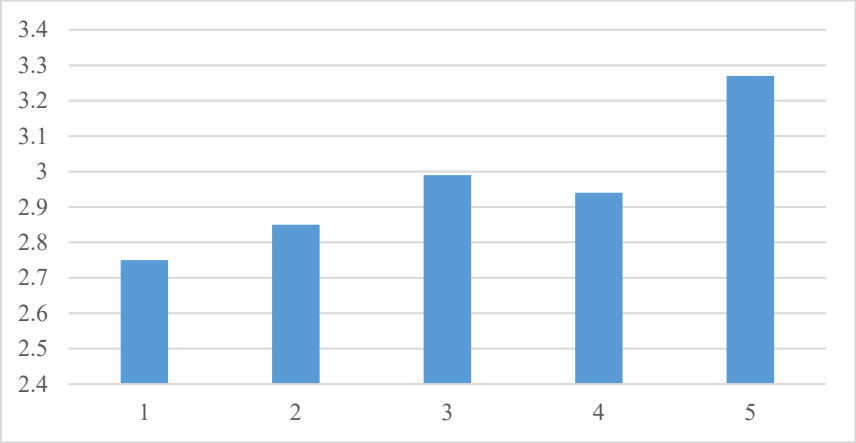

Figure 5: Opinion on the responsibility of recycling packaging
Source: made by the authors

According to Figure No. 5, people who have a high level of the egocentrism index believe that sorting the packaging is the responsibility of the sanitation people. They believe that a disclaimer is required. Theoretical research has demonstrated that individuals from Generation Z are more engaged in environmental protection and recycling processes. However, the level of egocentrism index alters the factors that can explain this behavior, emphasizing individuals' self-image (social self).

Since October 2023, Romania has implemented the Guarantee-Return System (GRS), under which consumers pay a fee of 0.50 RON for each product with plastic or aluminum packaging. This fee can be reimbursed by recycling the packaging at special machines placed by retailers in their stores. Of course, the benefits of this program have been significant, the most important being the removal of plastic and aluminum packaging from the environment.

However, some consumers may perceive the collection of packaging and travel to recycling machines as inconvenient, fearing that they might be judged by others. As a result, individuals with a high egocentrism index may feel that such actions are incompatible with the self-image they wish to project in society, leading them to view recycling as a responsibility for sanitation workers. Also, most of these individuals think that waste sorting is a task that must be done by other family members (Figure no. 6). Thus, people with a high level of egocentrism index decline responsibility, especially towards other family members.

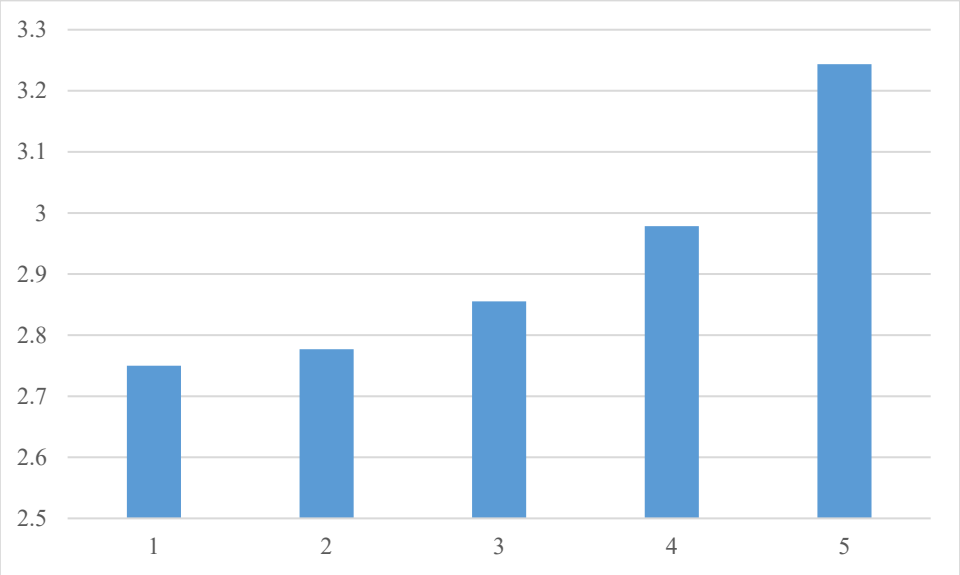

Figure 6: Waste sorting by other family members
Source: made by the authors

Of course, one aspect that may justify this opinion is the age of the respondents. Generation Z is represented by young individuals who have not yet developed full independence from their parents, with some still sharing the same household. This allows them to shift responsibilities related to household management onto others. Suppose in terms of recycling attitudes and responsibility, a clear differentiation is evident between people according to the level of the egocentrism index. In that case, the distinction is more difficult to achieve about recycling behavior.

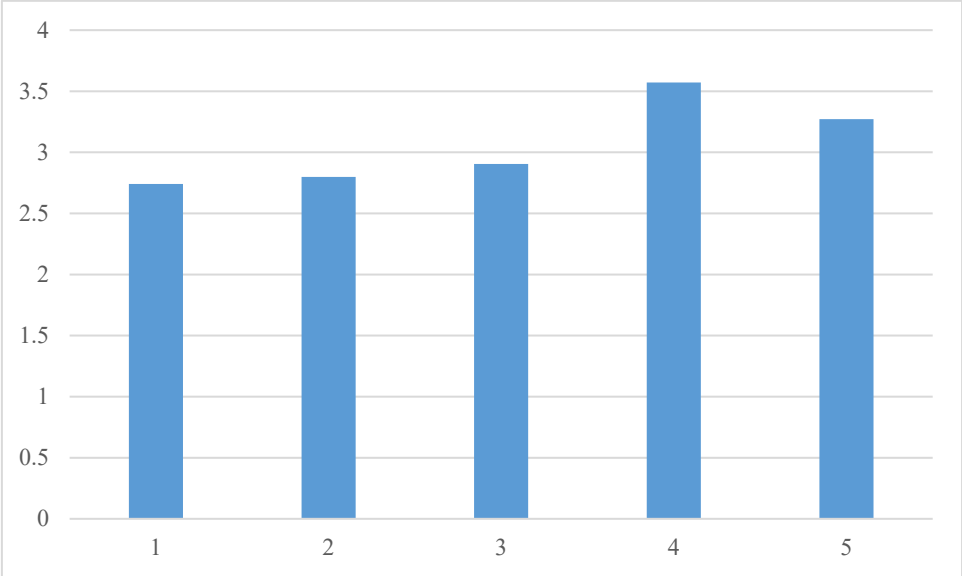

Figure 7: Reuse behavior according to the egocentrism index
Source: made by the authors

People with a medium to high level of self-centeredness do not buy drinks in plastic packaging. Thus, in aspects that reflect both personal comfort and protecting the environment, people with a high level of egocentrism index continue to be involved. Starting from the premise that people with a high level of egocentrism are more concerned about themselves, the results obtained from the research showed that they think that environmental problems are not so serious, and in the medium term, things will balance (Figure no. 8).

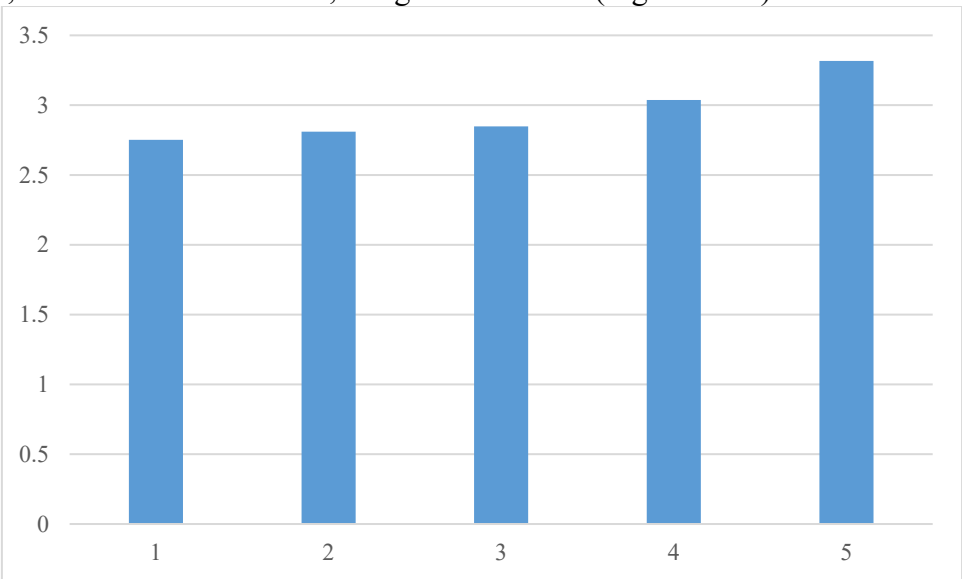

Figure no. 8: Care for the environment according to the egocentrism index
Source: made by the authors

Being more self-focused, these individuals tend to downplay issues related to pollution, considering them to be brought to public attention through advertising without a real basis. Thus, they believe that, if environmental problems do exist, they are at a much lower level and do not have a tangible impact on their lives. Of course, during the scientific inquiry, we asked ourselves how companies could reach consumers with a high egocentrism index. How could they be persuaded to recycle?

One of the results obtained from the quantitative research shows that rewards are significant for these individuals (Figure no. 9).

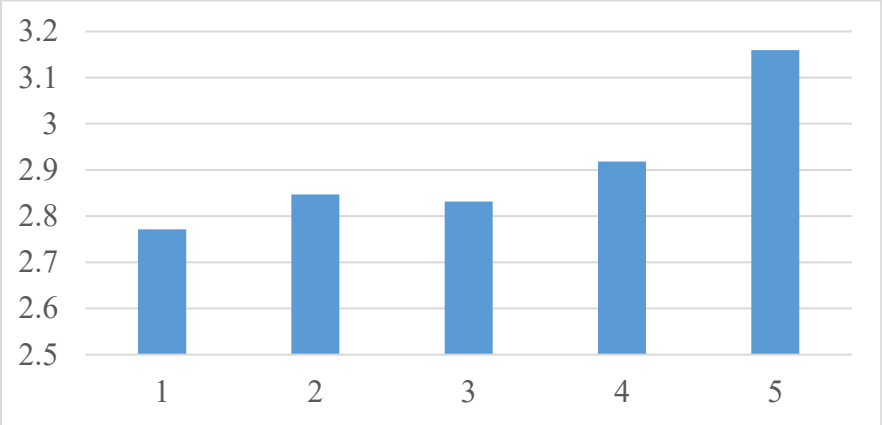

Figure no. 9: Consumers recycle for economic reasons (rewards, coupons, vouchers)
Source: made by the authors

Individuals who choose to recycle are primarily motivated by the rewards they receive. However, there is a discrepancy compared to the initial findings. If these young people are motivated by financial rewards, why don't they make greater use of guarantee-return systems?

A possible explanation could be the way these systems are positioned and promoted. It is likely that if the rewards take the form of gifts, young people might be more receptive. The refund provided in major stores after recycling is often perceived by many as a right, given that the cost was already incurred at the time of purchasing the product.

4. Conclusions

Egocentric thinking can harm individuals' willingness to engage in pro-environmental behavior such as recycling. However, interventions that appeal to individuals' self-interest or use social norms to promote recycling behavior may be effective in overcoming this barrier. People with a high level of egocentrism index believe that the responsibility for recycling should be declined by the people around them (family members, sanitation workers). Also, following the conducted research, it was observed that these individuals do not show a strong concern regarding environmental issues, having a passive rather than active or proactive attitude.

People with a high level of egocentrism index do not consider environmental problems to be very serious, believing that the passage of time can solve the incidents that have arisen. Recycling is an important aspect of waste management that has several environmental, social, and economic benefits. Recycling behavior is influenced by several factors, including attitude, knowledge, convenience, and social norms. Therefore, promoting recycling behavior requires a multi-faceted approach that involves education, incentives, convenient facilities, and social norms.

5. Limitations of the research and future research directions

The first limitation of this study is represented by the nature of the research conducted. Since we only conducted quantitative research, we have a static view of the current situation regarding recycling and how it is perceived by young people from Generation Z, depending on their level of egocentrism index. By conducting qualitative research (semi-structured interviews), we would have more opportunities to analyze the behavior of young people. First, we would have the possibility to identify the factors that contributed to the formation of a different level of the egocentrism index. Practically, we could investigate why young people,

despite being raised in similar conditions by parents with similar traits, have different levels of egocentrism.

Secondly, conducting qualitative research could help us explore the motivations behind the decisions young people make: why they choose to act in a certain way at a particular moment. Therefore, while quantitative research shows an effect on the issue, qualitative research could provide the answer for identifying the causes. From a managerial perspective, company representatives could identify the best communication actions regarding the initiatives they undertake and the positioning they attribute to their products.

Regarding future research directions, since sustainability continues to be a widely debated topic today, the first aspect we aim to explore is conducting qualitative research among young people from Generation Z. Additionally, we would like to conduct similar research among members of Generation X. We have chosen this cohort because, in most cases, the parents of Generation Z youth belong to this group. Thus, we want to see if the level of egocentrism among young people is a cause of its existence among their parents, or if it is a consequence of the environment in which young people live.

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