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Final Thesis

# "Willingness to pay for sustainable eyewear"

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**Abstract**

Sustainability is a complex and multi-faceted concept. It is present in several dimensions in our lives. When we discuss sustainability, we can think of the environment, economies, risks, consumption, energy, innovation, well-being, mitigation, population, and transformation; it is relevant to many aspects, even though its complexity transforms how governments, businesses, and people are shaping the world.

The level of awareness has increasingly risen over the past decades, bringing with it a revolution of consumer behavior, trends, regulations, and innovation in processes, products, and industries. As a result, companies have started to shape strategies and invest in technologies that align with the core values of sustainable development.

This study aims to analyze and understand the relationship between willingness to pay for a product with sustainable attributes in the eyewear industry. This study aims to analyze and understand the relationship between willingness to pay for a product with sustainable attributes in the eyewear industry. To analyze the consumer's "WTP" we examine the personality traits relevant to purchase and decision-making, following the Theory of the "Big Five Personality Traits": Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to Experience.

I conducted a questionnaire and distributed it in Italy, with a sample of 300 people, using “Google Forms”, which is an online survey development cloud-based software platform that allows individuals and organizations to create, distribute, and analyze surveys and questionnaires. It is widely used for conducting various types of surveys, including market research, customer feedback, employee engagement, academic research, and more. The hypothesis has been tested through a quantitative research model, and to analyze the relationships I use the SEM-PLS technique. The results show how "Extraversion" and "Neuroticism" are positively related to the WTP of sustainable eyewear.

# I. Introduction

Sustainability is a complex and multi-faceted concept. It is present in several dimensions in our lives. (Lanzin, 2024) When we discuss sustainability, we can think of the environment, economies, risks, consumption, energy, innovation, well-being, mitigation, population, and transformation; it is relevant to many aspects, even though its complexity transforms how governments, businesses, and people are shaping the world.

Sustainability is defined according to the United Nations Brundtland Commission in 1987 as “Meeting the needs of the present without compromising the ability of future generations to meet their own needs.” (Martin, 2024)

The level of awareness has increasingly risen over the past years, due to the demographic explosion, pollution resulting from industrialization, eco-friendly consumption, and societal and environmental catastrophes, bringing with it a revolution of consumer behavior, trends, regulations, and innovation in processes, products, and industries. (Lanzin, 2024) As a result, companies have started to shape strategies and invest in technologies that align with the core values of sustainable development. (Grant, L., Spector, N., & Vanags, D 2021).

According to the World Economic Forum on the Global Risks Report of 2023, global risk is "an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries (global GDP or populations) within the next 10 years”. For economists the largest threat is climate action failure. It is imperative that we incorporate a new mindset and pursue the so-called “Sustainable Development”.

One of the main goals of this research is to understand how sustainability affects one specific sector:

The eyewear Industry and its implications in how consumers contribute to shaping the new strategies for companies in the market.

The eyewear industry is already adapting to this new green revolution. (Murmura, F., Bravi, L., & Santos, G., 2021) In many nations across the world, there is an increasing need for eco-friendly and stylish eyeglasses. Several firms have chosen to use eco-friendly materials as a consequence of the eyewear industry's desire for circular solutions.

Over the next five years, the worldwide eyewear market is forecast to expand rapidly due to changing consumer megatrends, evolving market structures, and innovations in technology. Because vision correction gets more complex and necessary as one ages, aging is one of the most important global demographic issues affecting eye care. Furthermore, more screen time, especially for children, may have more detrimental effects than previously believed. (Statista Market Inside, 2024)

Since many people recognize eyewear to be an essential component of daily life, for the majority, it is considered a medical device (Montalto, A., Graziosi, S., Bordegoni, M., & Di Landro, L., 2016), the eyewear business can significantly reduce its environmental impact by pursuing sustainability.

The most recent changes in the industry have been related to the materials, adopting renewable, biodegradable, and recycled materials in place of plastic in sunglasses and eyewear. (Bracciale, M. P., De Caprariis, B., Musivand, S., Damizia, M., & De Filippis, P.. 2024).

Environmentally friendly production techniques that save energy and cut waste. Offcuts can be recycled or crafted into new items rather than being thrown away, which reduces the amount of discards produced. Technological solutions are being implemented by some companies to foster innovation and sustainability. By providing workers with modern technology, it is possible to enhance

their abilities and optimize industrial procedures by merging the real and virtual worlds. To guarantee that inventory is maintained effectively and that less waste is generated as a result of fewer errors, technological advancements can also help reduce errors and streamline supply chain activities. (Murmura, F., Bravi, L., & Santos, G., 2021).

According to Deloitte's Sustainable Consumer 2023 research: "ethical or sustainable buying decisions are increasing." The purpose of my thesis is to analyze the relationship between Willingness to Pay for sustainable products in the eyewear industry in Scandinavia, by evaluating their personality according to the Big Five Personality Traits Model.

A personality theory helps to explain why people behave the way they do through a wide range of observations. A well-developed theory also directs future research efforts. The personality traits we are going to evaluate are: Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to Experience. (McCrae, R. R., & Costa, P. T., Jr., 2003).

Regarding Agreeableness, agreeable people tend to be understanding, helpful, gentle, honest, and trustworthy. Furthermore, according to Costa and McCrae (2006) and Pervin (2003), those who score lower on the agreeableness measure might be described as cynical, impolite, uncooperative, vindictive, irritable, and manipulative. Linked to being a "good citizen," since they are kind to others, they find it simpler to be concerned about and act upon environmental issues. However, according to the study conducted by Brick & Lewis (Brick, C., & Lewis, G. J., 2014), people who score strongly on agreeableness may be reluctant to buy sustainable products when they believe that doing so will go against social norms or cause conflict with others. Consistent buyers may put short-term social acceptance ahead of long-term environmental advantages, rather than pushing for more environmentally friendly options.

Klein and Hilbig (Klein, S.A., & Hilbig, B.E., 2018) investigated how this relationship rarely turns into a willingness to incur more expenses for sustainability. In reality, those who are quite agreeable could steer clear of sustainable purchases if they think they might annoy others or put a strain on family finances.

Agreeableness is linked to cooperative actions, and although they genuinely respect sustainability, are hesitant to question others' spending patterns. This hesitation might be especially pronounced in places where unsustainable activities are common, which further contributes to lower purchase rates of green goods.

Individuals with high conscientiousness scores are typically focused, deliberate, and strong-willed. A person's motivation for goal-directed action is characterized by their conscientiousness (Barrick, Mount & Li, 2013; Costa & McCrae, 2006; Pervin, 2003). People also tend to "do the right thing" and carefully observe social norms; these traits can also be seen in how they behave in the environment (Hirsh, 2010). Additionally, people who exhibit these traits are significantly more likely to have a higher future time perspective (Zimbardo and Boyd, 1999), which has been shown in other studies to be significantly linked to a greater level of environmental engagement (Milfont, Wilson, and Diniz, 2012). Which supports my assumption between conscientiousness and WTP for sustainability.

Active, kind, fun-loving, and engaging people are extraverted (Costa & McCrae, 2006; Pervin, 2003). Research has indicated that consumers who hold more favorable and solid attitudes toward green products are more likely to be willing to pay a premium for them.

People who exhibit neurotic traits "are likely to perceive everyday scenarios as threatening and can experience minor frustrations as terribly stressful," leading them to assume that difficult circumstances are frequently impossible to overcome. (Hoyle and Leary, 2009). Purchasing sustainable products

won't help neurotic individuals stop the degradation of the environment. The hypothesis proposes a negative correlation between neuroticism and WTP for sustainable products.

Regarding Openness to Experience, reflects an inclination to participate in intellectual activities and encounter innovative concepts (Chamorro-Premuzic, 2007). People who score positively on openness to experience are often described as unconventional, creative, inventive, open-minded, and innovative. (Costa and McCrae, 2006; Pervin 2003). Due to their perception of sustainable items as superior to their "regular" counterparts over conventional options, this attribute has been identified as a predictor of the preference, purchase, and consumption of sustainable products.

Choi and Winterich (Choi, W. J., & Winterich, K. P., 2012) discovered that those with high openness scores were more inclined to try out a variety of things, including special or unusual ones, yet they were also less likely to grow devoted to a particular category, which included sustainable goods. People who are always on the lookout for interesting and unusual experiences may be less committed to making consistent, sustainable purchases since they will be more likely to alternate between brands and items without giving environmental concerns much thought. The hypothesis is that openness to experience and WTP for sustainability has a negative association.

I decided to measure with two moderator variables this study: Uniqueness and Impulsivity. With the consideration that every personality feature is aligned with the need for uniqueness. Because someone who feels the need to stand out from the crowd is more likely to adopt environmentally friendly behaviors, we forecast that it will positively influence the connection between the Big Five and the WTP for sustainable items (Tian et al., 2001).

Individuals typically choose quality and customization above conventional options to reflect their uniqueness, even if they'll probably have to pay more. (Legere & Kang, 2020).

On the other hand, Impulsivity, as the likelihood of a person making an impulse, unplanned, and thoughtless purchase of something right away. Impulsive buyers' behavior contrasts those who often choose sustainable products, implying an adverse connection with issues concerning sustainability. People may buy more goods impulsively and in larger quantities out of a need to buy something rather than thinking about how such purchases would affect society or the environment. Since sustainable items are typically more expensive than non-sustainable ones, it has been demonstrated that low pricing might lead to impulsive shopping.

My thesis subsequently goes through the literature on SDG's, innovation, sustainable development, the eyewear industry, customer willingness to pay for sustainable goods, and the influence of personality traits on consumer purchase decisions. I lay out the main topics of investigation and elaborate on my hypotheses in the section afterwards. I next discuss the data collecting and research technique. The interpretation of the results drawn from the data collection is covered in the following section. Finally, I highlight the limits of my work and offer recommendations for further research. I also look into the results, their contribution to the literature, and their implications for practice.

## II. Literature Review

The goal of this literature review is to compile important theoretical frameworks, empirical research, and developing themes in the field of sustainability studies. The basic ideas of sustainability are first examined, along with how the socioeconomic and environmental spheres interact. Next, the study looks at the importance of Innovation and Sustainability. It also takes into account the increasing focus on governance structures and policy frameworks that promote sustainable development on an international scale.

In addition to contributing to the evolving discussion on sustainability in the eyewear industry, this review seeks to identify significant gaps and opportunities for future investigation by offering an

in-depth analysis of the state of sustainability research today.

### *A. Sustainability.*

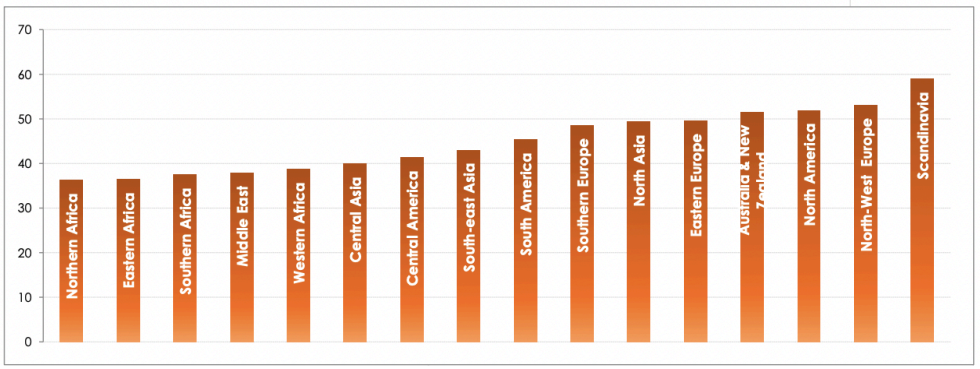
The literature of research on sustainability comes from a variety of academic fields, such as business, economy, social, and environmental science. It offers a range of viewpoints on how to attain sustainable outcomes for people and the environment.

As mentioned in the introduction, Sustainability is a complex and multi-faceted concept present in several dimensions in our lives, such as environment, economies, risks, consumption, energy, innovation, well-being, mitigation, population, and transformation. (Lanzin, 2024). Natural usage of resources and exhaustion are the main topics of sustainability. It is more about achieving an equilibrium level so that the world can sustain a growing economy and the rise of humanity, as opposed to environmental protection or the preservation of natural resources. (Kent E. Portney, 2015).

The World Commission on Environment and Development, described Sustainable Development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". (Martin, 2024)

Only when equity, the economy grows, environmental protection, and development coexist can sustainability be realized. (Kent E. Portney, 2015). The three pillars of sustainable development are Economic Sustainability, Social Sustainability and Environmental Sustainability. All of these interrelated components are essential to the well-being of as well as the well being of societies. These pillars set the rules for governments, business and citizens, but in addition to these actors involved in sustainability there are others that play a role in achieving sustainability, such as policy makers, consumers and investors. (Martin, 2024)

According to the Global Sustainable Competitiveness Index (GSCI) which is based on more than 200 quantitative indicators, derived from international organizations such as the World Bank, the IMF, and UN agencies, Scandinavia continues to top the Sustainable Competitiveness it considers Natural Capital, Resource Efficiency & Intensity, Social Cohesion, Intellectual Capital, Economic Sustainability, and Governance Efficiency.




*Graph 1. Sustainable Competitiveness score by region. GSCI 2023.*

The consequences of unsustainability are becoming more significant because they have an impact on public policy due to heightened compliance, public accountability since consumers are willing to pay more for sustainable products (PricewaterhouseCoopers, 2024), competition as higher sustainability claims offer advantages, and resource costs due to increasing energy and material costs.

International Agreements.

Multiple institutional initiatives are in place to mitigate the effects of human activity on the environment and guarantee a sustainable path that benefits society, the economy, and the environment. Such as the United Nations on a global level with the Agenda 2030 (UN Sustainable Development Goals), on an european/ communitarian level, the EU 20-20-20, EU Green Deal, and Next Gen EU.

The Sustainable Development Goals (SDGs) of the United Nations offer a framework for addressing some of our most pressing issues. We must shift how we create, work, and consume. Governments must work together to enhance and prioritize sustainable development if they seriously wish to improve the lives of millions of people. This entails paying attention to the communities most impacted by inequality while creating ecologically friendly policies to help everyone cope with future calamities. It also involves addressing ongoing problems like poverty, especially as it affects the youth. To solve these problems, future generations demand audacious ideas and more imaginative thinking.


*Graph 2. UN Sustainable Goals.*

Nations are still intensifying their efforts to accomplish the SDGs. This is evident at the annual High-Level Political Forum on Sustainable Development, which serves as the main forum for assessing the SDGs' progress. For the past eight years, nations, corporations, and non-governmental organizations have gathered to highlight the unprecedented steps that these groups are taking to realize the SDGs. (Affairs, 2024).

Sustainable development and combating climate change are two sides of the same coin that rely on one another; climate action is necessary to achieve sustainable development. On the other hand, a large number of the SDGs confront the primary causes of climate change.

In order to achieve this, it is necessary to encourage integrated and sustainable management of natural resources and ecosystems, as well as sustainable, inclusive, and equitable economic growth, increased opportunities for all, a decrease in inequality, a rise in the minimum standard of living, and equitable social development and inclusion.

In addition, the Sustainable Finance Disclosure Regulation (SFDR) aims to stop greenwashing by promoting greater market transparency on sustainability. It was approved by the European Parliament in 2019. Even if they don't have an ESG focus, it requires all financial market players (FMPs) in the EU to report information on their sustainability policies and indicators. While some SFDR standards were implemented as early as 2021, the periodic reporting obligations won't start until January 1st, 2022.

Greenwashing refers to the fabricated enhancement of a brand's ecological image by the inclusion of materials suggestive of nature in promotional activities. (Parguel, B., Benoit-Moreau, F., & Russell, C. A. 2015). Environmentalist Pearson (Pearson, J. 2010) introduced the concept of "greenwashing" after witnessing a hotel asking customers to reuse towels in an effort to "benefit the environment," even though the hotel preferred not to wash the towels in order to spare expenses. It was then used in reference to "outrageous corporate environmental claims."

The sustainability of specific economic activity is determined by the EU Taxonomy. It is a crucial part of many sustainability reporting systems since it provides FMPs and large organizations with a toolset for assessing their sustainability and marketing and selling themselves as such. According to reports, businesses that invest in green transition or other future-focused projects are better categorized under the EU Taxonomy. (*EU taxonomy for sustainable activities)*.

ESG.

Sustainability in business has become an opportunity rather than a constraint. (Pietro Lanzini, 2024) The shift towards a sustainable future is rapidly accelerating. ESG factors are increasingly being considered in the decision-making process in the context of risk mitigation, as well as remaining competitive and promoting innovation, thanks to a growing understanding by market players of the opportunity to create value. (S&P Global, 2024*)*.

According to the data from the 2021 Consumer Intelligence Series survey on ESG by PricewaterhouseCoopers: 83% of consumers believe businesses ought to promote ESG best practices, 91% of corporate executives, it is the duty of their organization to address ESG issues, and 86% of workers would rather support or be employed by organizations that share their points of view. A fund selector for Danske Bank noted a fund manager's capacity to articulate how they include ESG into their investment strategy is now equally crucial to their success as their aptitude for finding quality investments.

Environmental, Social, and Governance. In ESG frameworks, these are referred to as pillars for the three primary subject areas that businesses are required to report on. ESG seeks to encompass all non-financial risks and possibilities in a business's daily operations. (Gittfried, N., Lienke, G., Seiferlein, F., Leiendecker, J., & Gehra, B, 2022).

The global problems that our world is facing not only include climate change, but also transforming from a linear to a circular economy, growing inequalities, and achieving a balance between the requirements of society and the economy. Companies are under increasing pressure from investors, regulators, consumers, and employees to be efficient administrators of not just assets but also natural and social capital and to have the appropriate governance framework in place to enable this. (Antunes

D, Santos A, Hurtado A, 2015). As more and more investors include environmental, social, and governance (ESG) factors in their investment decision-making, ESG is becoming more and more significant from the standpoint of obtaining debt and equity funding. (Apergis, N., Poufinas, T., & Antonopoulos, A. 2022).

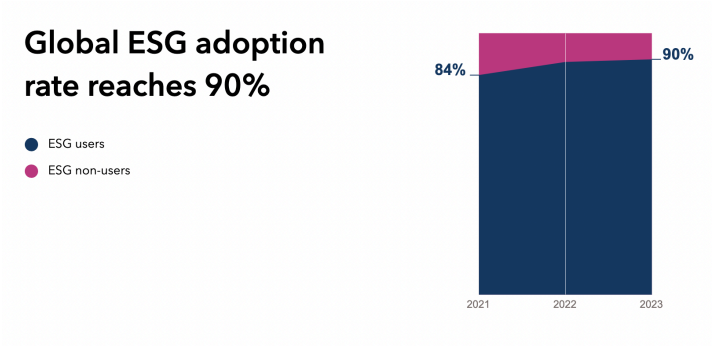
The Environmental pillar covers greenhouse gasses and contaminants of the air, water, and earth. Resource utilization includes things like whether a business employs recycled resources in its manufacturing operations and how it makes sure that as much of the material in its products is recycled back into the economy as possible rather than ending up in a landfill. In the same vein, businesses must manage water resources well. The Environmental Pillar additionally addresses land use issues such as disclosures of biodiversity and deforestation. Businesses also disclose any beneficial effects they may have on sustainability, which could result in long-term financial gain. This is the most challenging pillar in terms of reporting. (Deloitte, 2022).

Companies present reports on their labor actions and professional growth for employee management strategies under the Social Pillar. Regarding the reliability and security of their products, they provide information on product hazards. They also discuss sensitive supplier concerns, labor, and health and safety requirements in their supply chain. Businesses are required to report on how they give disadvantaged social groups access to their goods and services.

Shareholder rights, board diversity, remuneration, and how they relate to the company's sustainability performance are the primary topics covered under the Governance Pillar. It also covers issues with corporate behavior like corruption and anti-competitive behavior. (Deloitte, 2022).

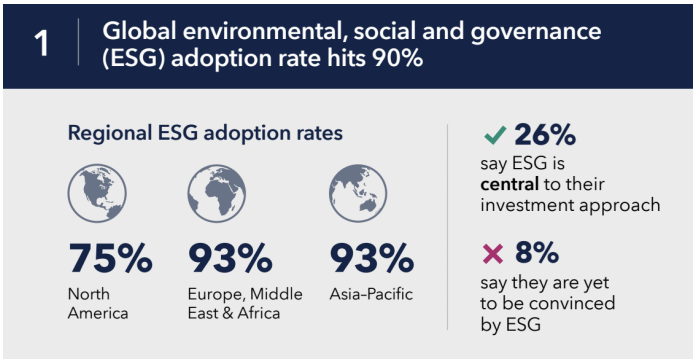
Sustainable enterprises have a higher chance of long-term competitiveness, legal compliance, lawsuit avoidance, and incident prevention, increasing safety levels. On this topic, there has been a revolution

in the approach of business to sustainability. Before, companies paid more attention to costs, but now they prioritize opportunities. Previously they used the End-of-pipe strategy, but now a proactive technique is employed in the manufacturing process. Before the Environment topics were formerly considered confidential information but now are viewed as a shared responsibility with communication and transparency as a competitive advantage. (Lanzini, 2024).




*Graph 3. Global ESG Adoptio by. Capital Group. ESG Global Study 2023.*

The adoption of ESG by investing professionals increased considerably to 90%. Investors generally see ESG as helpful to investing; most believe ESG research can lead to lucrative investment opportunities.




*Graph 4. Regional ESG Adoption by Capital Group. ESG Global Study 2023.*

According to a meta-analysis conducted by Rockefeller Asset Management and the NYU Stern Center for Sustainable Business, which examined more than 1,000 papers from 2015 to 2020, ESG policies typically improve financial performance, particularly over longer time horizons.

About 94% of Italian firms already include sustainability reporting in their business strategy, with many adhering to EU standards on sustainable finance. This is about Corporate ESG Adoption, according to KPMG International's KPMG Survey of Sustainability Reporting 2022. (KPMG, 2022).

ESG-focused investments are becoming more common in Italy, especially when it comes to the issue of green bonds. With the involvement of Italian financial institutions, retirement savings plans, and portfolio managers, green bonds have become a substantial part of the economic system. This is in line with the European shift that sees sustainable finance play a bigger role in investment plans. It peaked at $269 billion, breaking the preceding amount of $262 billion in 2021 and representing for the first time more than half of all GSSSB (Green, social, sustainability, and sustainability-linked bonds) issuance worldwide. Volumes were driven by the issuing of green bonds, especially by established issuers Germany ($15 billion), Italy ($13 billion), the UK ($10 billion), France ($6 billion), and Austria ($6 billion). (S&P Global, 2023).

The Bank of Italy has taken steps to encourage the financial system to embrace ESG practices. Non-bank financial intermediaries demonstrated a notable adherence to the Bank's policies in 2022. (D'Italia, B.,2022).

Innovation and Sustainability.

Sustainability and innovation are becoming more and more intertwined as the world economy moves in the direction of more ecologically friendly approaches. The literature emphasizes financial, ecological, and social advantages while showing many ways that innovation can promote sustainability in industries, technologies, and governance.

To preserve competitiveness as well as attain future environmental stability, sustainable innovation is crucial (Schiederig, T., Tietze, F., & Herstatt, C., 2012), for example, argue that eco-innovation

encompasses not just developments in technology but also modifications to corporate tactics and company structures that put an emphasis on minimizing waste and maximizing resources.

Porter and Kramer (Porter, M. E., & Kramer, M. R., 2011) maintains that creative methods of product design, manufacturing administration, and commercialization are necessary for generating shared value, in which companies aim for both financial gain and social benefit. Numerous businesses have embraced the concepts of the circular economy, which focus innovation on waste reduction, product reuse, and energy effectiveness enhancement.

Regardless of its significance, adopting sustainable innovation into practice comes with difficulties. Hojnik and Ruzzier (Hojnik, J., & Ruzzier, M., 2016) identify several major obstacles to eco-innovation, including high startup costs, technological uncertainty, and low popularity among customers. Small and medium-sized businesses, or SMEs, frequently face difficulties obtaining the monetary and technological resources required for sustainable innovation. Moreover, Bocken (Bocken, N. M., Short, S. W., Rana, P., & Evans, S., 2014) note that adopting sustainable business models demands a fundamental change in corporate culture as well as a transformation in consumer thinking in addition to technology innovation.

Furthering the idea that sustainability is an opportunity rather than a constraint. Companies that have chosen “green” have become pioneers in innovation, bringing value for stakeholders, and increasing profits and growth. A study conducted with Chinese manufacturers revealed the correlation between a company's competitive advantage and innovating green initiatives. Regulations and pressure from stakeholders also contributed. (Tu, Y., & Wu, W., 2021).

The global economic landscape has been significantly impacted by the ongoing technology advancements, their quick spread, and their use in a variety of industries. Innovations in technology

that attempt to achieve automated and interconnected industrial production in the development, fabrication, and distribution of manufacturing systems and goods. (Mahlamäki, T., Rintamäki, T., & Rajah, E.,2019).

To effectively address issues like social inequality, climate change, and the irreversible loss of natural resources, innovation is crucial. It is the motivation driving the creation of unconventional tools, procedures, and approaches that can accomplish these goals in addition to meeting financial targets. It is impossible to achieve long-term sustainability goals without innovation, as Bill Gates describes in his best-selling book How to Avoid Climate Disaster.

The growing success of companies focused on sustainability heralds a radical change in business practices and highlights the serious danger and lost opportunity facing big businesses that choose to remain in the background and neglect "innovation for sustainability." As Tesla, an innovative producer of electric vehicles, has already shown to established vehicle manufacturers, big businesses simply cannot afford to ignore this shift in technology.

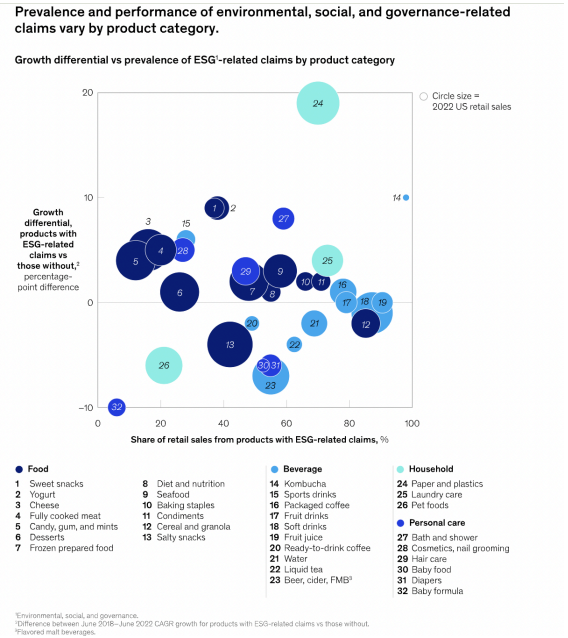
Given their large assets and extensive infrastructures, leaders are in an excellent place to embrace and expand environmentally friendly innovations, increasing their total ecological footprint. A more equal and environmentally friendly future appears to be possible when sustainability and innovation are combined, as we find ourselves at an important stage in the changing business landscape. It takes a brave, creative approach to sustainable innovation to convert the biggest obstacles into bigger opportunities. Businesses can achieve extraordinary growth and secure their position as tomorrow's leaders by audaciously embracing the connection between sustainability and innovation.

Businesses that innovate sustainably don't just concentrate on their operations. Rather, they take a broader view of the entire system of which they are a part, taking into account other businesses, the

environment, stakeholders, and communities. They understand well how their actions impact other organizations and how those actions impact them.

Sustainable ideas need to be incorporated into the company culture. Sustainable innovations are likely more effective when they are thoroughly ingrained in the company culture, traditional innovations, which are typically carried out within a distinct R&D department or unit. The chase of immediate financial rewards will destroy sustainability-oriented creative ideas before they have a chance to flourish if sustainability is not ingrained in the corporate culture.

Businesses that embrace sustainable innovation adopt a broader mindset and absorb knowledge from diverse sources. They receive responses and information from outside sources such as stakeholders and other industries. In comparison to companies without a sustainability perspective, those with one are more likely to be resilient to crises, have less volatility in their share prices, and ultimately produce higher revenues. If businesses integrate high-impact ESG-related claims across a variety of categories and products, they will likely have a stronger ESG effect and a better chance of experiencing outsize growth.




*Graph 5. Nielsen IQ and Mckinsey & Company Study.*

The literature on sustainability and innovation illustrates how these ideas complement one another. In a world where the international scene is shifting quickly, innovation plays a critical role in tackling sustainability concerns. Sustainability also gives direction for innovation. But making the shift to sustainable innovation means getting past major technological, monetary, and social challenges. Technological developments, legislation, and corporate social responsibility will all continue to influence how sustainable innovation develops.

### *B. Eyewear Industry.*

Over the past years, the eyewear industry has evolved tremendously, embracing fashion, luxury, and innovations in technology in addition to its fundamental attention on vision correction. The literature on the eyewear industry discusses a number of important issues, such as shifting consumer preferences, innovation in materials and technology, market dynamics, and sustainability. In this section of the literature we will explore the principal components that are moving the eyewear industry such as Consumer Behaviour, new trends, the use of sustainable products and the willingness to pay.

In the eyewear sector, Sustainable innovation has a big influence on product innovation, particularly when it comes to ophthalmic lenses and frames, as well as machinery employed in intermediate processes or for producing the final product in the ever-evolving eyewear industry. (Murmura, F., Bravi, L., & Santos, G. 2021)

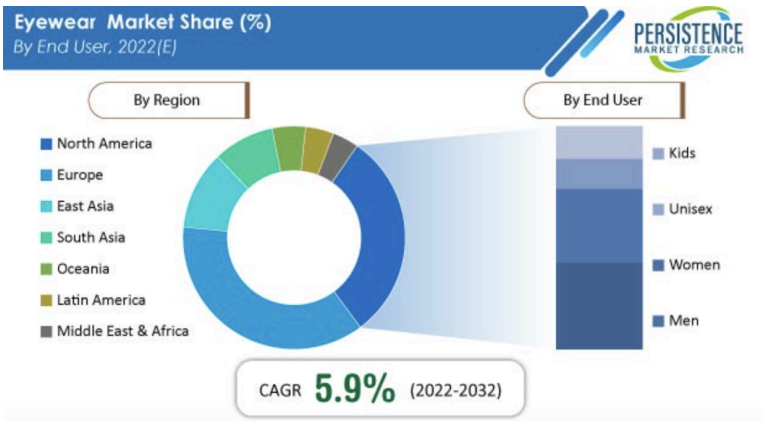
The analysis of product innovations in the frame category reveals three main themes: the first is related to the increasing interest of consumers and companies in ecological issues; the second is related to the application of tailoring concepts to eyewear, resulting in the production of entirely customized

eyewear; and the third is related to smart glasses and their tendency to become an extension of our daily devices or to find new uses for them beyond vision correction and protection. The lens industry is also very innovative; one example is the development of environmentally friendly, biodegradable lenses that significantly shorten the timeframes it takes to biodegrade.

Over the next five years, the worldwide eyewear market is anticipated to grow rapidly due to altering consumer megatrends, evolving market structures, and advancements in technology. Aging is one of the most important global demographic issues affecting eye care. Furthermore, greater prolonged screen time—especially in children—may have more detrimental consequences than previously believed. (Statista Market Forecast, 2024).

Since many people recognize eyewear to be an essential component of daily life, for the majority, it is considered a medical device, the eyewear business can significantly reduce its environmental impact by pursuing sustainability.

The regions of North America, Europe, Asia-Pacific, South America, the Middle East and Africa account for the remainder of the world's eyeglass market share as displayed in *Graph 6*.




*Graph 6. Eyewear Market Share by Persistence Market Research.*

Europe holds the largest share of the worldwide eyewear market, expected to rise at a compound annual growth rate (CAGR) of 10.1%. Key players in the well-established European eyeglasses market are Germany, France, Italy, and the United Kingdom. The expansion of luxury accessories like contact lenses, sunglasses, and spectacles is being driven by the wealthy population in the area.

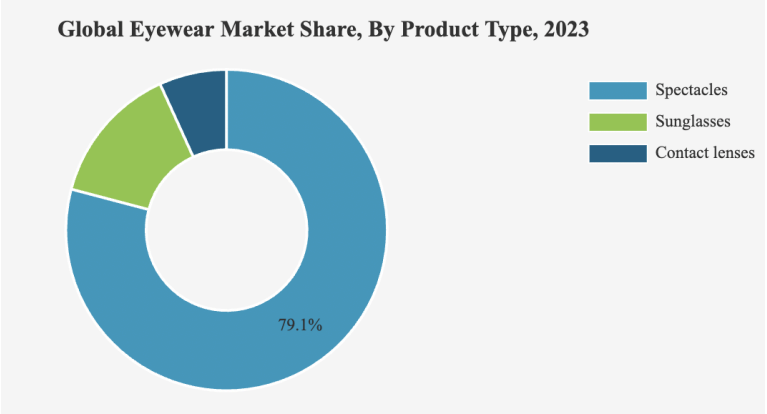
The industry has expanded throughout Europe, due to the emergence of e-commerce and online shopping. Because of price constraints and an already-full market, Europe's growth rate is slower than that of the North American market. The biggest producers and designers of eyewear are based in Europe, especially in Germany and Italy, which helps to drive the market's growth. Virtual try-ons and personalized eyewear are among the digital innovations that an increasing number of people in the area have been embracing in recent years. New and distinctive glasses are being made in response to the growing popularity of this style in Europe.


*Graph 7. Global Eyewear 2023-2030 Market Forecast by Data Bridge Market.*

With the largest global eyewear market share, the retail store sector is predicted to maintain its dominant position over the projection period. The retail store category is driven by the increased availability of sunglasses and spectacle items in stores located in shopping malls, branded stores, and other establishments.

The market's largest contributor, e-commerce, is predicted to grow at a compound annual growth rate (CAGR) of 9.2% throughout the projected period. Modern distribution methods, like online retailing through exclusive online storefronts and other e-commerce and aggregator websites, are being adopted by market players more and more. Businesses are using omnichannel commerce to offer their eyewear items both online and in actual retail locations. Vendors can provide their clients with an almost limitless assortment of products thanks to online selling.

It also enables market participants to test different marketing approaches and measure customer reactions quickly. It lets users thoroughly examine products from many suppliers, compare features and costs, and conduct in-depth searches based on pre-configured preferences. Contemporary e-commerce platforms progressively provide cutting-edge functionalities, such as virtual or holographic eyewear experiences, thereby augmenting the consumer purchasing journey.




Graph 8. Global Eyewear Market by Product by Fortune Business Insights.

Italy is known across the world for its outstanding craftsmanship, revolutionary styles, and dominance in the premium eyewear market. Italy has established its reputation as a major participant in the manufacture and export of eyewear because of its solid industrial foundation and rich fashion legacy.

The historic core of the business has been the Belluno region in Northern Italy, home to numerous local artisans and eyeglasses producers. This area developed into the center of mass-market and

premium fabrication, giving Italy an established position in the worldwide eyewear market.

It is highly probable that Italy will continue to lead the premium eyewear sectors, but in order to maintain its competitiveness, it will need to make continuous efforts in sustainability, technological innovation, and creative design. Italian manufacturers of eyewear will probably prosper in the international market if they can adopt new technology and satisfy the growing consumer demand for environmentally friendly goods.

Consumer Behaviour.

The attention that consumer behavior toward sustainability has drawn has grown as more people give sustainability an importance while making buying things. The literature identifies a number of crucial elements that influence this behavior, such as values, awareness, and the accessibility of environmentally friendly solutions.

"Inflation and growing costs for basics like groceries are pinching consumers more and more, but in this environment, they are giving priority to goods that are sourced and produced sustainably." Customers report being willing to spend 9.7% more for sustainability, even though they are turning to less expensive, generic alternatives for necessities. If businesses want to attract and keep customers in the upcoming year, they will need to strike a careful balance between consumer affordability and environmental effects. Additionally, they will need to improve their digital service delivery and engagement, especially as more customers make direct product purchases via social media. PwC 2024 Voice of the Consumer Survey.

This year, there was an increase in the percentage of customers choosing not to purchase specific brands or items due to ethical or sustainability-related concerns across multiple categories. Thirty

percent of consumers no longer buy specific brands or items due to worries about sustainability or ethics. (Deloitte, 2023)

Due to these worries, a bigger percentage of customers than a year earlier ceased making purchases, especially in the grocery, cosmetics, and hospitality categories.
Customers are reevaluating their shopping and consumption habits, which may involve consuming fewer single-use plastics, purchasing fewer new items, or purchasing more seasonal goods.

Additionally, consumers are becoming more environmentally conscious when it comes to electrical equipment, clothes, and shoes. Compared to the previous year, a greater percentage of consumers report having fixed an item in those categories, and they are willing to pay more for products they believe to be more durable. In the long run, these behaviors are more sustainable economically in addition to being healthier for the environment. In comparison to a year ago, a greater number of customers report that they are selecting brands in these categories that exhibit ethical practices and beliefs. (Am, J. B., Doshi, V., Noble, S., & Malik, A. 2023).

According to Deloitte, when asked what characteristics of a product make it sustainable, most customers would cite biodegradability or the use of recycled materials. Other typical responses include ethical sourcing, minimum packaging, carbon neutrality, and support for biodiversity.

On the other hand, consumers are more likely to prioritize repairability and durability over recycling or biodegradability when making a purchase. When making a purchase, more customers are considering factors like repairability and durability as well as whether a product is labeled as sustainably sourced, made, or supports biodiversity, compared to 2022.

For groceries, customers place a high value on sustainable packaging; yet, when purchasing major

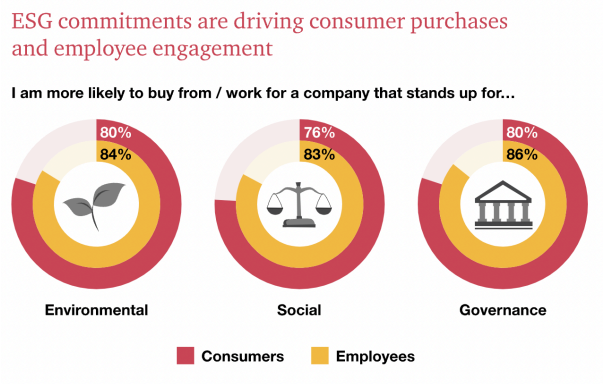
household appliances, they place a higher value on waste reduction and a product's carbon footprint. When shopping for clothing and shoes or dining out, consumers also consider problems related to human rights and ethical working practices. (Deloitte, 2023)

Four out of five consumers are willing to pay extra for brands that uphold ethical and environmentally responsible business practices. This includes paying extra to preserve the environment, purchasing sustainable goods and packaging, or purchasing goods and services from vendors who uphold human rights or ethical labor standards.

According to the majority of customers, companies' dedication to sustainability affects their capacity to earn their trust.

A third of consumers (34%) said that if a brand is acknowledged by an impartial third party as an ethical or sustainable supplier, its trustworthiness would increase. *Deloitte Sustainable Consumer 2023.* A comparable percentage (32%) claimed that if businesses had an open, accountable, and ecologically and socially conscious supply chain, consumers' trust in them would increase.

It would appear that now is the ideal moment to introduce a sustainable offering. Customers, especially Millennials, are expressing a growing need for brands that prioritize sustainability and purpose. A recent study from Harvard found that several product categories with sustainability claims grew at a rate twice as fast as their conventional counterparts. (White, Hardisty and Habib, 2019).




*Graph 9. PwC Consumer Intelligence Series, June 2, 2021*

The vast majority of customers and workers stated that they are more inclined to work for or make purchases from businesses that align with their values in all areas of environmental, social, and governance (ESG). Although customers have long expressed a desire for sustainability, the COVID-19 pandemic significantly changed consumer behavior and increased the number of ethical buyers who are prepared to pay a premium for safer, healthier, more socially and environmentally conscious goods and businesses.

Conversely, companies thought to be falling short run the danger of losing customers just as the post-pandemic recovery is beginning to take shape. Sixty-six percent of consumers would break off business links with organizations that mistreat workers, local communities, and the environment. Companies, on the other hand, are acutely aware of the high expectations that customers have of them.

Green as well as ethical items are becoming more and more popular among consumers, especially in younger populations. Literature shows that consumers are more inclined to purchase eyewear companies that stress sustainability, such as those that use recycled materials or implement ecologically friendly production practices. In order for brands to win over environmentally conscious consumers, sustainability is now both a differentiator and a must.

An intricate network of interrelated issues, such as brand loyalty, price awareness, advancements in technology, sustainability, and the need for attractive yet functional items, drive consumer behavior in the eyeglasses sector. While high-end and luxury brands account for an important portion of the market, many buyers choose for less expensive options that don't sacrifice quality or elegance. In the eyewear sector, brand loyalty is a critical component of consumer behavior.

New Trends.

In many nations across the world, there is an increasing need for eco-friendly and stylish eyeglasses. Three major consumer trends are value, connection, and wellness. Natasha Cazin of Euromonitor International listed these consumer trends that would influence the eyewear market in 2024.

Demand for a range of eyeglasses and eye care products is driven by an increasingly variety of lifestyles. According to MIDO, the International Eyewear Fair in Milano, the importance of technology is growing, especially with smart devices that adjust to the weather outside. Customized products are becoming more and more popular, whether they are numbered, limited edition, or custom glasses. It is expected to see designer items, high-performance sports spectacles, and designs for more affluent customers who embrace the quiet luxury trend and gender-neutral fashion. Topping the trend list are dramatic, larger frames, high-tech alternatives, 3D-printed glasses, and sustainable and recyclable materials available in an array of colors and styles.

Worldwide consumers are starting to recognize and seek out locally created products with meticulous attention to detail, which is viewed as added value, by Italian manufacturers.

Customer data can be gathered and analyzed with AI. This enables opticians to provide a more individualized experience for each consumer by better understanding their preferences.

Another breakthrough in consumer technology is the combination of augmented reality (AR) and virtual reality (VR), which enable shoppers for glasses to engage with goods and services in a virtual, immersive environment.

Environmental sustainability is one lens through which new developments are observed and analyzed. It's a need now, not an option. Not just in terms of their make-up or provenance but also in terms of their quality and long-lasting durability, one of the biggest challenges of the modern day is producing timeless accessories. Slim yet roomy, or bold and small forms, made to be strong, light, and comfortable through the use of cutting-edge materials in a variety of combinations and densities, as well as unique processes. As a result, eyewear develops aesthetic features that instantly build a visceral, sympathetic connection with the customer, authentically and sincerely conveying through visuals the union of modern technology and artisan heritage.

Since design plays a crucial role in defining the idea of timelessness, it is practically essential. Neutral tones and chromatics inspired by nature, or classic, adaptable colors, are making a resurgence. They contrast gracefully with colors that are rich, vibrant, or deep. At that point, the light turns to become the fundamentally useful component of eyewear, while classic designs evolve into more modern forms. Sometimes, the intricate textures created with 3D printing attract consumers.

Technology, artificial intelligence, and all other resources that progress has made possible encourage and facilitate the curious mindset, which is holistic and artisan craftsmanship that should be used with a completely different awareness. By emphasizing content and the intrinsic worth of eyewear, it also introduces a new idea of luxury.

Sustainable Products in the Eyewear Industry

New Materials, Sustainable Manufacturing, and Environmental Initiatives are the main attributes that characterize the sustainable offer in the Industry. A substantial amount of eyewear is composed of premium plastics, such as resin acetates and injected material, which harm the environment. To reduce the amount of plastic used in eyeglasses and eyewear, many businesses are switching to renewable, biodegradable, and recycled materials. (FAVR, n.d.).

Glasses made with plant-based materials and bio-based acetate, recycled wood and bamboo are becoming increasingly popular. This provides an environmentally friendly substitute for plastic using cotton or wood.

Oil-based materials can also be used to create environmentally friendly glasses. Oil extracted from the castor plant is used to make certain types of glasses. Recycled metals and polymers can also be environmentally friendly and used for sustainable frames for sunglasses and eyewear. (Malkar, R., Kagale, S., Chavan, S., Tiwari, M., & Patil, P., 2022).

Eyewear manufacturers are moving toward energy- and waste-efficient, sustainable manufacturing techniques. Rainwater collection is being studied for water conservation, while renewable energy sources like solar power are being investigated for manufacturing.

Remnants can be recycled or made into new items rather than being thrown away, which reduces the amount of trash produced. Technological solutions are being used by certain businesses to promote innovation and sustainability. By providing workers with technological tools, it is possible to enhance their abilities and optimize industrial procedures by merging the real and virtual worlds. In order to ensure that inventory is maintained effectively and that less waste is generated as a result of fewer errors, these technological advancements can also help reduce errors and streamline supply chain

activities.

Essilor Luxottica and Hoya are some examples of very well-known companies in the eyewear industry that are making efforts towards sustainability and adapting their governance, processes, and products to the suggestions of the ESG pillars. However, innovation has also started to pop out from other companies that are convinced of the importance of sustainable products. For example, MODO, SEA2SEE, KLENZE & BAUM, and THEMA OPTICAL.

The collaboration between designer brand MODO and Trees for the Future: ONE FRAME – ONE TREE initiative began with the release of the ECO line. One new tree is planted by the brand for each ECO frame sold. The primary components of this collection's sunglasses and prescription versions are bio-based materials and recycled stainless steel. The brand also keeps its environmental impact to a minimum in all of its display, marketing, and packaging materials.

For SEA2SEE "junk" has new uses. More than 200 frame styles employ recycled UPSEA polymer made from ocean debris. The package is made entirely of compostable sugar cane and is printed using plant-based pigments. The cleaning cloth is constructed from rPET bottles, while the eyeglass case is made from recycled cork.

KLENZE & BAUM, a German label, specializes in 3-D printed eyewear supplied "on demand" based on orders from customers. The eyewear is printed with laser-melted polyamide powder that is shaped, sheet by sheet. These environmentally friendly frames feature alternatives for customization such as laser-printed inscription on the featherweight temples.

THEMA OPTICAL, an Italian Family Factor that has won several recognitions for its impactful efforts

in sustainability, offers frames composed of bio acetates and Rilsan Clear G850 Rnew, a plant-based polymer derived from castor oil and is a sustainable material with minimal environmental impact. This material can create lightweight, durable, and environmentally friendly glasses. They also use the “On demand system” generating only what has been acquired by clients. Additionally, they employ FSC (Forest Stewardship Council®) certified packaging.

Willingness to Pay for Sustainable Products.

Mispricing products or services can have severe repercussions for all kinds of companies. Underpricing consequences can be missing the opportunity to use your resources efficiently to improve your business, and overpricing can lead your clients to prefer the competition. (Tim Stobierski, 2020).

Knowing what your clients are prepared to pay is essential, whether you work as a professional setting prices for your business or are an entrepreneur about to introduce a new offering.

According to Tim Stobierski (Stobierski, 2020), the highest amount a consumer is willing to pay for a good or service is known as willingness to pay, or WTP. Usually, it takes the form of a monetary amount or, occasionally, a price range. Although prospective buyers may settle for less than this amount, it's crucial to realize that they won't usually spend more.

Customers' willingness to pay can differ significantly from one another. Extrinsic or intrinsic factors frequently explain this variance. Extrinsics are the evident factors. These are things about a person that you can usually find out without having to ask them, such as a customer's age, gender, income, education, and place of residence. Meanwhile, intrinsic factors are traits of an individual that you could not find out about without addressing them firsthand. They're difficult to spot and referred to as "unobserved differences." For example, their level of enthusiasm for a certain topic, risk tolerance,

and desire to fit in with others.

In addition, some factors that can influence are financial status, location, climate, age, gender, and brand loyalty, whether the product or service is a need, the impact on the environment and society, the client expectations of the product or service, the levels of service and lawfulness of the client, publicity, and competitors offers.

Companies are motivated to know how much customers are ready to pay for their goods or services. Businesses can confidently maximize profit margin while obtaining as much value from their clients to estimate WTP and work to establish price.

My study attempts to examine how personality traits affect consumers' willingness to pay for Sustainable Eyewear in Italy. A personality theory helps to explain why people behave the way they do through a wide range of observations. The personality traits we are going to evaluate are: Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to Experience. (McCrae, R. R., & Costa, P. T., Jr. 2003).

Regarding Agreeableness, agreeable people tend to be understanding, helpful, gentle, honest, and trustworthy. Furthermore, according to Costa and McCrae and Pervin ( Costa & McCrae, 2006; Pervin, 2003), those who score lower on the agreeableness measure might be described as cynical, impolite, uncooperative, vindictive, irritable, and manipulative. Linked to being a "good citizen," since they are kind to others, they find it simpler to be concerned about and act upon environmental issues. These explanations support my hypothesis that there is a positive correlation between agreeableness and WTP for sustainability.

However, according to the study conducted by Brick & Lewis (Brick, C., & Lewis, G. J. 2014), people who score strongly on agreeableness may be reluctant to buy sustainable products when they believe

that doing so will go against social norms or cause conflict with others. Consistent buyers may put short-term social acceptance ahead of long-term environmental advantages, rather than pushing for more environmentally friendly options. For that reason my assumption is that agreeableness negatively impacts willingness to pay for sustainable eyewear.

Individuals with high conscientiousness scores are typically focused, deliberate, and strong-willed. A person's motivation for goal-directed action is characterized by their conscientiousness (Barrick, Mount, & Li, 2013; Costa & McCrae, 2006; Pervin, 2003). People also tend to "do the right thing" and carefully observe social norms; these traits can also be seen in how they behave in the environment (Hirsh, 2010). Additionally, people who exhibit these traits are significantly more likely to have a higher future time perspective (Zimbardo and Boyd, 1999), which has been shown in other studies to be significantly linked to a greater level of environmental engagement (Milfont, Wilson, and Diniz, 2012). Which supports my assumption between conscientiousness and WTP for sustainability.

Active, kind, fun-loving, and engaging people are extraverted (Costa & McCrae, 2006; Pervin, 2003). Research has indicated that consumers who hold more favorable and solid attitudes toward green products are more likely to be willing to pay a premium for them.

People who exhibit neurotic traits "are likely to perceive everyday scenarios as threatening and can experience minor frustrations as terribly stressful," leading them to assume that difficult circumstances are frequently impossible to overcome. (Hoyle and Leary, 2009). Purchasing sustainable products won't help neurotic individuals stop the degradation of the environment. The hypothesis proposes a negative correlation between neuroticism and WTP for sustainable products.

Regarding Openness to Experience, reflects an inclination to participate in intellectual activities and encounter innovative concepts (Chamorro-Premuzic, 2007). People who score positively on openness

to experience are often described as unconventional, creative, inventive, open-minded, and innovative. (Costa and McCrae, 2006; Pervin, 2003). Due to their perception of sustainable items as superior to their "regular" counterparts over conventional options, this attribute has been identified as a predictor of the preference, purchase, and consumption of sustainable products. Choi and Winterich (Choi, W. J., & Winterich, K. P. ,2012) discovered that those with high openness scores were more inclined to try out a variety of things, including special or unusual ones, yet they were also less likely to grow devoted to a particular category, which included sustainable goods. People who are always on the lookout for interesting and unusual experiences may be less committed to making consistent, sustainable purchases since they will be more likely to alternate between brands and items without giving environmental concerns much thought. The hypothesis is that openness to experience and WTP for sustainability has a negative association.

Besides the Big Five Personality Traits, I decided to lastly include another independent variable: Demographics, in order to measure if the generation (Age) and Income is more relevant to the Willingness to Pay for Sustainable Eyewear than the Personality traits. In this case I assumed there is a positive correlation.

I decided to measure with two moderator variables this study: Uniqueness and Impulsivity. With the consideration that every personality feature is aligned with the need for uniqueness. Because someone who feels the need to stand out from the crowd is more likely to adopt environmentally friendly behaviors, we forecast that it will positively influence the connection between the Big Five and the WTP for sustainable items (Tian et al., 2001). Individuals typically choose quality and customization above conventional options to reflect their uniqueness, even if they'll probably have to pay more. (Legere & Kang, 2020).

On the other hand, Impulsivity, as the likelihood of a person making an impulse, unplanned, and

thoughtless purchase of something right away. Impulsive buyers' behavior contrasts those who often choose sustainable products, implying an adverse connection with issues concerning sustainability. People may buy more goods impulsively and in larger quantities out of a need to buy something rather than thinking about how such purchases would affect society or the environment. Since sustainable items are typically more expensive than non-sustainable ones, it has been demonstrated that low pricing might lead to impulsive shopping.

These previously studied models are already widely available in the literature, and in my opinion, they are overly general and fail to accurately assess the unique circumstances surrounding sustainable eyewear. Consequently, I made the decision for my thesis not to rely solely on these models, but to develop a brand-new model especially for the WTP for sustainable eyewear. This model was developed by carefully reviewing the body of literature and selecting the personality traits that best fit my model from a variety of studies.

The following criteria were applied when I compiled the articles that I included and reviewed for this research in order to guarantee the accuracy, applicability, and value of the sources used:

*Selection Criteria:*

- *Relevance to the Research Topic*: Articles explore fundamental topics including innovation, sustainability, consumer behavior, and willingness to pay in order to directly address the major themes or research questions of the literature review.
- *Publication Time Frame*: To grasp the most recent advancements, a focus on studies conducted within the last five to fifteen years was set.
- *Type of Literature*: Include both theoretical and empirical research in the selection of books, papers, reports and journal articles from reliable sources.

- *Research Quality*: Studies with reliable methods and appropriate data gathering and analysis approaches are given priority.

*Inclusion and Exclusion Criteria.*

- The inclusion criteria should only comprise of peer-reviewed, conceptually valid and closely connected studies to the research questions. For instance, choose only articles that examine sustainability from the standpoint of consumer or company behavior.
- Studies that are out-of-date, not subjected to academic review, or that are not relevant to the primary field excluded. This guarantees that the literature review has its foundation in solid, immediately applicable evidence.

A summary of some of the most significant papers I have used for my quantitative research and the foundation of my thesis may be found in the following table.

*Table 1. Scientific Articles related to Sustainable Eyewear- Personality Traits- Willingness to Pay and Sustainability.*

| Title, Author and Publication References. | Main Topic. | Type of Analysis. | Content and Purpose. | Results |
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| *Sustainable process and product innovation in the eyewear sector: The role of Industry 4.0 Enabling Technologies.* Murmura, F., Bravi, L., & Santos, G. (2021). | Exploration of the Eyewear Industry and Technology. | Qualitative Research through a semi-structured interview. | Perspective of the eyeglasses industry, quality and market factors, and assesses the contribution of Industry 4.0 to process and product innovation for managing consumer | The findings highlight the significance of innovation as one of the current drivers of competitive advantage in the eyeglass sector. |

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| *The role of personality and motivation on key account manager job performance*. Mahlamäki, T., Rintamäki, T., & Rajah, E. (2019). | An examination of the correlation between the performance of key account manager's job, and personality traits. | The study employed a questionnaire approach to look at the connections between goal orientation, personality, and key account managers' job performance. employing both online and mail versions of the questionnaire. 180 people responded to the survey, which was intended for key account managers in B2B marketplaces. | A structural equation model of personality, motivation, and key account manager job performance is created and evaluated in this study. With the use of the model, we understand how different personality traits affect motivation; and how motivational structures explain a key account manager's job performance. | The findings imply that a number of personality traits influence motivation in the setting of key account managers. Learning orientation and performance orientation are associated with two personality traits: extraversion and conscientiousness. |
| *Sustainable Consumer 2023 - Sustainable Lifestyle*. Deloitte (2023, October 31). | Recognize the actions that consumers are taking to live more sustainably | Online responses to a nationally representative sample of over 2,000 UK participants who are 18 years of age or older were collected for this | Deloitte's "Sustainable Consumer 2023 - Sustainable Lifestyle" report offers insights into 2023 consumer attitudes, preferences, and behaviors related to sustainability. The study looks | In general, data suggests that consumers are becoming more interested in sustainability—not just in consumer goods, but also in services as a |

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| | | study . | at how consumers are incorporating sustainability into their daily lives, what kinds of sustainable activities they use, and how these behaviors affect their decisions to buy. | whole. For 11 of the 23 sustainable behaviors the research studied, there has been a rise in the percentage of consumers reporting that they have embraced a more sustainable lifestyle. |
| *Consumer Intelligence Series survey on ESG*. PricewaterhouseCoopers. (n.d.). *2021* | Offers perceptions into the attitudes and actions of consumers about Environmental, Social, and Governance (ESG) issues. | A stratified sampling technique was employed. This method assists in getting an accurate evaluation of customer views among diverse groupings. Online surveys were used to gather data, which made it possible for PwC to effectively contact a big number of respondents . They were also able to | The study focuses at how consumers make decisions based on environmental aspects, what they anticipate from companies that practice environmental responsibility, and how these things affect customer trust and brand loyalty. | 83% of consumers believe businesses ought to actively influence ESG best practices. According to 91% of corporate executives, it is the duty of their organization to address ESG issues. 86% of workers would rather support or be employed by organizations that share their concerns. |

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| | | collect data from customers in various geographical places because to this technique. | | |
| *Consumers care about sustainability—and back it up with their wallets*. Am, J. B., Doshi, V., Noble, S., & Malik, A. (2023, February 6) | Examines how consumers' rising interest in sustainability is influencing their actual purchasing habits. Key results about consumer attitudes, spending patterns, and the growing demand from businesses for sustainable practices and goods are highlighted in the research. | A stratified random sample strategy was used to make sure that respondents from important demographic groups were fairly represented in the online survey. This approach helps in offering a fair assessment of customer sentiments among various demographics. | The growing value of sustainability in consumer decision-making is covered in the paper. It shows that a sizable portion of consumers actively look for goods and companies that share their ideals on social and environmental sustainability. | According to the report, a large percentage of consumers are eager to pay extra for goods that are sourced, produced, and packaged responsibly. Younger consumers that prioritize sustainability in their purchase decisions, including Millennials and Gen Z, are especially likely to do this. |
| *Unearthing the effects of personality traits on consumer's attitude and intention to buy green products.* Ying Sun. (2018) | Using the Big Five theory as a framework, this study investigates the relationship between personality traits and | Two ways have been used to acquire information via a questionnaire. In the first, 360 people answered | Achieving global sustainable development is significantly impacted by the green purchasing habits of consumers. This circumstance led | The findings showed that extraversion, agreeableness, openness to new experiences, and conscientiousness have a beneficial |

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| | inclinations for green purchases. | the questionnaire that was distributed around Hefei's college town. 503 respondents were gathered online via a website in the second approach. | to the current study's investigation of the impact of personality traits on consumers' attitudes about and intentions to purchase environmentally friendly goods. | impact on consumers' attitudes about green purchasing. |
| *The Big Five personality traits and earnings: A meta-analysis.* Alderotti, G., Rapallini, C., & Traverso, S. (2023). | An examination of the correlation between earnings and the Big 5. | The writers extracted 896 partial effect sizes from 62 research articles that were published between 2001 and 2020. | This article's primary goal is to conduct a meta-analysis of the empirical research on the relationship between earnings and the Big Five personality traits. | The literature reveals a negative and significant association between incomes and the qualities of agreeableness and neuroticism, while also offering a positive correlation between personal earnings and the attributes of extraversion, conscientiousness, and openness. Conscientiousness and Openness have a positive correlation with wages, according to meta-regression |

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| | | | | estimations. |
| *Willingness to pay for environmental quality: the effects of Pro-Environmental behavior, perceived behavior control, environmental activism, and educational level.* Vicente, P., Marques, C., & Reis, E. (2021). | WTP for environmental quality. | The information was gathered from a survey on consumption and the environment that was conducted in the southern region of Portugal through household interviews. A sample of 595 respondents was obtained from the interviews. | The purpose of this research is to find out how willing people are to pay for environmental quality and whether this inclination varies with different levels of education. To assess if two educational level segments are invariant, a multigroup analysis is performed. | The findings demonstrate the favorable relationships between WTP for environmental quality and pro-environmental behavior and perceived behavior control as well as environmental activism across all educational levels. |
| *Influence of personality on ecological consumer behaviour.* Fraj, E., & Martinez, E. (2006). | How a consumer's personality affects their behavior. | Quantitative study carried out on 573 people. | The Big-Five Factor Structure scale and the environmental attitude dimension, were added in the authors' theoretical model to measure and quantify, respectively, personality and ecological behavior. | The findings indicate a positive correlation between personality and ecological behavior. |
| *Personality predictors of Consumerism and Environmentalism: A preliminary study.* Hirsh, J. B., & Dolderman, D. | The Big Five Personality Traits as indicators of environmental | Quantitative research: 106 University of Toronto undergraduate students | The study evaluated students' attitudes toward the environment, consumer aspirations, and | The research revealed that the big five factors were significant: openness and |

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| (2007). | consciousness and consumption. | (ages 17 to 45) participated in a survey | personalities in order to anticipate two opposing ideas: consumerism and environmentalism. | agreeableness both positively predicted environmentalism, whereas agreeableness adversely impacted consumerism. |
| *Consumers' preferences, attitudes and willingness to pay for bio-textile in wood fibers.* Sandra, N., & Alessandro, P. (2021). | Customers' willingness to pay | Quantitative research: Using contingent valuation, information was gathered in-person from a sample of 696 customers. | This study calculates how much Italian consumers are ready to spend on three bio textile products (a T-shirt, a shirt, and socks manufactured from certified wood). | According to the data, there is a considerable premium price that varies from 64% to 128% depending on the product, and participants who are more concerned about the environment are more willing to pay for biotextile items. |
| *The circular economy and bioeconomy in the fashion sector: Emergence of a "sustainability bias."* Colasante, A., & D'Adamo, I. (2021). | The willingness of consumers to pay for bio-based clothing. | Quantitative study based on an online survey completed by 402 Italian consumers as a sample | The purpose of the study was to evaluate customer perceptions of the fashion industry, specifically in light of the bioeconomy and the circular economy. | Shows a positive premium for bio-based clothes. |

## III. KEY RESEARCH QUESTIONS

The literature on sustainable eyewear was taken into account as I developed my theories regarding how each of the Big Five personality types can influence consumers' willingness to pay for sustainable eyewear. The personality traits that I believe to be relevant to my study are introduced and their effect on buyers' WTP is discussed in the following section.

The studies and scientific articles that I took into consideration when developing my hypotheses are compiled in Table 2, with an emphasis on their attention to some of the key components of my research, which are consumers' personality traits, sustainable products, environmental efforts in the eyewear industry, and willingness to pay for sustainability.

*Table 2. The scientific papers that are most applicable to my research and how they deviate from my main research questions.*

| Title, Author and Publication References. | Willingness to Pay | Big Five Personality Traits | Sustainable Products Eyewear Industry | Environmental Awareness |
|---|---|---|---|---|
| *Sustainable process and product innovation in the eyewear sector: The role of Industry 4.0 Enabling Technologies.* Murmura, F., Bravi, L., & Santos, G. (2021). | | | ✔ | ✔ |

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| *The role of personality and motivation on key account manager job performance*. Mahlamäki, T., Rintamäki, T., & Rajah, E. (2019). | | ✔ | | |
| *Sustainable Consumer 2023 - Sustainable Lifestyle*. Deloitte (2023, October 31). | ✔ | | | ✔ |
| *Consumer Intelligence Series survey on ESG*. PricewaterhouseCoopers. (n.d.). *2021* | ✔ | | | ✔ |
| *Consumers care about sustainability—and back it up with their wallets*. Am, J. B., Doshi, V., Noble, S., & Malik, A. (2023, February 6) | ✔ | | | ✔ |

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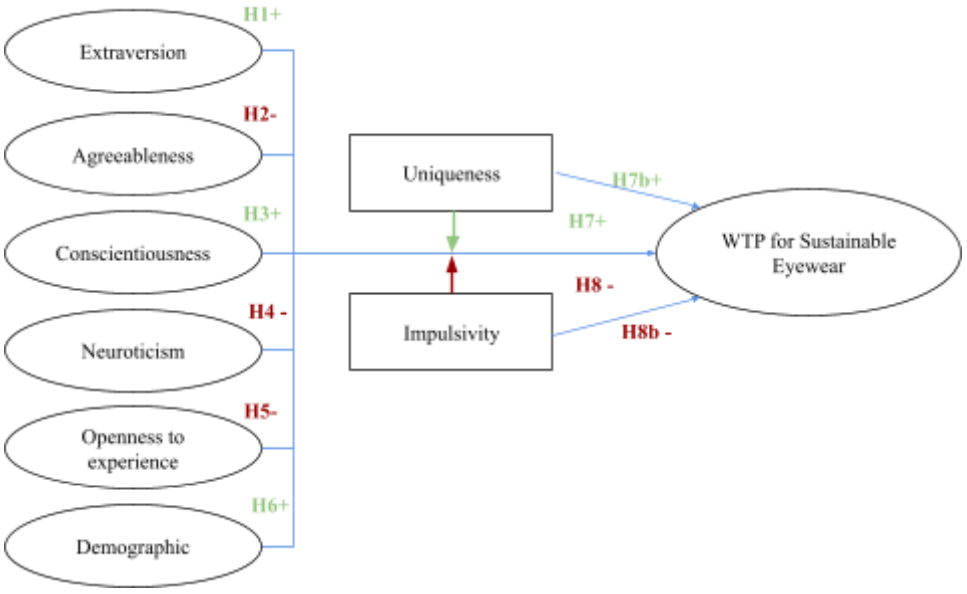
| *Unearthing the effects of personality traits on consumer's attitude and intention to buy green products.* Ying Sun. (2018) | ✔ | ✔ | | ✔ |
| *The Big Five personality traits and earnings: A meta-analysis.* Alderotti, G., Rapallini, C., & Traverso, S. (2023). | | ✔ | | |
| *Willingness to pay for environmental quality: the effects of Pro-Environmental behavior, perceived behavior control, environmental activism, and educational level.* Vicente, P., Marques, C., & Reis, E. (2021). | ✔ | | | ✔ |
| *Influence of personality on ecological consumer behaviour.* | ✔ | | | ✔ |

| | | | | |
|---|---|---|---|---|
| Fraj, E., & Martinez, E. (2006). | | | | |
| *Personality predictors of Consumerism and Environmentalism: A preliminary study.* Hirsh, J. B., & Dolderman, D. (2007). | ✔ | ✔ | | ✔ |
| *Consumers' preferences, attitudes and willingness to pay for bio-textile in wood fibers.* Sandra, N., & Alessandro, P. (2021). | ✔ | | | ✔ |
| *The circular economy and bioeconomy in the fashion sector: Emergence of a "sustainability bias."* Colasante, A., & D'Adamo, I. (2021). | ✔ | | | ✔ |

The study model that is hypothesized is illustrated in the following model (Exhibit 1) . I continue by examining each personality trait, to comprehend the model that I will be testing in Italy. It provides a graphic summary of the assumptions made regarding each of the five personality traits plus an additional independent variable and the two moderator variables that I chose, i.e., Uniqueness and Impulsivity.

*Exhibit 1. Graphical representation of my hypothesized model.*




A. *Independent Variables.*

In my quantitative research, the Five Personality Traits will be regarded as independent variables.

The Big Five Personality Traits is a widely recognized and often applied model for personality assessment (Kluemper et al., 2015; Hurtz and Donovan, 2000). It has been established that the five-factor model is genetically grounded, solid, and universal.

The five components of this model are neuroticism, agreeableness, extraversion, conscientiousness, and openness to new experiences.

## Extraversion

Refers to the inclination for dynamic behavior and social relations. Active, kind, fun-loving, and engaging people are extraverted (Costa & McCrae, 2006; Pervin, 2003). Research has indicated that consumers who hold more favorable and solid attitudes toward green products are more likely to be willing to pay a premium for them. (Fraj & Martinez, 2006;). Inversely, those who exhibit little extraversion are thought to be more shy, silent, and solitary individuals, as well as having fewer relations.

High energy, happy feelings, friendliness, communication, and confidence are characteristics of extraversion. Extraverts frequently exhibit energy and enthusiasm in public places and have a tendency to seek motivation in the interaction of others. The main proponents of the Big Five paradigm, (Costa and McCrae, 1992), characterize extraverts as those who are prone to interact socially, prefer being in groups, and get their energy from their surroundings.

Extraverts are talkative individuals with a wide social network, meaning they are more likely to interact with environmentalists and purchase eco-friendly goods. While this does not guarantee that people will vigorously buy sustainable products, it does provide an opportunity for discussion about natural and environmental issues, which may increase their propensity to purchase eco-friendly goods.

Life fulfillment and general well-being have been strongly correlated with extraversion. Studies like those conducted by Diener (Diener, E., Oishi, S., & Lucas, R. E., 2003), have demonstrated that extraverted people typically report greater levels of fulfillment and contentment with life than introverted people.

These features imply that extraverts are further inclined to participate in group sustainability initiatives that are motivated by social justice, especially when it comes to campaigning and engagement. According to Hirsh's (Hirsh, J. B., 2010) analysis of the relationship between personality types and environmental concern, extraverts are more likely to take part in social sustainability projects like activism or community service related to the environment. Their sociable disposition enables them to flourish in group endeavors, such neighborhood-based environmental projects or initiatives meant to increase the public's consciousness of sustainability.

Extraversion may have a gradual effect on consumers' willingness to pay (WTP) for sustainable items, according to research on personality traits and sustainable purchasing. Social pressure and the need for acceptance from society are two cultural factors that extraverts are more prone to consider during their choices. According to research by (Hirsh, J. B., & Dolderman, D, 2007), extraverts who have the opportunity to take part in social action or group activities that support sustainability are more inclined to support environmental causes. It also suggests that extraverts might be more willing to pay out more money for environmentally friendly goods if they think doing so will make them more popular or align to social standards.

Extraverts are more likely to react favorably to social media advertising programs that highlight group action or the larger impact on society of buying sustainable products, according to Naderi and Van Steenburg ((Naderi, I., & Van Steenburg, E., 2018). Extraverts, for instance, would be more willing to spend more money for environmentally friendly products if they are presented as a component of a greater social movement or a group effort to protect the environment).

Hartmann and Apaolaza-Ibáñez ((Hartmann, P., & Apaolaza-Ibáñez, V., 2012) additionally stated that extraverts are naturally inclined to react favorably to campaigns and ads that highlight the cultural and emotional advantages of sustainable goods. Extraverts may be more ready to pay for a product, for

example, if it is advertised as promoting humanitarian or enhancing social harmony. This is because these attributes correspond with their need for interaction with others and social appreciation.

Additionally, there is a tendency to link extraversion with expressing oneself and well-being. Eyewear can be seen as an opportunity for individuals to express one's identity or unique style.

The increasing value of sustainability is seen in the eyewear industry's recent trends, as more and more customers look for environmentally responsible solutions. Still, the way that sustainable products are presented has a big impact on extraverts' propensity to adopt them. In the study they conducted into how personality traits, such as extraversion, impact how consumers react to sustainable products, (White, K., Habib, R., & Hardisty, D. J. , 2019), discovered that extraverts are more inclined to embrace environmentally friendly products when they are presented in an attractive way to customers.

As a result, we can use those conclusions to the eyewear sector in our research and postulate that:

**H1: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Extraversion.**

Agreeableness.

Agreeable people tend to be understanding, helpful, gentle, honest, and trustworthy. Furthermore, according to Costa and McCrae, and Pervin, (Costa & McCrae, 2006; Pervin, 2003), those who score lower on the agreeableness measure might be described as cynical, impolite, uncooperative, vindictive, irritable, and manipulative. Linked to being a "good citizen," since they are kind to others, they find it simpler to be concerned about and act upon environmental issues.

It is about how individuals handle their interpersonal interactions. People with agreeable traits are likely to enjoy each other's company and are more adept at connecting to and engaging with others. Furthermore, they typically have a positive outlook on humanity.

According to previous studies, being environmentally aware was linked to having a higher agreeable Big Five personality trait. (Dolderman & Hirsch, 2007) They find it easy to be concerned about and act upon environmental issues because they have an altruistic mindset, are prepared to put others' needs ahead of their own, and are cooperative. Therefore, it stands to reason that they choose to purchase sustainable items of various kinds while still keeping in mind the environment and future generations.

There is unmistakable evidence from numerous studies linking agreeableness to environmentally friendly conduct. According to research by Markowitz, (Markowitz, E. M., Goldberg, L. R., Ashton, M. C., & Lee, K. 2012), people who possessed elevated agreeableness grades were prone to show care for the environment and adopt measures to encourage sustainability. According to their results, those people are driven by an urge to minimize environmental damage and to assist others, especially those who come after them.

Milton and Sibley (Milfont, T. L., & Sibley, C. G., 2012) investigated the relationship between agreeableness and environmental involvement and came to the results that those who are agreeable are inclined to support policies that promote sustainability or work for environmental causes. The researchers contend that these people are more aware of the moral and sociological ramifications of damage to the environment because of the altruistic aspect of agreeableness.

When green goods were presented as having a positive social impact, more agreeable customers were disposed to select them, according to research by Lin and Chang *(Lin, Y.C. and Chang, C.C.A., 2012*) on the association between agreeableness and ethical consumption. This implies that goods that are in

line with their ethical principles and social responsibility are what drive agreeableness to customers.

However, according to the study conducted by Brick & Lewis (Brick, C., & Lewis, G. J., 2014), people who score strongly on agreeableness may be reluctant to buy sustainable products when they believe that doing so will go against social norms or cause conflict with others. Consistent buyers may put short-term social acceptance ahead of long-term environmental advantages, rather than pushing for more environmentally friendly options.

Klein and Hilbig (Klein, S.A., & Hilbig, B.E., 2018) investigated how this relationship rarely turns into a willingness to incur more expenses for sustainability. In reality, those who are quite agreeable could steer clear of sustainable purchases if they think they might annoy others or put a strain on family finances.

Agreeableness is linked to cooperative actions, and although they genuinely respect sustainability, are hesitant to question others' spending patterns. This hesitation might be especially pronounced in places where unsustainable activities are common, which further contributes to lower purchase rates of green goods.

The same logic may be used in the eyewear industry, where pleasant individuals would likely be compromised to be prepared to spend extra for a pair of glasses made with biodegradable materials if by doing so they might break social consumer patterns..

Therefore we can assume that:

**H2: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Agreeableness.**

Conscientiousness

Individuals with high conscientiousness scores are typically focused, deliberate, and strong-willed. A person's motivation for goal-directed action is characterized by their conscientiousness (Barrick, Mount, & Li, 2013; Costa & McCrae, 2006; Pervin, 2003). People also tend to "do the right thing" and carefully observe social norms; these traits can also be seen in how they behave in the environment (Hirsh, 2010). Additionally, people who exhibit these traits are significantly more likely to have a higher future time perspective), which has been shown in other studies to be significantly linked to a greater level of environmental engagement (Milfont, Wilson, and Diniz, 2012). Which supports my assumption between conscientiousness and WTP for sustainability.

This trait refers to the variations between people in accomplishment and organization. In addition to being responsible and organized, conscientious people closely observe the rules of society that govern every behavior. This drive "to do the right thing" may also be seen in how they behave in the outside world (Hirsh, 2010). Future-oriented individuals typically prepare for better future outcomes, especially environmental, and are more aware of the consequences of their decisions and activities.

Between the Big Five traits, conscientiousness is one of the most effective indicators of environmental advocacy, according to Markowitz (Markowitz, E. M., Goldberg, L. R., Ashton, M. C., & Lee, K., 2012). Based on their research, conscientious people are inclined to reuse items, use energy-efficient appliances, and minimize their waste. Their inclination for structured, ordered methods to everyday activities and objectives which frequently coincide with ecological practices like garbage disposal and electricity conservation. In the same spirit, Milfont, (Milfont, T. L., & Sibley, C. G., 2012) investigated conscientiousness in relation to ethical consumption and discovered that conscientious people typically favor sustainable or ecologically friendly products. They are more inclined to look for information on

how their purchases may affect the environment and steer clear of goods that worsen the environment.

Based on this research, we can assume that:

**H3: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Conscientiousness.**

Neuroticism.

Individuals with neuroticism characteristics "are likely to interpret ordinary situations as threatening and can experience minor frustrations as hopelessly overwhelming," which makes them believe that unfavorable situations are often unsolvable. (Leslie and Hoyle, 2009). Buying sustainable products will be ineffective for neurotic people because it won't stop environmental deterioration.

People with elevated levels of neuroticism are more predisposed to suffer from mental health issues; they are more likely to be annoyed, have trouble managing their emotions, struggle to handle stress, and react sensitively to things that other people wouldn't find significant.

Fast fashion and disposable products are two examples of less sustainable purchases that can result from the urge for instant emotional ease. Short-term emotional relief may be more important to neurotic customers than long-lasting ecological benefits. (Gkargkavouzi, A., & Halkos, G., 2024).

People with neuroticism are more prone to see danger in many facets of life. Studies indicate that increased fear of environmental catastrophes or global warming may promote or hinder environmentally friendly habits. Threats to the planet may cause some people to act anxiously in an environmentally conscious manner; for others, however, these worries may result in evasion or

disbelief. (Mowen, J. C., & Spears, N., 1999).

Neuroticism was correlated with environmental participation either favorably and unfavorably according to Milfont and Sibley's (Milfont, T. L., & Sibley, C. G., 2012) contradictory results. Hirsch (Hirsh, J. B., 2010) discovered, however, in a different study that a greater proportion of neurotic individuals exhibit noticeably higher levels of ecological concern.

By incorporating this idea into the model, we might arrive at the conclusion that buying sustainable eyewear would be nearly pointless for neurotic individuals because altering our spending patterns alone will not address the issue of environmental problems.

**H4: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Neuroticism.**

Openness to Experience.

Reflects an inclination to participate in intellectual activities and encounter innovative concepts (Chamorro-Premuzic, 2007). People who score positively on openness to experience are often described as unconventional, creative, inventive, open-minded, and innovative. (Costa and McCrae and Pervin (Costa & McCrae, 2006; Pervin, 2003). Due to their perception of sustainable items as superior to their "regular" counterparts over conventional options, this attribute has been identified as a predictor of the preference, purchase, and consumption of sustainable products.

People who are open to new experiences support global viewpoints and have a great degree of acceptance for all individuals. They are not inflexible in their personal beliefs.

Items created from environmentally friendly sources, such as wood, recycled plastic, or biodegradable substitutes, tend to be chosen by open consumers. This customer group is likely to be drawn to eyewear companies that emphasize the sustainability of their resources and manufacturing procedures.

People with high openness levels tend to be pioneers of innovative sustainable practices in spectacles, such as reused components or circular economy models where glasses can be returned for recycling or reusing, because they value novelty and innovation. (Markowitz, E. M., Goldberg, L. R., Ashton, M. C., & Lee, K., 2012).

Research has indicated that those who possess a sense of wonder, like art, and are touched by beauty are inclined to hold unusual viewpoints. Examples of these beliefs include ones associated with conservation efforts and activism. The reason for this might be that people with significant degrees of openness have more developed aesthetic views, which could boost their appreciation of and connection to nature. Indeed, several studies confirm that those who are open to new experiences care more about the planet and act in ways that are less harmful to it. (Dolderman & Hirsch, 2007).

Choi and Winterich (Choi, W. J., & Winterich, K. P., 2012) discovered that those with high openness scores were more inclined to try out a variety of things, including special or unusual ones, yet they were also less likely to grow devoted to a particular category, which included sustainable goods. People who are always on the lookout for interesting and unusual experiences may be less committed to making consistent, sustainable purchases since they will be more likely to alternate between brands and items without giving environmental concerns much thought. The hypothesis is that openness to experience and WTP for sustainability has a negative association.

Consumers who have greater openness are more inclined to value innovation and fashion, which could cause them to buy the newest gadgets or in-style products without thinking about how they would

affect the planet. The sustainability principles, which place an emphasis on long-term, environmentally beneficial consumption practices, might interfere with this quest of innovation. (Shah, S. K., Tang, Z., Gavurova, B., Oláh, J., & Acevedo-Duque, Á. 2022).

According to studies linking Openness Experience with eco-friendly tourist behavior (Kvasova, O., 2015) Openness to experience resulted in a negative relationship, this might be explained by the fact that "to behave ethically" influences ecological behavior in a domestic context, whereas hedonic motives (i.e., "feel better right now") are the primary motivations behind such conduct in a tourist context. (Miao, L., & Wei, W., 2013).

In the eyewear sector, consumers might prefer the latest material, or design rather than prioritizing sustainability. Based on this, we can hypothesize that:

**H5: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Openness to Experience.**

Demographics

Age and income have a significant impact on one's willingness to pay for sustainable items, but their relative contributions can vary based on other factors including environmental consciousness, academic achievement, and geographic variations. While older and lower-income consumers might need extra incentives like cost savings, health benefits, or quality assurances, younger and wealthier consumers are typically the most prepared to pay premiums for sustainability. (Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., & Bohlen, G. M., 2003).

Lastly, I decided to add another independent variable in order to analyze its relationship with

Willingness to Pay: Demographics, particularly from Income and Age to understand if these factors at the end are more relevant to Willingness to Pay rather than the personality traits. My hypothesis is that Demographics are positively related to willingness to pay for sustainable eyewear.

**H6: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Demographics.**

*B. Moderator Variables.*

When two concepts have a relationship that is not constant and instead relies on the values of a third variable referred to as the moderator variable, this is known as moderation. Typically, the moderator variable modifies the direction or even the degree of a relationship between two model constructs.

I decided to incorporate Uniqueness and Impulsivity as two moderator factors in my proposed research model.

Uniqueness.

Uniqueness appears to be particularly related to openness to experience, as it entails actively seeking out and discovering the novelty. Nevertheless, since the desire for originality and freshness is identified as being fundamentally incorporated in the nature of people, we may apply it to all five Big Five personality traits.

Personal identity, social distinction, and the need to stand out has an impact on this behavior. Uniqueness is especially important when it comes to sustainability, since customers can use sustainable items to show their ideals and differentiate from those who purchase traditional items, especially by

choosing those that are positioned as unique or limited. (Tian, K. T., Bearden, W. O., & Hunter, G. L. , 2001b).

Products that are sustainable can fetch a higher price, particularly if they are positioned as high-end or luxurious goods. Customers with a strong desire for uniqueness find that possessing uncommon, eco-friendly products elevates their position in society and boosts their willingness to pay (Griskevicius, V., Tybur, J. M., & Van den Bergh, B., 2010).

When offered the option to personalize sustainable items by selecting green components or unique styles, customers frequently view the product as having greater value. Because the product now reflects both their environmental ideals and uniqueness, this impression raises their WTP.

Research indicates that clients who value distinctiveness greatly are willing to pay out higher prices for sustainable items that can be customized. This tendency is especially prominent in sectors like fashion, spectacles, and decor for homes, where personalization fosters simultaneously creativity and a sustainable engagement. (Franke, N., & Schreier, M., 2007).

Excessive resemblance or differences to other people are perceived as disagreeable, people strive to create and preserve a sense of acceptable self-distinctiveness. It is a moderator variable in my model since it is relevant in the Eyewear Industry. The demand for innovation and freshness among consumers in this sector is strong since they make this medical dispositive a fashion item to express their style and personality.

If we apply the "uniqueness" concept to sustainable eyewear, we find that people who have a strong desire for uniqueness often make unconventional decisions. Adopting an eco-friendly lifestyle and wearing sustainable eyewear can help these people meet their need to stand out.

With this information, we can think that:

**H7: There is a positive moderation of uniqueness between Willingness to Pay Sustainable Eyewear and the Big Five Personality Traits.**

Impulsivity.

When it comes to the buying habits of consumers, impulsivity is defined as an unexpected, spontaneous, and dominant compulsion to buy in response to factors from the inside out. The consumer will act quickly to satisfy their desire as an urgent gratification despite taking into account the real necessities and financial implications. An impulsive person reacts quickly and without thinking. (Rook, D. W., 1987).

Although neuroticism appears to be the personality trait most closely linked to impulsivity, reckless purchasing habits may also be a result of their unstable moods, acting more as a temporary element than a consistent trait.

Although hedonic shopping and feeling of instant fulfillment are often associated with impulsivity, there are some situations in which impulsive consumers would be prepared to pay more for sustainable goods. The cultural prominence of sustainable products might also have an impact on impulsive buyers. Impulsive shoppers could be prepared to pay extra for sustainable products if they are perceived as stylish or socially acceptable, in order to win others over. (White, K., & Simpson, B., 2013).

Numerous consumer personality characteristics are associated with impulsive buying tendencies, and

the Big Five Model is currently extensively employed to investigate the influence of these factors on impulsive conduct.

Furthermore, the primary determinant of impulse purchasers is price; marketing mix, in-store marketing, offers, incentives, promotions, social and demographic aspects, and smart positioning of goods to attract consumers' impulses. It is important to remember that impulsive action typically is drawn into quick, short-term benefits. (Hofmann, W., Friese, M., & Strack, F., 2009).

Impulsive buyers may not always be drawn to sustainable products, which frequently demand a larger amount of money, unless they provide immediate emotional fulfillment or are in line with their social value.

Given that eco-friendly eyewear is typically more costly than unsustainable, we can anticipate consumers' willingness to pay less for eco-friendly eyewear will be negatively impacted by impulsivity.

Therefore we can state that:

**H8: There is a negative moderation of impulsivity between Willingness to Pay Sustainable Eyewear and the Big Five Personality Traits.**

The scientific research suggests that Impulsivity and Uniqueness are related to an individual's willingness to pay for sustainability. Impulsive buyers may still select eco-friendly goods if certain items are sustainable and offer instant hedonic benefits, like organic cosmetics claiming better sensory experiences. Under such scenarios, the product's immediate appeal, despite its higher price.

Impulsive buyers might be able convince themselves to pay a premium for an ecologically friendly item if it is presented to them as an emotionally satisfying experience, such as supporting a green enterprise or making a contribution to charity. Impulsive consumers could find that "giving back" offers them the immediate psychological fulfillment they crave. (Luchs, M. G., Naylor, R. W., Irwin, J. R., & Raghunathan, R., 2010).

And regarding uniqueness, customers that value uniqueness are mainly driven by the need to be noticed. They frequently purchase sustainable goods beforehand and may actively seek out new concepts or limited-edition products. Items that provide novelty as well as environmental responsibility have a higher WTP. (McFerran, B., Aquino, K., & Tracy, J. L., 2014) . Since I designated them as moderators, I will also consider them as independent variables and establish new hypotheses to preserve the association.

**H7b: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Uniqueness.**

**H8b: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Impulsivity.**

## IV. RESEARCH METHODOLOGY AND DATA COLLECTION.

### *A. Methodology.*

The SmartPLS model is used to confirm whether there is a relationship between the Big Five and their willingness to pay for sustainable eyewear. This model uses a particular approach known as structural equation modeling or SEM for short. SEM is a multivariate data analysis methodology that makes it

easier to analyze the relationships between several elements. Scholars have identified some of the benefits of SEM as its ability to represent and calculate challenging multidimensional and interconnected dependence among many variables in a single analysis. The ideas that are taken into account are often not visible and are instead assessed by an assortment of indicators.

SEM takes errors in measurement in the observed variables into account as it moves forward with the calculation of the relations. According to Cole and Preacher (Cole & Preacher, 2014), this approach enables the investigator to measure the important theories with far greater precision. SEM is typically employed in situations when the sample size is small or the data is not normally distributed. It can also be used to build and forecast theories.

*B. Population and Data Collection.*

Scientific and Academic studies support the hypotheses presented in this thesis on consumer attitudes toward sustainability and environmental awareness, as well as individual personality studies concerning consumer behavior. Willingness to Pay for sustainable eyewear is the dependent variable I used for my analysis.

The popular Big Five Personality Traits—conscientiousness, extraversion, are the traits of personality that I hypothesize to be pertinent to my quantitative research displaying a positive relation with the Willingness to Pay Sustainable for Eyewear . With the exception of neuroticism, agreeableness, and openness to experience which I predicted would have a negative effect on my dependent variable.

Two moderator variables will also be used in this model: Uniqueness and Impulsivity; their purpose is to influence the direction of the relationships between an independent variable and a dependent variable.

Uniqueness is a moderator variable in my model since it is relevant in the Eyewear Industry. The demand for innovation and freshness among consumers in this sector is strong since they make this medical dispositive a fashion item to express their style and personality.

If we apply the "need for uniqueness" concept to sustainable eyewear, we find that people who have a strong desire for uniqueness often make unconventional decisions. Adopting an eco-friendly lifestyle and wearing sustainable eyewear can help these people meet their need to stand out. Therefore, I expect this variable moderates positively the relationship with Willingness to Pay for Sustainable Eyewear.

Regarding Impulsivity, numerous consumer personality characteristics are associated with impulsive buying tendencies, and the Big Five Model is currently extensively employed to investigate the influence of these factors on impulsive conduct.

Given that eco-friendly eyewear is typically more costly than unsustainable, we can anticipate consumers' willingness to pay less for eco-friendly eyewear will be negatively impacted by impulsivity. Therefore, I can expect this variable negatively moderates the relationship with Willingness to Pay for Sustainable Eyewear.

Through the creation of a survey and its distribution using Google Forms, which is a widespread online survey platform that lets users make, share, and assess questionnaires. To gather opinions and insights from their target audiences, people, companies, academic institutions, and non-profit organizations utilize this cloud-based platform. The platform is well known for its performance in market research, engagement among workers, customer opinions, and more.

Since the majority of participants speak Italian, the questionnaire is written in English and Italian to

minimize misunderstandings resulting from the interpretation of the questions.

The questionnaire is divided into four sections. I explained the goals of my research to all participants in the first part and added a filter question about participants' interest in sustainable eyewear. Sustainable awareness is indispensable in order to participate in the survey, since understanding the importance of sustainability and environmental issues are the principal motivators that influence the behavior and Willingness to Pay.

The second section of questions relates to the dependent variable, which is the 5-point Likert scale used to measure WTP purchases for sustainable eyewear. The third section consists of questions about the Big Five and the two moderator variables: Uniqueness and Impulsivity, displayed in *Table 3*. Lastly, some demographic questions concerning gender, age, and provenance are in the fourth section.

*C. Measures and Scales.*

Each measurement element used in the present investigation was taken from previously published studies. To bring things into accordance with the setting in question, only minor formulation adjustments were required.

As mentioned before a Five-Point Likert scale, with **“one”** representing **"Strongly Disagree"** and **“five”** indicating **"strongly agree"**, was used in the questionnaire. Subsequently, *Table 3* shows the variables and measurement scales.

*Table 3. Measurement Scales & Variables.*

| Measures | Questions | Scale |
|---|---|---|
| Willingness to Pay | 1. When it comes to | 5-points Likert |

| | | |
|---|---|---|
| | eyewear, I am willing to pay more for sustainable options than for less sustainable ones.<br>2. Even if less expensive and environmentally friendly eyewear were available, I would still like to purchase sustainable eyewear.<br>3. I would be willing to spend more for sustainable eyewear if it offered more benefits. | Scale<br><br>3 items.<br><br>(Habel, J., Schons, L. M., Alavi, S., & Wieseke, J., 2016). |
| Extraversion | 1. When things aren't clear, I usually take action.<br>2. I have no trouble making new friends.<br>3. Frequently, I let other people choose what to do.<br>4. I am able to persuade people in order to do things. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Agreeableness | 1. I have faith in other people.<br>2. I believe the things that others say.<br>3. I enjoy providing a helping hand.<br>4. Most people, in my opinion, have good intentions. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Conscientiousness | 1. I am dilligent in what I do.<br>2. I complete assignments on schedule.<br>3. I make thoughtful choices.<br>4. I do my best to stick to the regulations. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Neuroticism | 1. I think I could deal with any scenario.<br>2. I find it difficult to accept judgment.<br>3. Emotionally affecting me can be done easily.<br>4. I am really anxious before big encounters. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Openness to Experience | 1. My imagination is quite vivid.<br>2. I value art highly. | 5-points Likert Scale |

| | | |
|---|---|---|
| | 3. I like to fantasize.<br>4. Things that others might not find appealing, I find beautiful. | 4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Impulsivity | 1. I buy items on an impulse quite frequently.<br>2. “You only live once” sums up how I make purchases.<br>3. I frequently make unintentional purchases.<br>4. "I see it, I buy it" sums up who I am.<br>5. “Buy now, worry about it later” sums me up.<br>6. Occasionally, I get the need to make spontaneous purchases.<br>7. I make purchases based on my current mood.<br>8. I ponder most of my purchases quite carefully.<br>9. Occasionally, I make quite careless purchases. | 5-points Likert Scale<br><br>9 items.<br><br>(Rook, D. W., & Fisher, R. J., 1995). |
| Uniqueness | 1. Unique items captivate me greatly.<br>2. Rather than chasing trends, I usually take the lead in fashion.<br>3. If a product is on sale, I'm more likely to purchase it.<br>4. Rather than purchase something already produced, I would rather have them personalized and customized for me.<br>5. I take pleasure in owning items that other people do not.<br>6. I hardly ever turn down the chance to add personalized features to the items I purchase.<br>7. I love to be the first to experience new products and services.<br>8. I like checking out at places that sell unique and interesting things. | 5-points Likert Scale<br><br>8 items.<br><br>(Lynn, M., & Harris, J., 1997). |

Scholars typically employ a single-item scale that questions participants what amount they would spend for a given good since experts haven't yet discovered a scale that can calculate Willingness to Pay. Applying an attempt of measurement scale, the dependent variable—the willingness to pay for sustainable eyewear has been assessed. The authors (Habel, J., Schons, L. M., Alavi, S., & Wieseke, J., 2016). took into account a number of factors, including consumers' views on quality, price sacrifice, willingness to pay more, and price-value ratio. They come to their findings that views on reasonable pricing influence people's willingness to pay a premium. The original scale's elements have undergone minimal phrasing adjustments to better fit our topic on sustainable eyewear.

Concerning the Big Five, there are 50 items in the initially developed International Personality Item Pool, with 10 items for each of the model's five dimensions. However, in an effort to make things easier to understand and have the survey flow more naturally, I opted for the the brief form version of the Mahlamäki, Rintamäki, & Rajah (Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) scale, which consists of four items for each dimension.

An elevated uniqueness level can have particular effects, such as a greater propensity to spend money on rare, sophisticated, personalized, and vintage items. The Demand for Unique Goods has been used to quantify the first moderator, "Uniqueness created by Lynn and Harris. (Lynn, M., & Harris, J.,1997).

The "Buying Impulsiveness Scale" (Rook, D. W., & Fisher, R. J., 1995) measures an impulsive customer's propensity to make unintentional, impulsive purchases lacking previous careful consideration. I opted for this specific method since it allows participants to address alternatives, which facilitates the collection of their genuine opinion. Additionally, a well-designed Likert scale consistently features a symmetry of Likert questions regarding a neutral option.

Most of the questions are generally structured in positive phrases, but I've adopted the practice of

rephrasing "positive" questions in "negative" forms because it guarantees that respondents were reacting consistently. A high score on a Reverse Coded Item question denotes a low level of the respondent in that trait, in contrast to positive items, where a high score is associated with a high level in that particular trait.

In order to help participants acknowledge their time and progress through the survey and avoid feeling overwhelmed by the uncertainty of when it will be over, I have chosen to add a progress bar. This in order to guarantee credibility and consistency with the responses and give a sense of reward.

The anonymous link generated by the "Google Forms" platform was used to release and circulate the survey, which ended in September 2024. A chain diffusion started online when I shared the link on my social media profiles and sent it over Whatsapp and Social Media to friends, acquaintances, coworkers, and relatives. We identify this technique of gathering data as "snowball sampling."

Perhaps among the most widely used sampling techniques in research is snowball sampling, which places a strong emphasis on networking and recommendation. Typically, scholars begin their work with a limited group of preliminary acquaintances that meet the study's parameters and eventually extend the offer to take part in the study. After that, the interested volunteers are compelled to think of additional acquaintances who meet the study's eligibility requirements that could potentially be open to taking part. These contacts then suggest further contacts who might be interested in participating, and continue like this. Consequently, scholars employ their circle of acquaintances to create the first connections, and then sampling grows from such connections, catching an ever-larger system of individuals. (Parker, C , Scott, S and Geddes, *SAGE*, 2019).

One benefit is that it is more budget-friendly because respondents contribute to finding other respondents, which cuts down on the duration and money investigators must dedicate to finding and

contacting individuals. Snowball sampling, according to Biernacki and Waldorf (Biernacki, P., & Waldorf, D.,1981), enables investigators to use already-existing communities and, therefore can reduce targeting audience expenses, particularly in projects where conventional marketing or promotion may not be practical or reliable.

It shortens the process of gathering information. Researchers can obtain information faster than they might with traditional approaches since respondents frequently quickly attract other people from their social circle. In fast-paced research, for instance those involving medical emergencies or pressing societal concerns, as noted by Sadler (Sadler, G. R., Lee, H., Lim, R. S., & Fullerton, J. 2010) are very useful.

The new volunteers are inclined to feel comfortable with the person conducting the research because the study participants were chosen by someone in their peer circle. This sense of confidence is crucial, according to Atkinson and Flint ( Atkinson, R., & Flint, J. ,2001), when researching delicate subjects like addictions or criminal conduct, where subjects might normally be hesitant to divulge data.

There is a risk of similarity in the sample due to the selection of respondents of others from their community, which may result in biased selection. Snowball sampling may over-represent people with the same traits, according to Sadler (Sadler, G. R., Lee, H., Lim, R. S., & Fullerton, J. 2010), making it challenging to extrapolate results to a larger population.

Since I managed to mitigate the challenges previously mentioned, I have chosen to apply this approach regardless of its limitations. The majority of the individuals who contributed to my sample were mostly trustworthy friends and colleagues, acquaintances, and social club members who were willing and glad to assist me in making sure the research was fulfilled. After receiving 395 answers, the survey was closed in September 2024.

*D. Sample.*

In order to ensure that the findings were examined accurately, missing responses from participants who intentionally or unintentionally neglected to respond to one or more questions were identified and the whole collaboration was omitted. From the 395 answers at the end we kept 380 valid responses.

The questionnaire is divided into four sections. I explained the goals of my research to all participants in the first part and added a filter question about participant's interest in sustainable products. I intended for my sample to have a representation of everyone knowledgeable about sustainable goods or at minimum curious to gain insight regarding it. After this filter we ended up with 363 valid responses. From this question we could get a first glance that 95.52% were interested in sustainable products and 4.48% no.

Next, I asked them "What kind of eyewear they use" to assess the respondents' accuracy and fit for the research purposes. Then exclude the individuals who selected "None of the above". Ending up with 300 valid responses.

*Table 4. Filter question regarding the use of eyewear.*

| Do you use any of the following types of eyewear? (Please select all that apply). | # | % |
|---|---|---|
| Glasses for Reading | 42 | 14% |
| Glasses for vision correction (e.g., nearsightedness, farsightedness, etc.) | 171 | 57% |
| Sunglasses | 228 | 76% |
| **Valid Responses** | **300** | **100%** |

I continued the data analysis by examining the principal demographic dimensions of the population previously filtered. About 67% of my sample consisted of women and 33% left men. Concerning age, 57% of the participants were in the range of 25-34 years old.

One of the conditions for completing the questionnaire was to currently reside in Italy, regardless of whether the country of origin is different. Regarding the citizenship of the participants 74% were Italians. Respecting the level of education the majority about 49% were Master's Degree holder participants, and regarding the Annual Income 43% answered they perceived less than €10,000 per year.

*Table 5. Demographic Data of the Sample*

| | **# of Participants** | **% of Participants** |
|---|---|---|
| **Gender** | | |
| Female | 201 | 67% |
| Male | 99 | 33% |
| **Age** | | |
| 18-24 | 72 | 24% |
| 25-34 | 171 | 57% |
| 35-44 | 45 | 15% |
| 45-54 | 6 | 2% |
| 55-64 | 6 | 2% |
| **Citizenship** | | |
| Italian | 222 | 74% |
| Other | 78 | 26% |
| **Level of Education** | | |
| Less than High School | 3 | 1% |
| High School | 57 | 19% |
| Bachelor Degree | 90 | 30% |
| Master's Degree | 147 | 49% |

| | | |
|---|---|---|
| PhD | 3 | 1% |
| **Annual Income** | | |
| Less than €10,000 | 129 | 43% |
| €10,000 - €19,999 | 48 | 16% |
| €20,000 - €29,999 | 90 | 30% |
| €30,000 - €39,999 | 24 | 8% |
| €40,000 or more | 9 | 3% |

## V. DATA ANALYSIS AND RESULTS

I have chosen to use Smart-PLS, a modeling tool for the structural equation based on variance, to assess the viability of the proposed model in my quantitative research. It is a graphical user interface professional statistical software for Structural Equation Modeling that uses the Partial Least Squares (PLS) path modeling method, enabling investigators to account for measurement errors in observed variables and incorporate unobservable variables measured indirectly by indicator variables. Often employed in the fields of behavioral sciences, entrepreneurship, and marketing, this method is suitable for developing theories and doing experimental study.

The most recent version of SmartPLS, SmartPLS 4, is appropriate for intricate models with several components, indicators, and connections. Several metrics, including R2, path coefficients, and loadings, are available in the program to assess the structural model (relationships between unobservable variables) as well as the measurement model (relationships between latent and observable variables).It supports the exploration of how underlying psychological constructs as motivations, attitudes, or personality traits influence behavior.

In *Exhibit 1* we can find the PLS Model for this study created to show the relationships between the

constructs and illustrate all of the hypotheses.

The Big Five Personality Traits: Agreeableness, Consciousness, Extraversion, Neuroticism, and Openness to Experience are represented in circles, which are the variables not directly measured. The indicators directly measured are illustrated in rectangles. The relation between constructs and their indicators is displayed with directional single-headed arrows. The model is designed based on the hypotheses, to evaluate and forecast possible scenarios.

The two primary components of a PLS model are the measurement model, which illustrates the relationship between unobservable variables and their indicators, and the structural model, which represents probable causal relationships between inner and outer factors.

The associations between latent variables, also known as constructs, are portrayed by the structural model. The indicators or observed variables are employed to determine these latent variables, which are unobservable. Testing theories or possible connections between these latent variables is the main goal of the structural model. It describes the directions of effects and causal connections between the model's constructs.

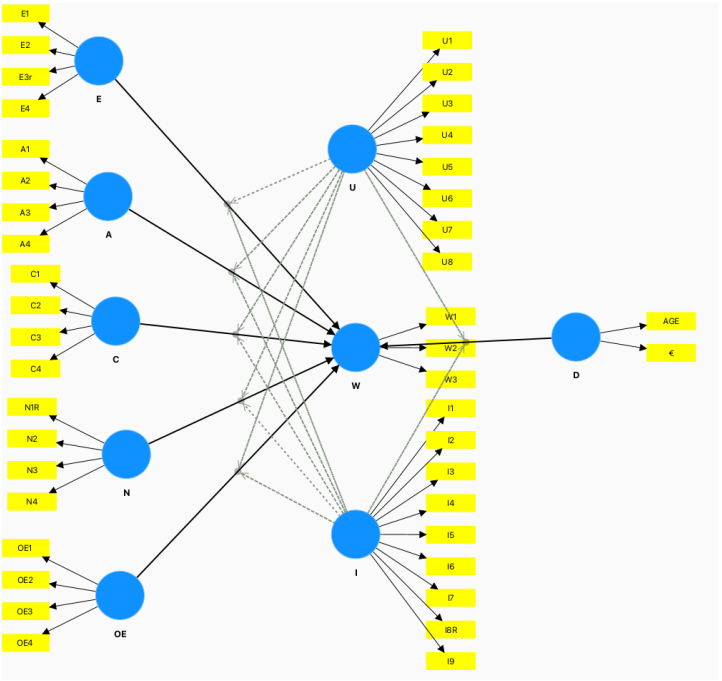
Regarding the measurement model, it outlines the connections among the constructs and their indicators. It outlines the connections among the constructs and their indicators. Two categories of measurement models have been identified:

Reflective: It is believed that the underlying latent variable is reflected in the indicators, therefore modifications to the latent variable also affect modifications in the indicators. The arrows point from the construct to the items suggesting that the measurement of the indicator variables is a result of the construct.

Formative: The latent variable is caused by its indicators. The arrows indicate a causal (predictive) association and are oriented from the items in question to the construct.

In *Exhibit 2,* I showcase the Path Model of this research including just the Reflective measurement model.

*Exhibit 2 - Path Model graphic illustrating the relationship among variables using SmartPLS 4.*




*A. Measurement Model Analysis.*

Assessing the validity and reliability of the constructs is the initial step in the Measurement Model Analysis. Prior to beginning an adequate evaluation, the missing values must be addressed. We may observe that there are no missing values in the quantitative research's database. To properly evaluate the measurement model, we also need to differentiate between formative and reflective constructs. Reflective measurement models are assessed according to their validity, internal consistency, and reliability.

1. Construct’s Reliability

Given that the research's constructs are reflectively measured, the reliability of each could be determined and evaluated using Cronbach's Alpha and Composite Reliability values.

The acknowledged metric for evaluating internal consistency that estimates how closely connected a collection of indicators is to one another is Cronbach's Alpha. It presumes that each indicator has the same loadings.It is sensitive to the quantity of elements on the scale and makes the premise that all indicators are equally reliable, therefore assigning each the same weight.

It's necessary to consider and indicate both criteria since, generally speaking, Cronbach's Alpha typically underestimates internal consistency reliability while Consistency Reliability tends to exaggerate it.

Cronbach's Alpha values range from 0 to 1. Better internal consistency is indicated by a greater score, which also suggests a closer relationship between the indicators and the construct. The value from 0.70 indicates generally acceptable, while on exploratory research the acceptable range is between 0.60 - 0.70. However less than 0.60 suggests low reliability.

Composite Reliability, is a more contemporary and adaptable internal consistency metric. Because it does not presume identical loadings for all indicators, compared to Cronbach's Alpha, it offers additional precision assessing of reliability in SEM-PLS 4.

Similar to Cronbach's Alpha, Composite Reliability has a range of 0 to 1. Better reliability of the construct's is represented by a greater score. 0.70 or above is excellent, acceptable for exploratory studies from 0.60 - 0.70, and over 0.95 could be a sign of redundancy because numerous items

measure the same thing, which is not what we want.

*Table 6* represents the results obtained from SmartPLS 4 without removing variables. The numbers in red represent the values of Cronbach's Alpha, and Composite lower than 0.7. On the other hand in green are shown all the values that are above that limit.

*Table 6. Descriptive Coefficients of the Measurement Model using SEM-PLS 4.*

| | **Cronbach's alpha** | **Composite reliability (rho_c)** |
|---|---|---|
| AGREEABLENESS | 0.770 | 0.687 |
| CONSCIENTIOUSNESS | 0.804 | 0.850 |
| DEMOGRAPHIC | 0.526 | 0.740 |
| EXTRAVERSION | 0.396 | 0.382 |
| IMPULSIVITY | 0.909 | 0.922 |
| NEUROTICISM | 0.482 | 0.388 |
| OPENNESS TO EXPERIENCE | 0.810 | 0.862 |
| UNIQUENESS | 0.820 | 0.864 |
| WILLINGNESS TO PAY | 0.599 | 0.783 |

\

In this part of analysis we can see that the values in the Cronbach's Alpha metric range between 0.396 and 0.909. The variables that are reliable are Agreeableness, Conscientiousness, Impulsivity, Openness to Experience, Uniqueness, while the ones that this traditional method suggests should be removed are Demographic, Extraversion, Neuroticism and Willingness to Pay.

On the other hand, if we explore the more modern metric Composite Reliability, we can see it ranges from 0.382 to 0.922. Under this metric Willingness to pay and Demographic is not a low value. However Extraversion and Neuroticism and Agreeableness are still showing values under 0.70.

2. Construct's Convergent Validity

The degree to which several indicators of a certain construct correlate or converge is known as convergent validity. By showing an elevated level of connection between the indicators, it guarantees that the indicators aim to truly assess the latent construct. (Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C., 2023). The average amount of variance in the indicators that the latent construct reflects is called AVE. It represents the degree to which the construct and the indicators share variation, showing how effectively the indicators reflect the construct.

At least 0.50 should be the value of AVE, indicating that the construct meets the minimal requirement for convergent validity, which is that it explains at least 50% of the variance in its indicators. A value of less than 0.50 for AVE indicates that there may not be enough convergence of the indicators for assessing the same construct.

Formula: $AVE=\sum(\text{factor loadings})^2/\sum(\text{factor loadings})^2+\sum(\text{error variances})$

In *Table 7* we can find the Average Amount of Variance displayed in addition to the previous measurement models.

*Table 7. Descriptive Coefficients of the Measurement Model including the Average Amount of Variance using SEM-PLS 4.*

| | **Cronbach's Alpha** | **Composite Reliability** | **Average Amount of Variance** |
|---|---|---|---|
| AGREEABLENESS | 0.770 | 0.687 | 0.392 |
| CONSCIENTIOUSNESS | 0.804 | 0.850 | 0.591 |
| DEMOGRAPHIC | 0.526 | 0.740 | 0.612 |

| | | | |
|---|---|---|---|
| EXTRAVERSION | 0.396 | 0.382 | 0.31056 |
| IMPULSIVITY | 0.909 | 0.922 | 0.576 |
| NEUROTICISM | 0.482 | 0.388 | 0.307 |
| OPENNESS TO EXPERIENCE | 0.810 | 0.862 | 0.612 |
| UNIQUENESS | 0.820 | 0.864 | 0.459 |
| WILLINGNESS TO PAY | 0.599 | 0.783 | 0.551 |

In order to to guarantee the reliability and validation of this study, I will proceed with removing the indicators below 0.40 from the construct, and consider to eliminate only the indicators with outer loadings ranging from 0.40- 0.70 if by doing so the AVE is higher and is not affecting in a negative way the Composite Reliability and Cronbach's Alpha.

In our model we will eliminate the following indicators: A2,A4,E3,E4,N1,N3,U3. After doing this step we obtained better results in terms of reliability and validity as it follows in *Table 8*.

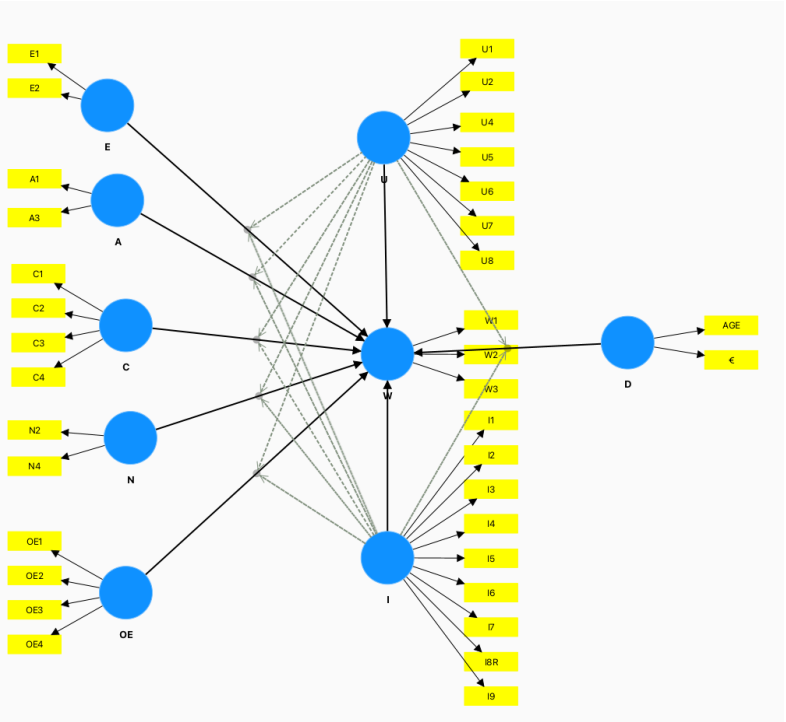
*Table 8. Descriptive coefficients of the measurement model developed in SmartPLS after the removal of indicators.*

| | **Composite Reliability** | **Average Amount of Variance** |
|---|---|---|
| AGREEABLENESS | 0.782↑ | 0.654↑ |
| CONSCIENTIOUSNESS | 0.846 | 0.586 |
| DEMOGRAPHICS | 0.732 | 0.605 |
| EXTRAVERSION | 0.780↑ | 0.640↑ |
| IMPULSIVITY | 0.922 | 0.575 |
| NEUROTICISM | 0.711↑ | 0.587↑ |
| OPENNESS TO EXPERIENCE | 0.861 | 0.610 |
| UNIQUENESS | 0.880↑ | 0.516↑ |
| WILLINGNESS TO PAY | 0.788↑ | 0.558↑ |

All the indicators comply with the expected parameters in order to be reliable and valid. In *Table 8* we can see indicators are between the range of the desirable value regarding the Composite Reliable and the AVE is in the limit. The Composite Reliable ranges between 0.711 and 0.922 , and as we stated before the goal was to obtain 0.70 or above which is excellent, and not over 0.95 because it could be a sign of redundancy. Regarding the AVE, all of the indicators are over 0.5 ranging from 0.515 to 0.654 indicating that the construct meets the minimal requirement for convergent validity, which is that it explains at least 50% of the variance in its indicators.

After conducting the analysis with the previous model including the Neuroticism indicator. *Exhibit 3* displays the updated model with the indicators that comply with the parameters of reliability and validity.

*Exhibit 3 - Path Model in SME-PLS 4 after the removal of the non-reliable indicator, and the inclusion of 2 new direct relationship hypotheses.*



3. Construct's Discriminant Validity

The degree of how one latent variable is distinct from other latent variables in the model is evaluated using discriminant validity. Demonstrating that the constructs reflect distinct concepts, it makes sure that the indicators of one construct do not excessively correlate with those of another.

Researchers mostly use two metrics to evaluate the indicators' discriminant validity. Let's commence by considering cross-loadings. This procedure involves validating that the outer loading of an indicator on the corresponding construct is higher than any cross-loadings could have on other constructs.

*Table 9* encompasses all constructs and all indicators that have been used to describe each of them.

In contrast to every other component in the investigation, every item for a specific construct "in yellow" is loading well into its own factor alone, showing that the variables are statistically distinct from one another.

*Table 9. Cross Loadings of the items of the variables in the proposed model.*

| | A | C | D | E | I | N | OE | U | W |
|---|---|---|---|---|---|---|---|---|---|
| **A1** | 0.608 | 0.090 | 0.020 | 0.126 | 0.068 | 0.079 | 0.149 | 0.059 | 0.057 |
| **A3** | 0.969 | 0.409 | -0.156 | 0.289 | 0.043 | 0.178 | 0.281 | 0.202 | 0.183 |
| **C1** | 0.422 | 0.921 | 0.016 | 0.194 | -0.128 | -0.032 | 0.186 | 0.154 | 0.143 |
| **C2** | 0.169 | 0.816 | 0.175 | 0.144 | -0.166 | -0.023 | 0.185 | 0.132 | 0.089 |
| **C3** | 0.284 | 0.673 | -0.074 | 0.137 | -0.097 | 0.006 | 0.205 | 0.210 | 0.053 |
| **C4** | 0.394 | 0.613 | -0.012 | 0.024 | -0.071 | 0.042 | 0.119 | 0.169 | -0.001 |
| **AGE** | -0.119 | 0.046 | 0.991 | -0.018 | -0.079 | -0.166 | -0.120 | -0.174 | 0.056 |
| **€** | -0.120 | 0.104 | 0.476 | 0.026 | -0.067 | -0.105 | -0.259 | -0.093 | 0.008 |
| **E1** | 0.186 | 0.241 | -0.087 | 0.784 | 0.163 | -0.200 | 0.073 | 0.199 | 0.179 |
| **E2** | 0.266 | 0.083 | 0.061 | 0.815 | 0.253 | -0.334 | 0.026 | 0.209 | 0.192 |
| **I1** | 0.064 | -0.095 | -0.067 | 0.222 | 0.856 | 0.106 | 0.307 | 0.320 | 0.327 |
| **I2** | 0.082 | -0.169 | -0.045 | 0.231 | 0.853 | 0.039 | 0.228 | 0.310 | 0.229 |
| **I3** | 0.079 | -0.180 | -0.099 | 0.201 | 0.875 | 0.053 | 0.268 | 0.375 | 0.220 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **I4** | -0.041 | -0.183 | -0.016 | 0.240 | 0.810 | -0.032 | 0.059 | 0.246 | 0.178 |
| **I5** | -0.008 | -0.225 | -0.142 | 0.232 | 0.787 | 0.008 | 0.161 | 0.369 | 0.174 |
| **I6** | 0.090 | 0.055 | 0.003 | 0.149 | 0.671 | 0.061 | 0.191 | 0.314 | 0.095 |
| **I7** | 0.032 | -0.048 | 0.023 | 0.244 | 0.735 | -0.003 | 0.207 | 0.330 | 0.168 |
| **I8R** | -0.165 | -0.434 | -0.095 | 0.029 | 0.426 | -0.015 | -0.064 | -0.017 | -0.060 |
| **I9** | -0.039 | -0.249 | -0.213 | 0.078 | 0.707 | 0.085 | 0.082 | 0.169 | 0.140 |
| **N2** | 0.016 | -0.025 | 0.042 | -0.252 | 0.154 | 0.434 | 0.138 | -0.039 | 0.032 |
| **N4** | 0.182 | -0.024 | -0.185 | -0.319 | 0.039 | 0.992 | 0.274 | 0.098 | 0.230 |
| **OE1** | 0.246 | 0.213 | 0.007 | 0.008 | 0.237 | 0.120 | 0.768 | 0.349 | 0.179 |
| **OE2** | 0.175 | 0.211 | -0.092 | -0.022 | 0.201 | 0.283 | 0.889 | 0.412 | 0.332 |
| **OE3** | 0.223 | 0.076 | -0.151 | 0.001 | 0.306 | 0.214 | 0.695 | 0.265 | 0.066 |
| **OE4** | 0.312 | 0.142 | -0.284 | 0.230 | 0.182 | 0.231 | 0.758 | 0.464 | 0.189 |
| **U1** | 0.183 | 0.293 | -0.159 | 0.189 | 0.293 | 0.066 | 0.432 | 0.740 | 0.256 |
| **U2** | 0.218 | 0.370 | -0.058 | 0.281 | 0.156 | -0.063 | 0.301 | 0.468 | 0.071 |
| **U4** | 0.127 | -0.020 | -0.005 | 0.121 | 0.201 | 0.012 | 0.309 | 0.732 | 0.215 |
| **U5** | 0.099 | 0.200 | -0.155 | 0.138 | 0.214 | 0.030 | 0.355 | 0.808 | 0.089 |
| **U6** | 0.180 | 0.039 | -0.169 | 0.220 | 0.361 | -0.019 | 0.358 | 0.736 | 0.266 |
| **U7** | 0.088 | 0.104 | -0.162 | 0.149 | 0.355 | 0.191 | 0.306 | 0.752 | 0.285 |
| **U8** | 0.107 | 0.168 | -0.139 | 0.250 | 0.262 | 0.108 | 0.408 | 0.740 | 0.209 |
| **W1** | 0.128 | 0.120 | 0.043 | 0.238 | 0.310 | 0.152 | 0.289 | 0.279 | 0.880 |
| **W2** | 0.000 | 0.067 | -0.013 | 0.122 | 0.067 | 0.178 | 0.139 | 0.167 | 0.682 |
| **W3** | 0.230 | 0.095 | 0.077 | 0.137 | 0.179 | 0.184 | 0.199 | 0.240 | 0.660 |

As we can see displayed in the table each indicator successfully conveys the construct that is meant to analyze. For example, considering the indicator C1, it is intended to demonstrate the Conscientiousness elevated scores, in this case 0.921, while on the other side taking into account the Impulsivity scores, C1 shows a lower score of -0.128.

When evaluating discriminant validity, the Fornell-Larcker criterion is the second method used. This criterion contrasts a latent construct's relationships with other constructs with the square root of the Average Variance Extracted (AVE) of the construct. If every construct's square root of the AVE is higher than its greatest correlation with every other construct in the model, discriminant validity is proven.

Formula: √AVE>correlation with other constructs

The square root of the AVE is represented by the numbers in the major diagonal for every value. The correlation between the latent variables is expressed by the numbers below the diagonal, each of which should be less than the value on the diagonal.

For instance, the Conscientiousness and Extraversion correlation of (0.197) must be less than the 0.793 Conscientiousness AVE square root. We can infer from *Table 10* below that our model's discriminant validity is also supported by the Fornell-Larcker criterion.

*Table 10.* Coefficients of Fornell-Larcker.

| | **A** | **C** | **D** | **E** | **I** | **N** | **OE** | **U** | **W** |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 0.809 | | | | | | | | |
| **C** | 0.377 | 0.765 | | | | | | | |
| **D** | -0.129 | 0.058 | 0.778 | | | | | | |
| **E** | 0.284 | 0.199 | -0.013 | 0.800 | | | | | |
| **I** | 0.055 | -0.159 | -0.084 | 0.262 | 0.758 | | | | |
| **N** | 0.175 | -0.026 | -0.171 | -0.337 | 0.057 | 0.766 | | | |
| **OE** | 0.283 | 0.225 | -0.149 | 0.061 | 0.263 | 0.279 | 0.781 | | |
| **U** | 0.191 | 0.187 | -0.177 | 0.255 | 0.393 | 0.088 | 0.489 | 0.718 | |
| **W** | 0.173 | 0.130 | 0.054 | 0.232 | 0.273 | 0.223 | 0.293 | 0.315 | 0.747 |

A more contemporary and precise technique for determining discriminant validity is the Heterotrait-Monotrait Ratio. It assesses the ratio of correlations within a construct (monotrait) to correlations between constructs that are meant to be different (heterotrait).

In general, HTMT scores should be less than 0.90 (the cutoff is typically 0.85 for conceptually identical structures). Since there is probably too much overlap between the components, HTMT scores greater than 0.90 suggest an absence of discriminant validity.

Formula: HTMT = average correlations of indicators within the same construct / average correlations of indicators across constructs.

Since none of the data in *Table 11* are greater than 0.90, the discriminant validity is proven with the HTMT Method.

*Table 11. Heterotrait-Monotrait Ratio.*

| | A | C | D | E | I | N | OE | U | W |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 1 | | | | | | | | |
| **C** | 0.508 | 1 | | | | | | | |
| **D** | 0.208 | 0.216 | 1 | | | | | | |
| **E** | 0.498 | 0.278 | 0.163 | 1 | | | | | |
| **I** | 0.140 | 0.262 | 0.194 | 0.423 | 1 | | | | |
| **N** | 0.241 | 0.090 | 0.350 | 0.759 | 0.185 | 1 | | | |
| **OE** | 0.392 | 0.245 | 0.401 | 0.150 | 0.303 | 0.373 | 1 | | |
| **U** | 0.243 | 0.318 | 0.237 | 0.443 | 0.390 | 0.173 | 0.566 | 1 | |
| **W** | 0.240 | 0.151 | 0.095 | 0.435 | 0.298 | 0.343 | 0.347 | 0.380 | 1 |

*B. Structural Model Analysis.*

After determining the validity and reliability of the constructs through the assessment of the measurement model, I next proceed with the structural model in order to gain insight into and figure out the association and intensity of the constructs in my model.

Measuring the collinearity of the structural model is the primary task that must be completed.

Subsequently, we evaluate the model's predictive performance for the endogenous variables, taking into account the path coefficients, $R^2$ values, and $f^2$ effect size.

1. Collinearity Assessment.

The process begins with an evaluation of the structural model's collinearity problems. It is crucial to examine the collinearity problems prior to advancing with the structural model evaluation. In the structural model, redundant indicators that are employed as single items to quantify two or more components may cause collinearity issues.

High levels of indicator collinearity are of major concern as they affect weight estimation and statistical significance, causing instability and difficulty in interpreting estimates. It can also result in erroneous conclusions regarding which predictors have a significant impact on the dependent variable.

We must use the Variance Inflation Factor (VIF) to quantify the collinearity problems. If the level is more than 5, it means that collinearity accounts for 80% of the variance. If the remaining indicators still accurately convey the content of the construct, the corresponding indicator must be eliminated if the level of VIF is greater than 5.

All of the dependent variable combinations' VIF values are shown in *Table 12*, along with the associated predictor variables. Deducing that there are no major collinearity problems with the structural model since all of the numbers are less than 5.

*Table 12. - Inner VIF assesses the presence of collinearity issues with SEM PLS 4.*

| | **Willingness to Pay** |
|---|---|
| **Agreeableness** | 1.690 |
| **Conscientiousness** | 1.736 |
| **Demographic** | 1.288 |
| **Extraversion** | 1.837 |
| **Impulsivity** | 2.502 |
| **Neuroticism** | 1.638 |
| **Openness to Experience** | 1.915 |
| **Uniqueness** | 1.929 |

2. Coefficient of determination $R^2$ value.

The $R^2$ Coefficient of determination shows the percentage of the dependent variable's "endogenous" variance that can be accounted for by the model's independent "exogenous" variables. $R^2$ essentially shows how well the model is at predicting.

The degree to which the model accurately reproduces the results is indicated by the $R^2$ value. It falls between 0 and 1, where:

$R^2$= 0 indicates the endogenous variable's variation is not explained by the exogenous variables at all.

$R^2$= 1 indicates that all variance in the endogenous variable is explained by the exogenous variables.

For Consumer Behaviour data analysis using Likert Scales, scholars such as Hair, Hult G. Tomas M., Ringle, Sarstedt (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. ,2017) consider the score of 0.20 as a high value. For the dependent variable "Willingness to Pay" in my research, the $R^2$ value derived from the Smart PLS 4 is 0.361. Given that the goal of my research is to examine and evaluate Customer Behavior with the Big Five Model, we may conclude that Willingness to Pay $R^2$ value is moderate, demonstrating its reliable predictive capability.

3. The effect size $f^2$ .

The potential effect of an omitted notion on the endogenous latent variable is measured by the $f^2$ effect size. When a construct is added to or removed from the model, the effect size takes into account the R2 values; a $f^2$ value less than 0.02 shows that there is no effect.

The effect size and the way that constructs affect endogenous latent variables are shown in *Table 13*.

The findings show that a consumer's willingness to spend on sustainable products is unaffected by Agreeableness, Conscientiousness, Demographic, Uniqueness and Openness to Experience traits.

*Table 13*. The effect size $f^2$.

| | f-square |
|---|---|
| **Agreeableness -> Willingness to Pay** | 0.006 |
| **Conscientiousness -> Willingness to Pay** | 0.009 |
| **Demographic -> Willingness to Pay** | 0.005 |
| **Extraversion -> Willingness to Pay** | 0.064 |
| **Impulsivity -> Willingness to Pay** | 0.026 |
| **Neuroticism -> Willingness to Pay** | 0.053 |
| **Openness to Experience -> Willingness to Pay** | 0.000 |
| **Uniqueness -> Willingness to Pay** | 0.006 |

4. Structural Model Path Coefficients.

The connections between constructs can only be understood with the help of the structural model path coefficients. The strength and direction of the connections between the dependent and independent variables in the structural model are indicated by the coefficients mentioned above.

Path coefficients fall roughly between –1 and +1; that is, although values typically tend to fall within these ranges, they occasionally go larger or smaller. Strong positive correlations hold (and vice versa for negative values) if the estimated path coefficients are close to +1. They are also usually statistically significant, meaning that they deviate from zero in the population. The correlations are weaker the closer the computed coefficients are to zero.

Testing the statistical significance of these correlations is crucial. This is typically accomplished in PLS-SEM using bootstrapping, a replication technique that yields p-values and confidence intervals for the path coefficients.

Bootstrapping is the process of creating a lot of samples from the original data and then recalculating the route coefficients for each subsample in order to measure their variability.

The path coefficient's significant difference from zero, or if there is a substantial connection between the two constructs, is indicated by the p-value and t-value. The path becomes significant if the t-value (for a two-tailed test at the 0.05 significance level) is greater than 1.96 or the p-value is less than 0.05.

The following significant relationships in the structural model will be found if we choose a 5% significance level:

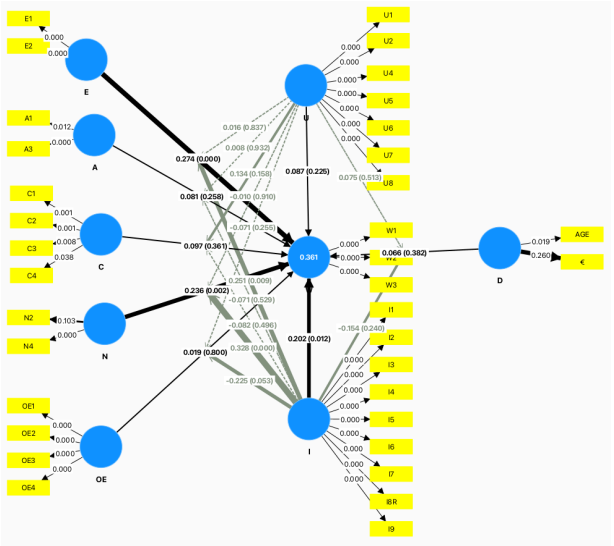
EXTRAVERSION → WILLINGNESS TO PAY with a p value of 0.000

NEUROTICISM → WILLINGNESS TO PAY with a p value of 0.002

IMPULSIVITY → WILLINGNESS TO PAY with a p value of 0.012

Since the levels of the other p values, which pertain to Agreeableness, Openness to Experience, Uniqueness and Demography, are higher than 0.05, they are not significant.

*Exhibit 4 - Path Coefficients and P values for the Structural Model Relationships from the Bootstrapping process with SEM PLS 4.*



The bootstrapping outcomes, p and t values, and the original sample, representing the influence of an independent variable on a dependent variable and denoting a significant relationship between two variables are displayed in *Table 14.*

*Table 14. Path Coefficient with p & t Values from the Model.*

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| **A -> W** | 0.081 | 0.078 | 0.072 | 1.130 | 0.258 |
| **C -> W** | 0.097 | 0.087 | 0.106 | 0.914 | 0.361 |
| **D -> W** | 0.066 | 0.059 | 0.075 | 0.875 | 0.382 |
| **E -> W** | 0.274 | 0.259 | 0.075 | 3.631 | 0.000 |
| **I -> W** | 0.202 | 0.209 | 0.080 | 2.523 | 0.012 |
| **N -> W** | 0.236 | 0.218 | 0.076 | 3.095 | 0.002 |
| **OE -> W** | 0.019 | 0.020 | 0.074 | 0.253 | 0.800 |
| **U -> W** | 0.087 | 0.105 | 0.072 | 1.215 | 0.225 |

*C. Moderation.*

When two concepts have a relationship that is not constant and instead relies on the values of a third variable referred to as the moderator variable, this is known as moderation. Typically, the moderator variable modifies the direction or even the degree of a relationship between two model constructs.

Moderating relationships are typically proposed by the investigator beforehand, therefore they are particularly evaluated by looking at the result of the interaction term, which shows whether moderator changes increase or decrease the strength of the main relationship .

In addition to using reflective and/or formative indicators, moderators might be evaluated using one or more items. The key distinction between continuous and categorical moderators, however, is the

moderator's measurement scale: a continuous moderating effect occurs when the moderating variable is metrically assessed while a categorical moderating effect occurs when the moderating variable is categorical.

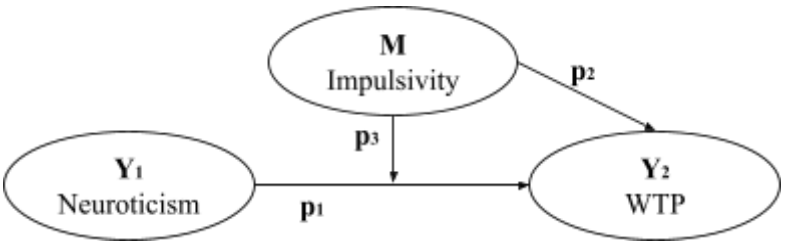
This research specifically aims to assess the moderating role of impulsivity and uniqueness in the association between Willingness To Pay for sustainable eyewear and the Big Five Personality Traits. We can visually see how a moderator variable affects the correlation between each personality feature and WTP by using Smart-PLS.

The two significant independent variables that I have left in my model: Extraversion and Neuroticism, will be the subject of my examination. Uniqueness will not be examined because it has been shown to have no influence on the dependent variable.

Impulsivity x Neuroticism

In the model in *Exhibit 5* we can find out how moderating effects are represented. This model demonstrates how Impulsivity functions as a moderator variable (M) in our previous example, affecting the association between Neuroticism ($Y_1$) and Willingness to Pay ($Y_2$). An arrow directed to effect $p_1$, which connects $Y_1$ and $Y_2$, represents the moderating influence ($p_3$). This supplementary approach is crucial because it accounts for the moderator's direct influence on the endogenous construct. The impact of M on the link between $Y_1$ and $Y_2$ would be exaggerated if the path $p_2$ were to be eliminated. Consequently, moderation and mediation share some similarities in that the strength of a relationship between two latent variables is influenced by a third variable, also known as a mediator or moderator variable. The moderator variable is independent of the exogenous construct, which is a critical distinction between the two approaches. On the other hand, mediation results in a direct impact between the mediator and exogenous constructs (Memon et al., 2018).

*Exhibit 5. Moderation model between Impulsivity, Neuroticism and Willingness to Pay.*




The model in *Exhibit 5* can also be expressed mathematically using the formula:

$$Y_2 = \left(p_1 + p_3 \cdot M\right) \cdot Y_1 + p_2 \cdot M$$

The influence of Neuroticism on Willingness to Pay does not depend only on the strength of the simple effect $p1$, but also on the product $p3$ and Impulsivity.

$$Y_2 = p_1 \cdot Y_1 + p_3 \cdot M \cdot Y_1 + p_2 \cdot M$$

This equation demonstrates that in order to include a moderator effect, the exogenous construct's ($p$1·Y1), the moderator variable's ($p2$·M), and the product term ($p3$·Y1·M), also known as the interaction term, must all be specified. Therefore, when the moderator variable M is changed by one standard deviation unit, the effect p1 is expressed differently by the coefficient $p3$. The result of the exogenous construct Y1 and the moderator M is covered by this interaction term, which is an extra latent variable. When modeling moderator variables, researchers frequently refer to interaction effects because of this interaction term.

The significance of the interaction term is the main consideration when evaluating the outcomes of a

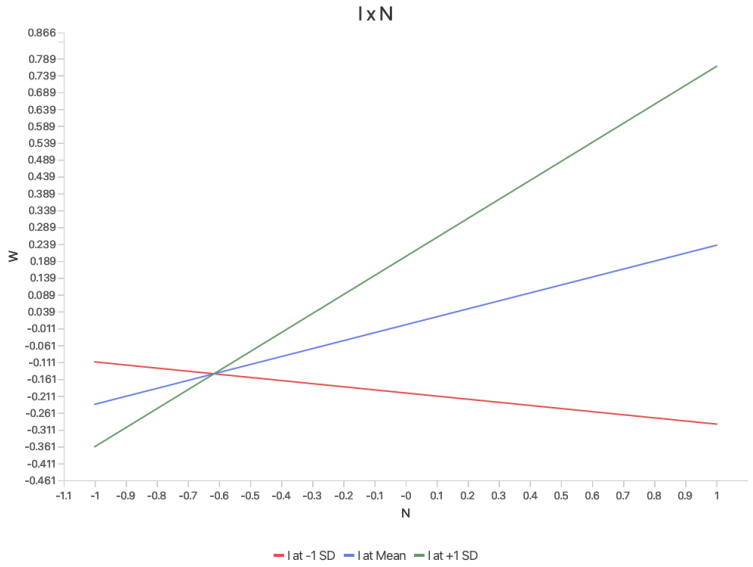
moderation study. We find that moderator M significantly moderates the link between Y1 and Y2, if the interaction term has a meaningful effect on the endogenous construct. The process of bootstrapping makes this evaluation easier. The moderating effect's strength must be ascertained if the association is statistically significant.

The moderation of Y1 on Y2 is expressed by p1, which is defined as a simple effect. More precisely, when the moderator variable M is zero, the estimated value of p1 indicates the strength of the link between Y1 and Y2. The simple effect $p1$ is anticipated to change by the size of $p3$, If the moderator variable's level is raised or lowered by one standard deviation unit, therefore a moderator variable can make a relationship stronger, weaker, or even the opposite (Gardner, Harris, Li, Kirkman, & Mathieu, 2017).

Zero, however, is not a number on the scale of M in many model configurations. In such a scenario, it becomes difficult to interpret the simple result. This is also another justification for standardizing the moderator's indicators, because Interpreting the consequences is easier by standardizing the reference point from zero to the average. (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. 2022).

This is why the interpretation and conclusions drawn from the results are backed by graphical representations. In *Exhibit 6,* we can understand the phenomenon regarding the Moderation effect on Neuroticism Y1 on Willingness to Pay Y2, for low and high levels of Impulsivity which is the moderator constructor M, we can consider a low level of impulsivity taking into account 1 SD unit below the mean, and a high level of impulsivity if it is above the mean.

*Exhibit 6. Moderation effect of Impulsivity x Neuroticism, where the red line represents Impulsivity at -1 SD, the blue line represents Impulsivity at Mean, and the green line represents Impulsivity at +1 SD.*

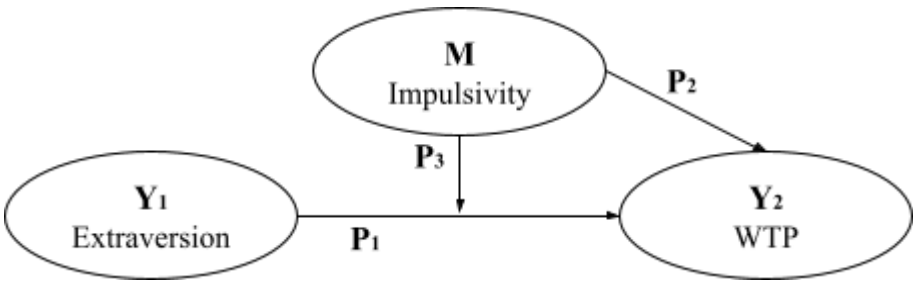



From the graphical representation of the sample displayed in *Exhibit 6,* we can see the positive effect of the moderator looking at the interaction term in *Table 15* . We can see this positive interaction in *Exhibit 6,* if Impulsivity levels are higher on a person that shows higher scores on Neuroticism increases the Willingness to Pay for Sustainable Eyewear, in this case the relationship of Y1 and Y2 becomes stronger with higher levels of M as we can see in the graph with an steeper slope. However, this relationship can be different when a person has lower levels of Neuroticism, in this case the Willingness to Pay is higher when the score in impulsivity decreases. Which means that the relationship of Y1 and Y2 becomes weaker with lower levels of M as we can see in the graph with a decreasing slope.

Impulsivity x Extraversion

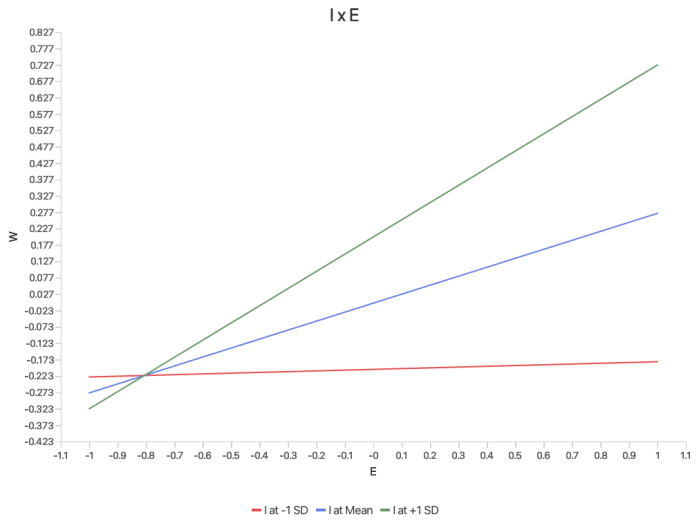
In the model in *Exhibit 7* we can find out how moderating effects are represented. This model demonstrates how Impulsivity functions as a moderator variable (M) in our previous example, affecting the association between Neuroticism ($Y_1$) and Willingness to Pay ($Y_2$). An arrow directed to effect $p_1$, which connects $Y_1$ and $Y_2$, represents the moderating influence ($p_3$).

*Exhibit 7. Moderation model between Impulsivity, Extraversion and Willingness to Pay.*




In *Exhibit 8,* we can understand the phenomenon regarding the Moderation effect on Extraversion Y1 on Willingness to Pay Y2, for low and high levels of Impulsivity which is the moderator constructor M, we can consider a low level of impulsivity taking into account 1 SD unit below the mean, and a high level of impulsivity if it is above the mean.

*Exhibit 8. Moderation effect of Impulsivity x Extraversion, where the red line represents Impulsivity at -1 SD, the blue line represents Impulsivity at Mean, and the green line represents Impulsivity at +1 SD.*




From the graphical representation of the sample displayed in *Exhibit 8,* we can see the positive effect of the moderator looking at the interaction term in *Table 15* . We can see this positive interaction in *Exhibit 8,* if Impulsivity levels are higher on a person that shows higher scores on Extraversion increases the Willingness to Pay for Sustainable Eyewear, in this case the relationship of Y1 and Y2 becomes stronger with higher levels of M as we can see in the graph with an steeper slope. However,

this relationship can be different when a person has lower levels of Extraversion, in this case the Willingness to Pay is higher when the score in impulsivity decreases. Which means that the relationship of Y1 and Y2 becomes weaker with lower levels of M as we can see in the graph with a flatter slope.

We are able to make assumptions about the impact of moderating variables on certain relationships thanks to the visual representation. Although we must analyze the t-statistics and p-values to determine the significance of the moderator factors.

*Table 15. Moderation Effect p-values and t-statistics results.*

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **I x E -> W** | + | 0.251 | 0.234 | 0.095 | 2.632 | 0.009 | YES |
| **I x N-> W** | + | 0.328 | 0.309 | 0.091 | 3.583 | 0.000 | YES |

Therefore, it can be determined that a customer with higher levels of neuroticism and extraversion but also impulsive will have their Willingness To Pay for sustainable eyewear affected in a positive way. It turns out that the moderator variable of impulsivity was significant, but uniqueness as moderator variable was not. In this instance, impulsivity will raise the Willingness To Pay for sustainable eyewear.

*D. Hypothesis testing.*

The estimated relationships are verified by the SEM-PLS procedure's outcomes and the analysis of the path coefficients given in *Table 14*. Since the chosen significance level for the significance test is 5%, the acceptable region for a two-tail test falls inside the interval [-1.96; + 1.96]. The association between the two variables is not significant if the t-value goes inside this range; on the other hand, if it

goes outside of our set bounds, the relationship will be perceived as significant.

The p-value approach, compares the probability associated with the observed t-value with the probability of error that can be accepted, also used to evaluate the probability of obtaining the observed results, under the assumption that the null hypothesis is true, in order to determine the significance of variables. In this instance, only correlations with p-values less than 0.05 will be considered significant at a significance level of 5%. Additionally, we have confidence in the analysis of the B original sample, which indicates that when the original sample value is greater than 0.20, there is a significant relationship between the two variables.

Extraversion

We can accept H1, since there is a significant p value of 0.000, a t value of 3.631 and an original sample (beta) of 0.274. This shows that an extraverted person is willing To Pay for sustainable eyewear.

**H1: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Extraversion.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Extraversion -> WTP** | + | 0.274 | 0.259 | 0.075 | 3.631 | 0.000 | YES |

Agreeableness

We cannot confirm H2, since there is a p value of 0.258, a t value of 1.131 and an original sample

(beta) of 0.081. The results are not in complying with the parameters previously disclosed.

**H2: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Agreeableness.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Agreeableness -> WTP** | + | 0.081 | 0.078 | 0.072 | 1.130 | 0.258 | NO |

Conscientiousness

We cannot confirm H3, since there is a p value of 0.361, a t value of 0.914 and an original sample (beta) of 0.097. The results are not in complying with the parameters previously disclosed.

**H3: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Conscientiousness.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Conscientiousness -> WTP** | + | 0.097 | 0.087 | 0.106 | 0.914 | 0.361 | NO |

Neuroticism

We can accept H4, since there is a significant p value of 0.002, a t value of 3.095 and an original sample (beta) of 0.076. This shows that a person with high levels of neuroticism is not willing To Pay for sustainable eyewear.

**H4: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Neuroticism.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Neuroticism-> WTP** | + | 0.236 | 0.218 | 0.076 | 3.095 | 0.002 | YES |

Openness to Experience

We cannot confirm H5, since there is a p value of 0.800, a t value of 0.253 and an original sample (beta) of 0.019. The results are not in complying with the parameters previously disclosed.

**H5: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Openness to Experience.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Openness to Experience-> WTP** | + | 0.019 | 0.020 | 0.074 | 0.253 | 0.800 | NO |

Demography

We cannot confirm H6, since there is a p value of 0.382, a t value of 0.875 and an original sample (beta) of 0.066 The results are not in complying with the parameters previously disclosed.

**H6: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and Demography.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Demography-> WTP** | + | 0.066 | 0.059 | 0.075 | 0.875 | 0.382 | NO |

Regarding the moderators, we cannot confirm H7, since we discovered that Uniqueness has not a significant level as a moderator between Willingness to Pay and the Big Five .

**H7: There is a positive moderation of uniqueness between Willingness to Pay Sustainable Eyewear and the Big Five Personality Traits.**

On the other hand, we reject H8 since we discovered that Impulsivity has a significant level as a positive moderator between Willingness to Pay and the Big Five.

**H8: There is a negative moderation of impulsivity between Willingness to Pay Sustainable Eyewear and the Big Five Personality Traits.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **I x E -> W** | + | 0.251 | 0.234 | 0.095 | 2.632 | 0.009 | YES |
| **I x N-> W** | + | 0.328 | 0.309 | 0.091 | 3.583 | 0.000 | YES |

When we analyze the relationship between the moderator variables: Uniqueness and Impulsivity, and Willingness to Pay, we reject both hypotheses. Since we discovered that Uniqueness is not significant but Impulsivity is in a positive way.

**H7b: There is a positive relationship between Willingness to Pay for Sustainable Eyewear and**

**Uniqueness.**

**H8b: There is a negative relationship between Willingness to Pay for Sustainable Eyewear and Impulsivity.**

| | Direction | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Significance |
|---|---|---|---|---|---|---|---|
| **Impulsivity -> WTP** | + | 0.202 | 0.209 | 0.080 | 2.523 | 0.012 | YES |
| **Uniqueness -> WTP** | + | 0.087 | 0.105 | 0.072 | 1.215 | 0.225 | NO |

About H7b, we cannot confirm it since it has not a significant p-value and regarding H8b, we reject it since impulsivity demonstrates that it has a positive relationship with WTP.

We can conclude that the Personality Traits that have a positive relationship with Willingness to Pay are Extraversion and Neuroticism. While the moderator that has a positive relationship is Impulsivity.

*Exhibit 7. Results of Personality Traits related to Willingness to Pay for Sustainable Eyewear with p-Values.*

# V. CONCLUSIONS.

The purpose of this research is to determine whether a person's willingness to pay for sustainable eyewear is correlated with their personality traits. The Big Five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience are the focus of the study. Furthermore, I postulated another factor to analyze alongside the Personality Traits which are the Demographic Background, in addition I postulated that the Willingness to Pay and each Big Five Personality Traits are moderated by uniqueness and impulsivity.

Sustainability is a complex and multi-faceted concept present in several dimensions in our lives, such as environment, economies, risks, consumption, energy, innovation, well-being, mitigation, population, and transformation. (Lanzin, 2024). In the eyewear sector, Sustainable innovation has a big influence on product innovation, particularly when it comes to ophthalmic lenses and frames, as well as machinery employed in intermediate processes or for producing the final product in the ever-evolving eyewear industry. (Murmura, F., Bravi, L., & Santos, G. 2021).

Italy is known across the world for its outstanding craftsmanship, revolutionary styles, and dominance in the premium eyewear market. Italy has established its reputation as a major participant in the manufacture and export of eyewear because of its solid industrial foundation and rich fashion legacy.

The historic core of the business has been the Belluno region in Northern Italy, home to numerous local artisans and eyeglasses producers. This area developed into the center of mass-market and premium fabrication, giving Italy an established position in the worldwide eyewear market.

It is highly probable that Italy will continue to lead the premium eyewear sectors, but in order to

maintain its competitiveness, it will need to make continuous efforts in sustainability, technological innovation, and creative design. Italian manufacturers of eyewear will probably prosper in the international market if they can adopt new technology and satisfy the growing consumer demand for environmentally friendly goods.

Considering my thesis is based on a quantitative approach, data were gathered by compiling a survey. Due to the use of the "snowball sampling method," requiring the researcher to initially select a small group of respondents who will then attract further individuals, the questionnaire efficiently collected 395 responses.

The questionnaire filters respondents who don't fit the profile of persons in my sample that are not interested in the topic, so that the total number of respondents dropped to 363. Later on filtered the participants that do not wear any type of eyewear, which ended up with 300 valid responses. About 67% of my sample consisted of women and 33% left men. Concerning age, 57% of the participants were in the range of 25-34 years old.

One of the conditions for completing the questionnaire was to currently reside in Italy, regardless of whether the country of origin is different. Regarding the citizenship of the participants 74% were Italians. Respecting the level of education the majority about 49% were Master's Degree holder participants, and regarding the Annual Income 43% answered they perceived less than €10,000 per year.

I have chosen to use Smart-PLS, a modeling tool for the structural equation based on variance, to assess the viability of the proposed model in my quantitative research.

A. Discussion.

SEM PLS 4 is a graphical user interface professional statistical software for Structural Equation Modeling that uses the Partial Least Squares (PLS) path modeling method, enabling investigators to account for measurement errors in observed variables and incorporate unobservable variables measured indirectly by indicator variables. Often employed in the fields of behavioral sciences, entrepreneurship, and marketing, this method is suitable for developing theories and doing experimental study.

The most recent version of SmartPLS, SmartPLS 4, is appropriate for intricate models with several components, indicators, and connections. Several metrics, including R2, path coefficients, and loadings, are available in the program to assess the structural model (relationships between unobservable variables) as well as the measurement model (relationships between latent and observable variables).It supports the exploration of how underlying psychological constructs as motivations, attitudes, or personality traits influence behavior.

The Big Five Personality Traits is a widely recognized and often applied model for personality assessment (Kluemper et al. 2015; Hurtz and Donovan 2000). It has been established that the five-factor model is genetically grounded, solid, and universal. The five components of this model are neuroticism, agreeableness, extraversion, conscientiousness, and openness to new experiences.

Customers' willingness to pay can differ significantly from one another. Extrinsic or intrinsic factors frequently explain this variance. Extrinsics are the evident factors. These are things about a person that you can usually find out without having to ask them, such as a customer's age, gender, income, education, and place of residence. Meanwhile, intrinsic factors are traits of an individual that you could not find out about without addressing them firsthand. They're difficult to spot and referred to as

"unobserved differences." For example, their level of enthusiasm for a certain topic, risk tolerance, and desire to fit in with others.

The results of this research add value to the literature because the Willingness To Pay for sustainability in the eyewear industry has never been calculated using the Big Five personality traits.

The personality traits agreeableness, conscientiousness and openness to experience are not significant as well as the variables of demographic and uniqueness, according to the results, which makes it difficult to confirm the linked hypotheses.

In light of this study, the small sample size composed by just 300 valid responses may have contributed to the lack of statistical significance. I believe that if I had additional information, I could have likely found a p-value that would have enabled me to test more theories.

Literature regarding sustainability and personality traits, is not only limited but also contradictory, since sustainability is a complex and multifaceted concept, results in studies vary from industry. In some industries such as the textile industry or the food industry some personality traits are more significant than the ones that can be relevant to the tourism industry in regard to willingness to pay for sustainable products or services.

For example, Agreeableness, according to previous studies, being environmentally aware was linked to having a higher agreeable Big Five personality trait. (Dolderman & Hirsch, 2007) They find it easy to be concerned about and act upon environmental issues because they have an altruistic mindset, are prepared to put others' needs ahead of their own, and are cooperative.

However, according to the study conducted by Brick & Lewis (Brick, C., & Lewis, G. J. 2014), people

who score strongly on agreeableness may be reluctant to buy sustainable products when they believe that doing so will go against social norms or cause conflict with others. Consistent buyers may put short-term social acceptance ahead of long-term environmental advantages, rather than pushing for more environmentally friendly options. Klein and Hilbig (Klein, S.A., & Hilbig, B.E. 2018) investigated how this relationship rarely turns into a willingness to incur more expenses for sustainability.

In my research it was not possible to confirm the hypothesis accepting or rejecting that agreeableness is significant to the Willingness to Pay for sustainable eyewear. In the same spirit, Milfont, (Milfont, T. L., & Sibley, C. G., 2012) investigated conscientiousness in relation to ethical consumption and discovered that conscientious people typically favor sustainable or ecologically friendly products. They are more inclined to look for information on how their purchases may affect the environment and steer clear of goods that worsen the environment. However during my research due to limitations with the size of the sample this hypothesis was not able to be confirmed.

In the spirit of Openness to Experience literature suggests that people with high openness levels tend to be pioneers of innovative sustainable practices in spectacles, such as reused components or circular economy models where glasses can be returned for recycling or reusing, because they value novelty and innovation. (Markowitz, E. M., Goldberg, L. R., Ashton, M. C., & Lee, K. (2012). But on the other side, it has been proven that when linking Openness Experience with eco-friendly tourist behavior (Kvasova, O. 2015) Openness to experience resulted in a negative relationship, this might be explained by the fact that "to behave ethically" influences ecological behavior in a domestic context, whereas hedonic motives (i.e., "feel better right now") are the primary motivations behind such conduct in a tourist context. (Miao, L., & Wei, W. (2013).

Neuroticism presents the same pattern regarding positive or negative relations depending on the

industry, in our case, we were able to prove that Neuroticism has a positive relationship with Willingness to Pay for Sustainable Eyewear and it also moderates in a positive way not only the relationship with Neuroticism but also the relationship with two Extraversion. Previous studies suggested that Neuroticism was correlated with environmental participation either favorably and unfavorably according to Milfont and Sibley's (Milfont, T. L., & Sibley, C. G. (2012) contradictory results. Hirsch (Hirsh, J. B. 2010) discovered, however, in a different study that a greater proportion of neurotic individuals exhibit noticeably higher levels of ecological concern. Threats to the planet may cause some people to act anxiously in an environmentally conscious manner; for others, however, these worries may result in evasion or disbelief. (Mowen, J. C., & Spears, N., 1999).

The last personality trait that we were able to prove that has a positive relationship with Willingness to Pay for Sustainable Eyewear is Extraversion. Extraverts are more likely to react favorably to social media advertising programs that highlight group action or the larger impact on society of buying sustainable products, according to Naderi and Van Steenburg ((Naderi, I., & Van Steenburg, E. 2018).

Social pressure and the need for acceptance from society are two cultural factors that extraverts are more prone to consider during their choices. According to research by (Hirsh, J. B., & Dolderman, D 2007), extraverts who have the opportunity to take part in social action or group activities that support sustainability are more inclined to support environmental causes. It also suggests that extraverts might be more willing to pay out more money for environmentally friendly goods if they think doing so will make them more popular or align to social standards.

Uniqueness is especially important when it comes to sustainability, since customers can use sustainable items to show their ideals and differentiate from those who purchase traditional items, especially by choosing those that are positioned as unique or limited. (Tian, K. T., Bearden, W. O., & Hunter, G. L. 2001b).

During this research it was not possible to confirm or reject the hypothesis regarding uniqueness as a positive relationship between Willingness to Pay but also as a moderating variable between Willingness to Pay for sustainable eyewear and the Big Five Personality Traits.

We could point to the limited sample size of only 300 responses for my research's difficulty achieving statistical significance. I think I could have gotten a p-value that would have allowed me to confirm more hypotheses if I had more evidence.

In summary, we discovered a favorable correlation between Willingness to Pay for Sustainable Eyewear and Extraversion. Their sociable disposition enables them to flourish in group endeavors, such neighborhood-based environmental projects or initiatives meant to increase the public's consciousness of sustainability. There is a tendency to link extraversion with expressing oneself and well-being. Eyewear can be seen as an opportunity for individuals to express one's identity or unique style.

Hartmann and Apaolaza-Ibáñez (Hartmann, P., & Apaolaza-Ibáñez, V. 2012) additionally stated that extraverts are naturally inclined to react favorably to campaigns and ads that highlight the cultural and emotional advantages of sustainable goods. Extraverts may be more ready to pay for a product, for example, if it is advertised as promoting humanitarian or enhancing social harmony. This is because these attributes correspond with their need for interaction with others and social appreciation.

We also discovered the positive relationship between Neuroticism and Willingness to Pay for Sustainable Eyewear.  People with neuroticism are more prone to see danger in many facets of life. Studies indicate that increased fear of environmental catastrophes or global warming may promote or hinder environmentally friendly habits. Threats to the planet may cause some people to act anxiously

in an environmentally conscious manner; for others, however, these worries may result in evasion or disbelief. (Mowen, J. C., & Spears, N., 1999). Hirsch (Hirsh, J. B. 2010) discovered, in a different study, that a greater proportion of neurotic individuals exhibit noticeably higher levels of ecological concern.

And regarding Impulsivity, we also discovered that it has a positive effect on Willingness to Pay for Sustainable eyewear, and also as moderator with personal traits of Neuroticism and Extraversion. When it comes to the buying habits of consumers, impulsivity is defined as an unexpected, spontaneous, and dominant compulsion to buy in response to factors from the inside out. The consumer will act quickly to satisfy their desire as an urgent gratification despite taking into account the real necessities and financial implications. An impulsive person reacts quickly and without thinking. (Rook, D. W., 1987).

Research indicates that when environmentally friendly goods are sold using powerful emotional pitches and emphasize instant, palpable rewards like improved health or convenience, impulsive buyers may still buy them (White et al., 2019). Sustainable products that highlight right away convenience, such organic food marketed as safer or healthier, can draw impulsive consumers.

Alongside addressing the gap in the literature, particularly in the disciplines of psychology and economics, the outcome of this study may help managers of marketing and sales develop more successful and efficient approaches to draw in more customers. Companies are able to create and improve their products once they know which features customers value and are prepared to pay extra for. In addition, executives could enhance their sales approaches by thoroughly comprehending the primary motivations as to why these customers choose not to purchase sustainable eyewear. They could then eliminate any elements that customers find obnoxious in order to draw in a wide variety of customers.

B. Implications for Practice.

This present study offers a variety of new insights, in addition to practical and executive implications for the development and application of environmentally conscious communications based on the findings of increasing consumers' willingness to pay for sustainable eyewear and the relationship with the Big Five Personality Traits.

The program SmartPLS 4 was used for my sample's definitive examination and comprehension. The research ultimately arrives at the conclusion that customers' willingness to pay for sustainable eyewear is highly influenced by the personality traits "extraversion" and "neuroticism", and positively moderated by "impulsivity".

The primary issues facing companies in the years to come will be using marketing concepts to link consumers with the company's goal, demonstrating advantages that exceed traditional choices, and rendering sustainability appealing. Sustainable business will evolve into innovative companies as it continues to succeed.

In relation to the personality trait of extraversion, social influence, which is also among the best methods for encouraging green consumption habits. Extraverts will often mimic the actions of those around them in an attempt for integration. Businesses can encourage and demonstrate sustainable actions to their customers by encouraging people to publicly share their support for sustainable practices and by fostering healthy competition across communities.

Regarding the personality trait of neuroticism, because neurotic people react more strongly to unfavorable situations in general, including deteriorating environmental conditions, they want to avoid them as much as possible. Implementation of environmentally friendly practices is greatly impacted

by the way businesses present to their customers. When a product makes someone feel good, they are more likely to participate in it. Using persuasive and emotional content that concentrates on local consequences is especially effective when providing meaningful products to customers so they can show their backing for a business or project and stating the results in straightforward language.

In terms of Impulsivity, businesses could incorporate visual elements that make the intended behavior easier in order to replace negative practices with advantageous ones. Brief messages that serve as prompts could be used to encourage consumers to adopt desired actions, such sustainable ones. Prompts are most effective when they are clear, recognized and received in the context of the intended conduct. They also function best when they inspire individuals to participate in the behavior. Product incentives, reviewing consumer expectations via a sustainable perspective, and reevaluating and integrating the product appropriately are further strategies to interact with this kind of customer.

Businesses across the eyewear industry are called to do more to speed the shift to more sustainable business practices by shareholders, customers, and workers. They must take advantage of potential advantages and manage the dangers that arise as they go, from enhanced credibility and new revenue streams to more effective risk reduction and company endurance.

Improving transparency encourages communication and also enables customers to make more thoughtful decisions about sustainability. Considering the importance of reputation in increasing customer involvement, increasing transparency can result in higher levels of loyalty.

C. Limitations and future research directions.

The present investigation has a number of limitations that should be noted despite the array of conclusions that were provided.

The sample size is very limited, and the method I employed to get participants for my survey is the

first limitation. The snowball sampling technique, which entails forwarding the survey to my network and requesting them to forward it to everyone they know. By doing so, the sample group is said to expand like a rolling snowball. By doing this, I gathered responses mostly from people in their 20-30s, Master's Degree holders and all of them currently living in Italy but most of them Italian citizens from the Northern cities of Italy.

To investigate how these variations may affect the WTP for sustainable eyewear, it would be interesting to collect further responses from people of various ages, genders, brand loyalty, customer satisfaction, publicity, rival goods, demands, lawfulness, packaging, and socioeconomic classes.

Given that it combines together all of the subtle variations in personality into just five main groups, the Big Five Personality Traits may serve as an overly general model. Since the connection between personality and Willingness To Pay is still a relatively new topic in the literature, it may be feasible to more accurately evaluate and capture many facets of human personality by using a different model or by looking more closely at specific attributes. Future research may examine the relationship between consumers' willingness to pay for sustainable eyewear and other product attributes such as quality, brand, and style, in addition to the analysis of consumers' personalities and real-world shopping experiences.

An additional potential constraint might apply to the evaluation of the willingness to pay a higher price. In order to determine whether or not consumers were willing to pay a premium for sustainable eyewear over non-sustainable eyewear, I decided to use a measurement scale. In potential future studies, it could be compelling to use a single-item scale where respondents are asked how much they would be willing to pay for a specific style, model or material for sustainable eyewear. Acquiring more accurate results in numbers could aid managers in creating more effective and targeted initiatives for individuals with diverse personality attributes.

## VII. TABLES

*Table 1. Scientific Articles related to Sustainable Eyewear- Personality Traits- Willingness to Pay and Sustainability.*

| Title, Author and Publication References. | Main Topic. | Type of Analysis. | Content and Purpose. | Results |
|---|---|---|---|---|
| *Sustainable process and product innovation in the eyewear sector: The role of Industry 4.0 Enabling Technologies.* Murmura, F., Bravi, L., & Santos, G. (2021). | Exploration of the Eyewear Industry and Technology. | Qualitative Research through a semi-structured interview. | Perspective of the eyeglasses industry, quality and market factors, and assesses the contribution of Industry 4.0 to process and product innovation for managing consumer health. | The findings highlight the significance of innovation as one of the current drivers of competitive advantage in the eyeglass sector. |
| *The role of personality and motivation on key account manager job performance*. Mahlamäki, T., Rintamäki, T., & Rajah, E. (2019). | An examination of the correlation between the performance of key account manager's job, and personality traits. | The study employed a questionnaire approach to look at the connections between goal orientation, personality, and key account managers' job performance. employing both online and mail versions of the questionnaire. 180 people | A structural equation model of personality, motivation, and key account manager job performance is created and evaluated in this study. With the use of the model, we understand how different personality traits affect | The findings imply that a number of personality traits influence motivation in the setting of key account managers. Learning orientation and performance orientation are associated with two personality traits: |

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| | | responded to the survey, which was intended for key account managers in B2B marketplaces . | motivation; and how motivational structures explain a key account manager's job performance. | extraversion and conscientiousness. |
| *Sustainable Consumer 2023 - Sustainable Lifestyle*. Deloitte (2023, October 31). | Recognize the actions that consumers are taking to live more sustainably | Online responses to a nationally representative sample of over 2,000 UK participants who are 18 years of age or older were collected for this study . | Deloitte's "Sustainable Consumer 2023 - Sustainable Lifestyle" report offers insights into 2023 consumer attitudes, preferences, and behaviors related to sustainability. The study looks at how consumers are incorporating sustainability into their daily lives, what kinds of sustainable activities they use, and how these behaviors affect their decisions to buy. | In general, data suggests that consumers are becoming more interested in sustainability—not just in consumer goods, but also in services as a whole. For 11 of the 23 sustainable behaviors the research studied, there has been a rise in the percentage of consumers reporting that they have embraced a more sustainable lifestyle. |
| *Consumer Intelligence Series survey on ESG*. PricewaterhouseCoopers. (n.d.). *2021* | Offers perceptions into the attitudes and actions of consumers | A stratified sampling technique was employed. This method | The study focuses at how consumers make decisions | 83% of consumers believe businesses ought to actively |

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| | about Environmental, Social, and Governance (ESG) issues. | assists in getting an accurate evaluation of customer views among diverse groupings. Online surveys were used to gather data, which made it possible for PwC to effectively contact a big number of respondents. They were also able to collect data from customers in various geographical places because to this technique. | based on environmental aspects, what they anticipate from companies that practice environmental responsibility, and how these things affect customer trust and brand loyalty. | influence ESG best practices. According to 91% of corporate executives, it is the duty of their organization to address ESG issues. 86% of workers would rather support or be employed by organizations that share their concerns. |
| *Consumers care about sustainability—and back it up with their wallets*. Am, J. B., Doshi, V., Noble, S., & Malik, A. (2023, February 6) | Examines how consumers' rising interest in sustainability is influencing their actual purchasing habits. Key results about consumer attitudes, spending patterns, and the growing demand from businesses for sustainable | A stratified random sample strategy was used to make sure that respondents from important demographic groups were fairly represented in the online survey. This approach helps in offering a fair assessment of customer | The growing value of sustainability in consumer decision-making is covered in the paper. It shows that a sizable portion of consumers actively look for goods and companies that share their ideals on social and environment | According to the report, a large percentage of consumers are eager to pay extra for goods that are sourced, produced, and packaged responsibly. Younger consumers that prioritize sustainability in their purchase |

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| | practices and goods are highlighted in the research. | sentiments among various demographics. | al sustainability. | decisions, including Millennials and Gen Z, are especially likely to do this. |
| *Unearthing the effects of personality traits on consumer's attitude and intention to buy green products.* Ying Sun. (2018) | Using the Big Five theory as a framework, this study investigates the relationship between personality traits and inclinations for green purchases. | Two ways have been used to acquire information via a questionnaire.<br>In the first, 360 people answered the questionnaire that was distributed around Hefei's college town. 503 respondents were gathered online via a website in the second approach. | Achieving global sustainable development is significantly impacted by the green purchasing habits of consumers. This circumstance led to the current study's investigation of the impact of personality traits on consumers' attitudes about and intentions to purchase environmentally friendly goods. | The findings showed that extraversion, agreeableness, openness to new experiences, and conscientiousness have a beneficial impact on consumers' attitudes about green purchasing. |
| *The Big Five personality traits and earnings: A meta-analysis.* Alderotti, G., Rapallini, C., & Traverso, S. (2023). | An examination of the correlation between earnings and the Big 5. | The writers extracted 896 partial effect sizes from 62 research articles that were published between 2001 and 2020. | This article's primary goal is to conduct a meta-analysis of the empirical research on the relationship between earnings and the Big Five | The literature reveals a negative and significant association between incomes and the qualities of agreeableness and neuroticism, |

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| | | | personality traits. | while also offering a positive correlation between personal earnings and the attributes of extraversion, conscientiousness, and openness. Conscientiousness and Openness have a positive correlation with wages, according to meta-regression estimations. |
| *Willingness to pay for environmental quality: the effects of Pro-Environmental behavior, perceived behavior control, environmental activism, and educational level.* Vicente, P., Marques, C., & Reis, E. (2021). | WTP for environmental quality. | The information was gathered from a survey on consumption and the environment that was conducted in the southern region of Portugal through household interviews. A sample of 595 respondents was obtained from the interviews. | The purpose of this research is to find out how willing people are to pay for environmental quality and whether this inclination varies with different levels of education. To assess if two educational level segments are invariant, a multigroup analysis is performed. | The findings demonstrate the favorable relationships between WTP for environmental quality and pro-environmental behavior and perceived behavior control as well as environmental activism across all educational levels. |

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| *Influence of personality on ecological consumer behaviour.* Fraj, E., & Martinez, E. (2006). | How a consumer's personality affects their behavior. | Quantitative study carried out on 573 people. | The Big-Five Factor Structure scale and the environmental attitude dimension, were added in the authors' theoretical model to measure and quantify, respectively, personality and ecological behavior. | The findings indicate a positive correlation between personality and ecological behavior. |
| *Personality predictors of Consumerism and Environmentalism: A preliminary study.* Hirsh, J. B., & Dolderman, D. (2007). | The Big Five Personality Traits as indicators of environmental consciousness and consumption. | Quantitative research: 106 University of Toronto undergraduate students (ages 17 to 45) participated in a survey | The study evaluated students' attitudes toward the environment, consumer aspirations, and personalities in order to anticipate two opposing ideas: consumerism and environmentalism. | The research revealed that the big five factors were significant: openness and agreeableness both positively predicted environmentalism, whereas agreeableness adversely impacted consumerism. |
| *Consumers' preferences, attitudes and willingness to pay for bio-textile in wood fibers.* Sandra, N., & Alessandro, P. (2021). | Customers' willingness to pay | Quantitative research: Using contingent valuation, information was gathered in-person from a sample of 696 | This study calculates how much Italian consumers are ready to spend on three bio textile products (a T-shirt, a | According to the data, there is a considerable premium price that varies from 64% to 128% depending on the |

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| | | customers. | shirt, and socks manufactured from certified wood). | product, and participants who are more concerned about the environment are more willing to pay for biotextile items. |
| *The circular economy and bioeconomy in the fashion sector: Emergence of a "sustainability bias."* Colasante, A., & D'Adamo, I. (2021). | The willingness of consumers to pay for bio-based clothing. | Quantitative study based on an online survey completed by 402 Italian consumers as a sample | The purpose of the study was to evaluate customer perceptions of the fashion industry, specifically in light of the bioeconomy and the circular economy. | Shows a positive premium for bio-based clothes. |

*Table 2. The scientific papers that are most applicable to my research and how they deviate from my main research questions.*

| Title, Author and Publication References. | Willingness to Pay | Big Five Personality Traits | Sustainable Products Eyewear Industry | Environmental Awareness |
|---|---|---|---|---|
| *Sustainable process and product innovation in the eyewear sector: The role of Industry 4.0* | | | ✔ | ✔ |

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|---|---|---|---|---|
| *Enabling Technologies*. Murmura, F., Bravi, L., & Santos, G. (2021). | | | | |
| *The role of personality and motivation on key account manager job performance*. Mahlamäki, T., Rintamäki, T., & Rajah, E. (2019). | | ✔ | | |
| *Sustainable Consumer 2023 - Sustainable Lifestyle*. Deloitte (2023, October 31). | ✔ | | | ✔ |
| *Consumer Intelligence Series survey on ESG*. PricewaterhouseCoopers. (n.d.). *2021* | ✔ | | | ✔ |
| *Consumers care about sustainability—and back it up with their wallets*. Am, J. B., Doshi, V., Noble, S., & Malik, A. (2023, February 6) | ✔ | | | ✔ |

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| *Unearthing the effects of personality traits on consumer's attitude and intention to buy green products.* Ying Sun. (2018) | ✔ | ✔ | | ✔ |
| *The Big Five personality traits and earnings: A meta-analysis.* Alderotti, G., Rapallini, C., & Traverso, S. (2023). | | ✔ | | |
| *Willingness to pay for environmental quality: the effects of Pro-Environmental behavior, perceived behavior control, environmental activism, and educational level.* Vicente, P., Marques, C., & Reis, E. (2021). | ✔ | | | ✔ |
| *Influence of personality on ecological consumer behaviour.* Fraj, E., & Martinez, E. (2006). | ✔ | | | ✔ |

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| *Personality predictors of Consumerism and Environmentalism: A preliminary study.* Hirsh, J. B., & Dolderman, D. (2007). | ✔ | ✔ | | ✔ |
| *Consumers' preferences, attitudes and willingness to pay for bio-textile in wood fibers.* Sandra, N., & Alessandro, P. (2021). | ✔ | | | ✔ |
| *The circular economy and bioeconomy in the fashion sector: Emergence of a "sustainability bias."* Colasante, A., & D'Adamo, I. (2021). | ✔ | | | ✔ |

*Table 3. Measurement Scales & Variables.*

| Measures | Questions | Scale |
|---|---|---|
| Willingness to Pay | 4. When it comes to eyewear, I am willing to pay more for sustainable options than for less sustainable ones.<br>5. Even if less expensive and environmentally friendly eyewear were available, I would still like to purchase sustainable eyewear.<br>6. I would be willing to spend more for sustainable eyewear if it offered more benefits. | 5-points Likert Scale<br><br>3 items.<br><br>(Habel, J., Schons, L. M., Alavi, S., & Wieseke, J., 2016). |

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|---|---|---|
| Extraversion | 5. When things aren't clear, I usually take action.<br>6. I have no trouble making new friends.<br>7. Frequently, I let other people choose what to do.<br>8. I am able to persuade people in order to do things. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Agreeableness | 5. I have faith in other people.<br>6. I believe the things that others say.<br>7. I enjoy providing a helping hand.<br>8. Most people, in my opinion, have good intentions. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Conscientiousness | 5. I am dilligent in what I do.<br>6. I complete assignments on schedule.<br>7. I make thoughtful choices.<br>8. I do my best to stick to the regulations. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Neuroticism | 5. I think I could deal with any scenario.<br>6. I find it difficult to accept judgment.<br>7. Emotionally affecting me can be done easily.<br>8. I am really anxious before big encounters. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Openness to Experience | 5. My imagination is quite vivid.<br>6. I value art highly.<br>7. I like to fantasize.<br>8. Things that others might not find appealing, I find beautiful. | 5-points Likert Scale<br><br>4 items.<br><br>(Mahlamäki, T., Rintamäki, T., & Rajah, E., 2019) |
| Impulsivity | 10. I buy items on an impulse quite frequently.<br>11. “You only live once” sums up how I make purchases.<br>12. I frequently make unintentional purchases.<br>13. "I see it, I buy it" sums up who I am.<br>14. “Buy now, worry about it later” sums me up. | 5-points Likert Scale<br><br>9 items.<br><br>(Rook, D. W., & Fisher, R. J., 1995). |

| | | |
|---|---|---|
| | 15. Occasionally, I get the need to make spontaneous purchases.<br>16. I make purchases based on my current mood.<br>17. I ponder most of my purchases quite carefully.<br>18. Occasionally, I make quite careless purchases. | |
| Uniqueness | 9. Unique items captivate me greatly.<br>10. Rather than chasing trends, I usually take the lead in fashion.<br>11. If a product is on sale, I'm more likely to purchase it.<br>12. Rather than purchase something already produced, I would rather have them personalized and customized for me.<br>13. I take pleasure in owning items that other people do not.<br>14. I hardly ever turn down the chance to add personalized features to the items I purchase.<br>15. I love to be the first to experience new products and services.<br>16. I like checking out at places that sell unique and interesting things. | 5-points Likert Scale<br><br>8 items.<br><br>(Lynn, M., & Harris, J., 1997). |

*Table 4. Filter question regarding the use of eyewear.*

| Do you use any of the following types of eyewear? (Please select all that apply). | # | % |
|---|---|---|
| Glasses for Reading | 42 | 14% |
| Glasses for vision correction (e.g., nearsightedness, farsightedness, etc.) | 171 | 57% |
| Sunglasses | 228 | 76% |
| **Valid Responses** | **300** | **100%** |

*Table 5. Demographic Data of the Sample*

| | **# of Participants** | **% of Participants** |
|---|---|---|

| | | |
|---|---|---|
| **Gender** | | |
| Female | 201 | 67% |
| Male | 99 | 33% |
| **Age** | | |
| 18-24 | 72 | 24% |
| 25-34 | 171 | 57% |
| 35-44 | 45 | 15% |
| 45-54 | 6 | 2% |
| 55-64 | 6 | 2% |
| **Citizenship** | | |
| Italian | 222 | 74% |
| Other | 78 | 26% |
| **Level of Education** | | |
| Less than High School | 3 | 1% |
| High School | 57 | 19% |
| Bachelor Degree | 90 | 30% |
| Master's Degree | 147 | 49% |
| PhD | 3 | 1% |
| **Annual Income** | | |
| Less than €10,000 | 129 | 43% |
| €10,000 - €19,999 | 48 | 16% |
| €20,000 - €29,999 | 90 | 30% |
| €30,000 - €39,999 | 24 | 8% |
| €40,000 or more | 9 | 3% |

*Table 6. Descriptive Coefficients of the Measurement Model using SEM-PLS 4.*

| | Cronbach's alpha | Composite reliability (rho_c) |
|---|---|---|
| AGREEABLENESS | 0.770 | 0.687 |
| CONSCIENTIOUSNESS | 0.804 | 0.850 |
| DEMOGRAPHIC | 0.526 | 0.740 |
| EXTRAVERSION | 0.396 | 0.382 |
| IMPULSIVITY | 0.909 | 0.922 |
| NEUROTICISM | 0.482 | 0.388 |
| OPENNESS TO EXPERIENCE | 0.810 | 0.862 |
| UNIQUENESS | 0.820 | 0.864 |
| WILLINGNESS TO PAY | 0.599 | 0.783 |

*Table 7. Descriptive Coefficients of the Measurement Model including the Average Amount of Variance using SEM-PLS 4.*

| | Cronbach's Alpha | Composite Reliability | Average Amount of Variance |
|---|---|---|---|
| AGREEABLENESS | 0.770 | 0.687 | 0.392 |
| CONSCIENTIOUSNESS | 0.804 | 0.850 | 0.591 |
| DEMOGRAPHIC | 0.526 | 0.740 | 0.612 |
| EXTRAVERSION | 0.396 | 0.382 | 0.31056 |
| IMPULSIVITY | 0.909 | 0.922 | 0.576 |
| NEUROTICISM | 0.482 | 0.388 | 0.307 |
| OPENNESS TO EXPERIENCE | 0.810 | 0.862 | 0.612 |
| UNIQUENESS | 0.820 | 0.864 | 0.459 |
| WILLINGNESS TO PAY | 0.599 | 0.783 | 0.551 |

*Table 8. Descriptive coefficients of the measurement model developed in SmartPLS after the removal*

*of indicators.*

| | Composite Reliability | Average Amount of Variance |
|---|---|---|
| AGREEABLENESS | 0.782↑ | 0.654↑ |
| CONSCIENTIOUSNESS | 0.846 | 0.586 |
| DEMOGRAPHICS | 0.732 | 0.605 |
| EXTRAVERSION | 0.780↑ | 0.640↑ |
| IMPULSIVITY | 0.922 | 0.575 |
| NEUROTICISM | 0.711↑ | 0.587↑ |
| OPENNESS TO EXPERIENCE | 0.861 | 0.610 |
| UNIQUENESS | 0.880↑ | 0.516↑ |
| WILLINGNESS TO PAY | 0.788↑ | 0.558↑ |

*Table 9. Cross Loadings of the items of the variables in the proposed model.*

| | A | C | D | E | I | N | OE | U | W |
|---|---|---|---|---|---|---|---|---|---|
| **A1** | 0.608 | 0.090 | 0.020 | 0.126 | 0.068 | 0.079 | 0.149 | 0.059 | 0.057 |
| **A3** | 0.969 | 0.409 | -0.156 | 0.289 | 0.043 | 0.178 | 0.281 | 0.202 | 0.183 |
| **C1** | 0.422 | 0.921 | 0.016 | 0.194 | -0.128 | -0.032 | 0.186 | 0.154 | 0.143 |
| **C2** | 0.169 | 0.816 | 0.175 | 0.144 | -0.166 | -0.023 | 0.185 | 0.132 | 0.089 |
| **C3** | 0.284 | 0.673 | -0.074 | 0.137 | -0.097 | 0.006 | 0.205 | 0.210 | 0.053 |
| **C4** | 0.394 | 0.613 | -0.012 | 0.024 | -0.071 | 0.042 | 0.119 | 0.169 | -0.001 |
| **AGE** | -0.119 | 0.046 | 0.991 | -0.018 | -0.079 | -0.166 | -0.120 | -0.174 | 0.056 |
| **€** | -0.120 | 0.104 | 0.476 | 0.026 | -0.067 | -0.105 | -0.259 | -0.093 | 0.008 |
| **E1** | 0.186 | 0.241 | -0.087 | 0.784 | 0.163 | -0.200 | 0.073 | 0.199 | 0.179 |
| **E2** | 0.266 | 0.083 | 0.061 | 0.815 | 0.253 | -0.334 | 0.026 | 0.209 | 0.192 |
| **I1** | 0.064 | -0.095 | -0.067 | 0.222 | 0.856 | 0.106 | 0.307 | 0.320 | 0.327 |
| **I2** | 0.082 | -0.169 | -0.045 | 0.231 | 0.853 | 0.039 | 0.228 | 0.310 | 0.229 |
| **I3** | 0.079 | -0.180 | -0.099 | 0.201 | 0.875 | 0.053 | 0.268 | 0.375 | 0.220 |
| **I4** | -0.041 | -0.183 | -0.016 | 0.240 | 0.810 | -0.032 | 0.059 | 0.246 | 0.178 |
| **I5** | -0.008 | -0.225 | -0.142 | 0.232 | 0.787 | 0.008 | 0.161 | 0.369 | 0.174 |
| **I6** | 0.090 | 0.055 | 0.003 | 0.149 | 0.671 | 0.061 | 0.191 | 0.314 | 0.095 |
| **I7** | 0.032 | -0.048 | 0.023 | 0.244 | 0.735 | -0.003 | 0.207 | 0.330 | 0.168 |
| **I8R** | -0.165 | -0.434 | -0.095 | 0.029 | 0.426 | -0.015 | -0.064 | -0.017 | -0.060 |
| **I9** | -0.039 | -0.249 | -0.213 | 0.078 | 0.707 | 0.085 | 0.082 | 0.169 | 0.140 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **N2** | 0.016 | -0.025 | 0.042 | -0.252 | 0.154 | 0.434 | 0.138 | -0.039 | 0.032 |
| **N4** | 0.182 | -0.024 | -0.185 | -0.319 | 0.039 | 0.992 | 0.274 | 0.098 | 0.230 |
| **OE1** | 0.246 | 0.213 | 0.007 | 0.008 | 0.237 | 0.120 | 0.768 | 0.349 | 0.179 |
| **OE2** | 0.175 | 0.211 | -0.092 | -0.022 | 0.201 | 0.283 | 0.889 | 0.412 | 0.332 |
| **OE3** | 0.223 | 0.076 | -0.151 | 0.001 | 0.306 | 0.214 | 0.695 | 0.265 | 0.066 |
| **OE4** | 0.312 | 0.142 | -0.284 | 0.230 | 0.182 | 0.231 | 0.758 | 0.464 | 0.189 |
| **U1** | 0.183 | 0.293 | -0.159 | 0.189 | 0.293 | 0.066 | 0.432 | 0.740 | 0.256 |
| **U2** | 0.218 | 0.370 | -0.058 | 0.281 | 0.156 | -0.063 | 0.301 | 0.468 | 0.071 |
| **U4** | 0.127 | -0.020 | -0.005 | 0.121 | 0.201 | 0.012 | 0.309 | 0.732 | 0.215 |
| **U5** | 0.099 | 0.200 | -0.155 | 0.138 | 0.214 | 0.030 | 0.355 | 0.808 | 0.089 |
| **U6** | 0.180 | 0.039 | -0.169 | 0.220 | 0.361 | -0.019 | 0.358 | 0.736 | 0.266 |
| **U7** | 0.088 | 0.104 | -0.162 | 0.149 | 0.355 | 0.191 | 0.306 | 0.752 | 0.285 |
| **U8** | 0.107 | 0.168 | -0.139 | 0.250 | 0.262 | 0.108 | 0.408 | 0.740 | 0.209 |
| **W1** | 0.128 | 0.120 | 0.043 | 0.238 | 0.310 | 0.152 | 0.289 | 0.279 | 0.880 |
| **W2** | 0.000 | 0.067 | -0.013 | 0.122 | 0.067 | 0.178 | 0.139 | 0.167 | 0.682 |
| **W3** | 0.230 | 0.095 | 0.077 | 0.137 | 0.179 | 0.184 | 0.199 | 0.240 | 0.660 |

*Table 10.* Coefficients of Fornell-Larcker.

| | **A** | **C** | **D** | **E** | **I** | **N** | **OE** | **U** | **W** |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 0.809 | | | | | | | | |
| **C** | 0.377 | 0.765 | | | | | | | |
| **D** | -0.129 | 0.058 | 0.778 | | | | | | |
| **E** | 0.284 | 0.199 | -0.013 | 0.800 | | | | | |
| **I** | 0.055 | -0.159 | -0.084 | 0.262 | 0.758 | | | | |
| **N** | 0.175 | -0.026 | -0.171 | -0.337 | 0.057 | 0.766 | | | |
| **OE** | 0.283 | 0.225 | -0.149 | 0.061 | 0.263 | 0.279 | 0.781 | | |
| **U** | 0.191 | 0.187 | -0.177 | 0.255 | 0.393 | 0.088 | 0.489 | 0.718 | |
| **W** | 0.173 | 0.130 | 0.054 | 0.232 | 0.273 | 0.223 | 0.293 | 0.315 | 0.747 |

*Table 11. Heterotrait-Monotrait Ratio.*

| | **A** | **C** | **D** | **E** | **I** | **N** | **OE** | **U** | **W** |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 1 | | | | | | | | |
| **C** | 0.508 | 1 | | | | | | | |
| **D** | 0.208 | 0.216 | 1 | | | | | | |
| **E** | 0.498 | 0.278 | 0.163 | 1 | | | | | |
| **I** | 0.140 | 0.262 | 0.194 | 0.423 | 1 | | | | |
| **N** | 0.241 | 0.090 | 0.350 | 0.759 | 0.185 | 1 | | | |
| **OE** | 0.392 | 0.245 | 0.401 | 0.150 | 0.303 | 0.373 | 1 | | |
| **U** | 0.243 | 0.318 | 0.237 | 0.443 | 0.390 | 0.173 | 0.566 | 1 | |
| **W** | 0.240 | 0.151 | 0.095 | 0.435 | 0.298 | 0.343 | 0.347 | 0.380 | 1 |

*Table 12. - Inner VIF assesses the presence of collinearity issues with SEM PLS 4.*

| | Willingness to Pay |
|---|---|
| **Agreeableness** | 1.690 |
| **Conscientiousness** | 1.736 |
| **Demographic** | 1.288 |
| **Extraversion** | 1.837 |
| **Impulsivity** | 2.502 |
| **Neuroticism** | 1.638 |
| **Openness to Experience** | 1.915 |
| **Uniqueness** | 1.929 |
| **Willingness to Pay** | |

*Table 13*. The effect size $f^2$.

| | f-square |
|---|---|
| **Agreeableness -> Willingness to Pay** | 0.006 |
| **Conscientiousness -> Willingness to Pay** | 0.009 |
| **Demographic -> Willingness to Pay** | 0.005 |
| **Extraversion -> Willingness to Pay** | 0.064 |
| **Impulsivity -> Willingness to Pay** | 0.026 |
| **Neuroticism -> Willingness to Pay** | 0.053 |
| **Openness to Experience -> Willingness to Pay** | 0.000 |
| **Uniqueness -> Willingness to Pay** | 0.006 |

*Table 14. Path Coefficient with p & t Values from the Model.*

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| **A -> W** | 0.081 | 0.078 | 0.072 | 1.130 | 0.258 |
| **C -> W** | 0.097 | 0.087 | 0.106 | 0.914 | 0.361 |
| **D -> W** | 0.066 | 0.059 | 0.075 | 0.875 | 0.382 |
| **E -> W** | 0.274 | 0.259 | 0.075 | 3.631 | 0.000 |
| **I -> W** | 0.202 | 0.209 | 0.080 | 2.523 | 0.012 |
| **N -> W** | 0.236 | 0.218 | 0.076 | 3.095 | 0.002 |
| **OE -> W** | 0.019 | 0.020 | 0.074 | 0.253 | 0.800 |
| **U -> W** | 0.087 | 0.105 | 0.072 | 1.215 | 0.225 |

## VIII. EXHIBITS

*Exhibit 1. Graphical representation of my hypothesized model.*

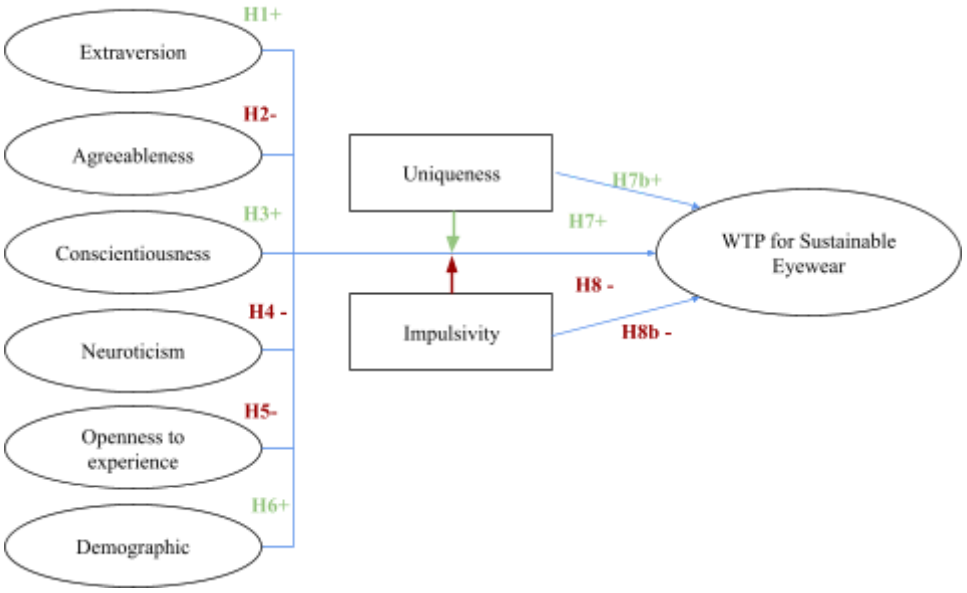


*Exhibit 2 - Path Model graphic illustrating the relationship among variables using SmartPLS 4.*

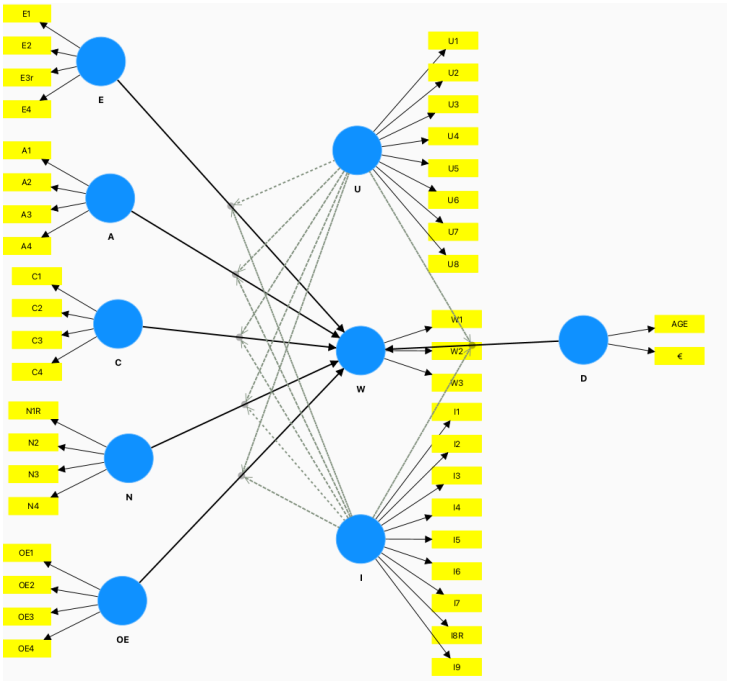

*Exhibit 3 - Path Model in SME-PLS 4 after the removal of the non-reliable indicator, and the inclusion of 2 new direct relationship hypotheses.*

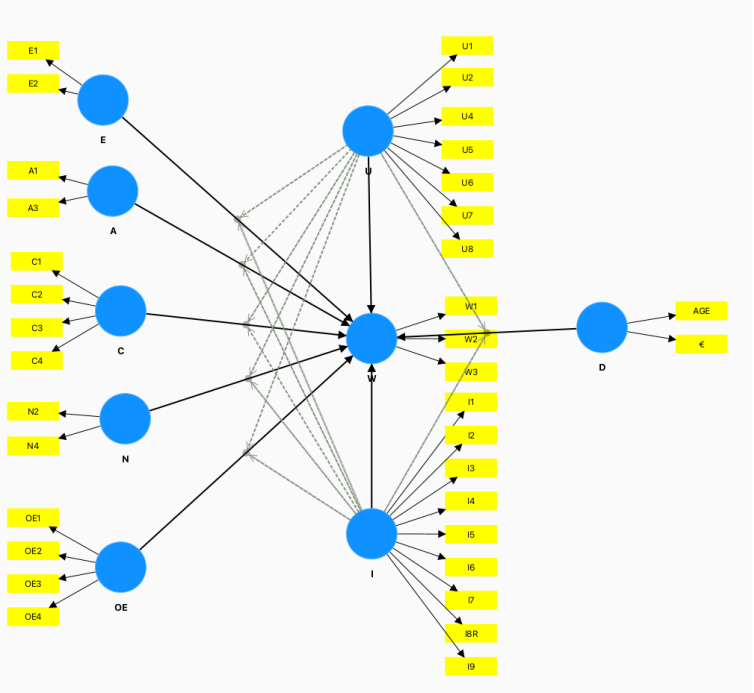


*Exhibit 4 - Path Coefficients and P values for the Structural Model Relationships from the Bootstrapping procedure. SEM PLS 4.*

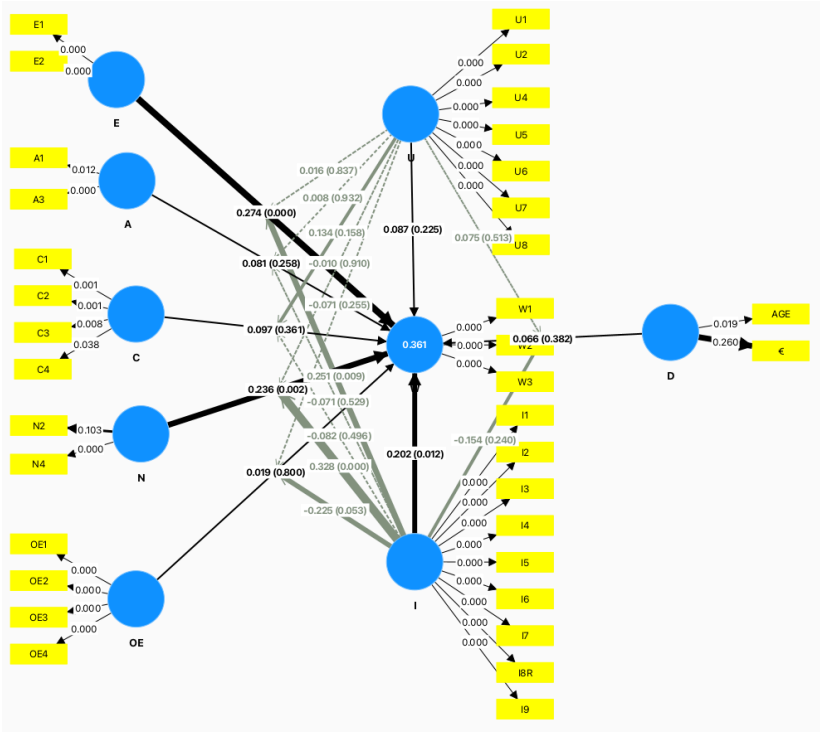

*Exhibit 5. Moderation effect of Impulsivity x Neuroticism, where the red line represents Impulsivity at -1 SD, the blue line represents Impulsivity at Mean, and the green line represents Impulsivity at +1 SD.*

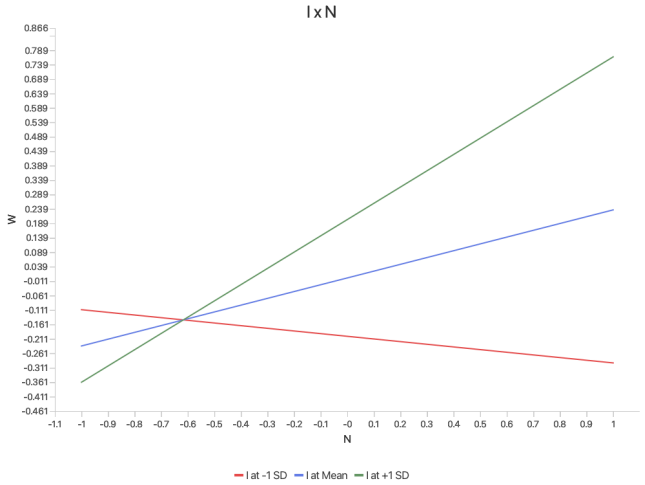


*Exhibit 6. Moderation effect of Impulsivity x Extraversion, where the red line represents Impulsivity at -1 SD, the blue line represents Impulsivity at Mean, and the green line represents Impulsivity at +1 SD.*

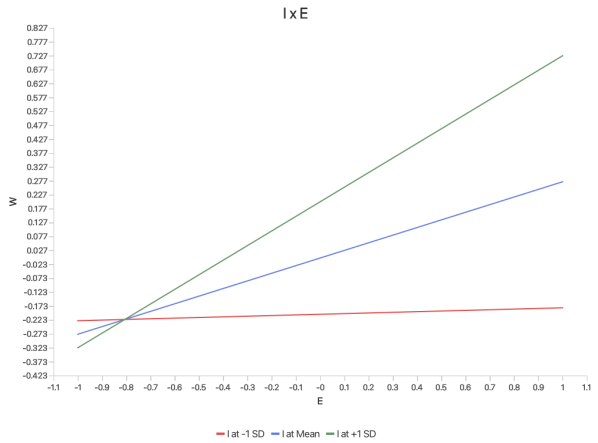


*Exhibit 7. Results of Personality Traits related to Willingness to Pay for Sustainable Eyewear with p-Values.*

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