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Department of Marketing, Operations and General Management

The Impact of Augmented Reality on Consumer Behavior in Fashion E-Commerce

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Master in, Business Administration

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BUSINESS
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Abstract

Augmented Reality (AR) is a technology that is transforming consumer behavior in fashion e-commerce. However, some brands and consumers have doubts about its value, and it is necessary to make them aware of the positive impact that AR has on purchasing decisions, as well as the external factors that have the greatest influence on its use and acceptance, so that it becomes increasingly widespread in fashion e-commerce. The design of this research model is based on the Technology Acceptance Model (TAM), and the analysis model used to test the conceptual model was Partial Least Squares Structural Equation Modeling (PLS-SEM), in which a quantitative study was conducted through a questionnaire. One of the aspects of the extracted score of the latent construct is the Important-Performance Map Analysis (IPMA), which expands the results of PLS-SEM (Ringle et al., 2022). Results indicate that the variables “Product Involvement” and “Perceived Usefulness” have a great influence on consumer behavior regarding the use of augmented reality in fashion e-commerce. When consumers are highly involved with a product, their expectations are high, as is the fear of being disappointed. In this way, this technology is proving to be very useful in the fashion e-commerce, as it provides confidence to the consumer, reducing their doubts at the time of the purchase decision. Thus, this research contributes to the literature regarding the external factors that have the greatest influence on consumer behavior and, consequently, on the brands that use this technology.

Keywords: Augmented Reality, Fashion E-Commerce, Consumer Behavior, Purchase Intention

JEL Classification System:

M10 - Business Administration: General

M31 - Marketing

Resumo

A Realidade Aumentada (RA) é uma tecnologia que está a revolucionar o comportamento do consumidor no Fashion E-Commerce. No entanto, algumas marcas e consumidores têm dúvidas em relação ao seu valor, sendo que é necessário dar a conhecer o impacto positivo que a RA tem na decisão de compra, assim como os fatores externos que têm maior influência na sua utilização e aceitação, de forma a difundir-se cada vez mais no Fashion E-Commerce. O desenho do modelo desta pesquisa é baseado no Technology Acceptance Model (TAM), e o modelo de análise utilizado para testar o modelo conceitual foi o Partial Least Squares Structural Equation Modeling (PLS-SEM), no qual foi realizado um estudo quantitativo através de um questionário. Um dos aspetos do resultado extraído do construto latente é o Important-Performance Map Analysus (IPMA), que expande os resultados do PLS-SEM. Os resultados indicam que as variáveis Envolvimento com o Produto e Utilidade Percecionada têm grande influência no comportamento do consumidor em relação ao uso da realidade aumentada no Fashion E-Commerce. Quando os consumidores estão altamente envolvidos com um produto, as suas expectativas são elevadas, assim como o medo de ficarem desapontados. Dessa forma, esta tecnologia está a mostrar-se muito útil no Fashion E-commerce, pois proporciona confiança ao consumidor, reduzindo as suas dúvidas no momento da decisão de compra. Assim, esta pesquisa contribui para a literatura no que diz respeito aos fatores externos que exercem maior influência no comportamento do consumidor e, consequentemente, nas marcas que utilizam essa tecnologia.

Palavras-Chave: Realidade Aumentada, Fashion E-Commerce, Comportamento do Consumidor, Intenção de Compra

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Introduction

With the world becoming increasingly technological, the fashion industry is integrating more and more innovative tools to enhance customers' shopping experience. The use of augmented reality (AR) in fashion retail is a relatively new concept that allows customers to interact with products in a virtual space (Mills, 2023), through a camera of an electronic device (Singgih et al., 2021). Consumers are more critical and selective, and brands have a higher need to differentiate themselves to attract new customers and seek new technologies to improve the consumer experience (Bakirlioglu et al., 2022). The higher the level of interaction with the product, the higher the level of consumer enjoyment of that product, where the bond between the brand and the consumer increases, as does purchase intention (Xue et al., 2023).

This technology allows the consumer to interact in an innovative way with virtual objects that cannot be easily accessed, helping to create a correct mental image in the consumers' head, allowing them to have greater confidence and comfort in the purchase decision (Leonnard et al., 2019). This technology has helped the biggest limitation of e-commerce, where the consumer cannot see, touch and feel the products, providing a more interactive and exciting experience during the purchase process (Boardman et al., 2020). In the fashion industry, consumers have the opportunity to digitally try on products, decreasing returns and increasing product satisfaction (Baytar et al., 2020).

Augmented Reality is an innovative technology, where there are many uncertainties regarding its value, and retailers are afraid to invest due to the high investment (Ruyter et al., 2020), so it is important to increase the knowledge of consumer behavior and acceptance of this technology, since they are underexplored (Chandra et al., 2018). In addition, the metaverse is the latest innovation that could change the retail fashion industry, it requires more research and understanding of the external factors that may influence its diffusion over time (Berggren & Iselid, 2023). Many studies have addressed the relevant characteristics in relation to the consumer's reaction after using augmented reality and what the differences are in using this technology; what the impact of using it in physical stores is, using the Virtual Dressing Room, as well as comparing its use in an online versus offline approach. As such, this research is pertinent due to its focus on purely digital stores, in other words, e-commerce platforms. In addition, the Technology Acceptance Model (TAM) is often used regarding AR, and more variables have also been added to the study's original model in order to adapt it to rapid technological development (Sousa, 2021). This study addresses different variables, which have allowed important results for the acceptance and use of this technology to be drawn.

The aim of this research is to fill these identified gaps by understanding the positive impact that AR can have on consumer behavior when using this technology in fashion e-commerce, and what factors influence the use and acceptance of AR. This research provides new insights regarding the combination of AR and fashion e-commerce to demonstrate the current research relevance (Hilpert & Zumstein, 2023).

The design of this research model is based on the Technology Acceptance Model (TAM) used to understand the acceptance and adoption of new technologies by users (Ibili, et al., 2019), in this case Augmented Reality in fashion e-commerce. This approach aims to understand how some variables can influence them, such as Perceived Enjoyment, Perceived Usefulness, Perceived Ease of Use, Perceived Value, Product Involvement, Trust and Perceived Risk. The analysis model used to test the conceptual model was Partial Least Squares Structural Equation Modeling (PLS-SEM), in which a quantitative study was conducted through a questionnaire to people who have already used Augmented Reality technology in fashion e-commerce to understand the perception and impact that the use of AR has on the consumer's purchasing decision. One of the aspects of the extracted score of the latent construct is the Important-Performance Map Analysis (IPMA), which expands the results of PLS-SEM, taking into consideration the performance of each construct (Ringle et al., 2022). The results show that the variables Product Involvement and Perceived Usefulness have a great influence on consumer behavior with regard to the use of augmented reality in fashion e-commerce. This technology offers more confidence at the time of the purchase decision, proving to be very useful for the consumer, since in fashion e-commerce it is not possible to touch and try on, and it helps to form a more real idea of the product (Riar et al., 2021). When consumers are deeply involved with a product, their expectations are usually high and their fear of disappointment is greater, so Augmented Reality is the way to increase their confidence and reduce doubts when making a purchase decision. Thus, both variables have a major impact on the intention to buy.

The article initially provides a complete literature review that represents the theoretical knowledge block, useful for the development of the conceptual model and the research hypotheses. Afterwards, the methodological approach and the data collection process used are presented, as well as the results of the study and their discussion. Finally, the theoretical contributions, the implications for management, the limitations, as well as future research.

1. Literature Review

1.1. Consumers and Augmented Reality

Nowadays, Augmented Reality is gaining more and more significance, and can be defined as follows: “Augmented reality is an innovative technology that can combine the virtual world and the physical world through the camera. Augmented reality not only combines the virtual world and the physical world but also interactive. (…) Seen through the screen, it offers a view of the physical environment in real life with computer-generated images, changing the perception of what you see in front of you” (Singgih et al., 2021). One of the main advantages and features of Augmented Reality is the view towards the real world in the digital world. Leonnard et al. (2019) said that this technology has allowed consumers to visualize the virtual world in the real world, providing an innovative way to interact with virtual objects that cannot be easily accessed by them.

This technology allows you to get different perspectives, even though a virtual image, therefore the consumer can digitally access something they could not before, and interactively. When consumers buy a certain product, they usually have an image in their mind of what the product looks like, however it may not correspond to reality. In this way, Augmented Reality helps create the right mental image in consumers' heads and, consequently, it helps to create confidence when deciding to purchase the product. Ruyter et al. (2020) adds that without augmented reality, consumers may find it extremely difficult to imagine a particular product in a distant context. It is quite common when a consumer buys a product to find out that it is different from what they imagined in store. Through Augmented Reality the consumer can create a mental image through its use and increase comfort in the purchase decision as well as the intention to buy the product. As a result, some larger retailers have embraced this new technology widely as they believe it will increase their benefits (Berggren & Iseld, 2023), but other retailers have doubts about its value due to the high investment. Thus, some managers are afraid to invest in a technology where the investment is high and which is not understood by the consumers, since they do not perceive the value of AR and may not use it (Ruyter et al., 2020). If managers and consumers visualized it and it was something more recurrent, with successful results, it would have greater adhesion and receptivity, and lastly better outcomes. However, Boardman et al. (2020) said that AR has received considerable attention from retailers, and they are anticipated to be progressively adopted in various industries, including the fashion industry, due to its promised ability to create unique shopping experiences. In fact, it argues that consumers adoption of these advanced technologies will generate most of the opportunities for fashion retailers in the next decade, so

research should explore if consumers will be prepared to adopt them or not. Still, another factor that can limit and hinder the use of this technology is consumer privacy. Context mapping collects information about the consumer's physical environment and the consumer may feel that their personal space has been invaded. However, it is an asset since sharing this information makes the content match in the best possible way, promoting a better service to the user (Ruyter et al., 2020). It is a variable that influences potential users a lot, especially because nowadays there are some risks related to this technology. So, if they feel that their privacy is protected, they are more likely not to be afraid to use this innovative technology.

1.2. E-Commerce on Consumer Behavior

The power of technology is growing in the marketplace, and the importance of e-commerce is central to addressing the current and future needs of consumers in their increasingly technological shopping journeys. We can define e-commerce as "(…) an online website that is used to trade goods and services online" (Singgih et al., 2021). E-commerce has transformed the way we shop. This concept has started to replace physical shopping due to the development of this technology. People now have a more convenient way to shop with just one click, saving their energy and time by shopping anywhere, anytime (Bakirlioglu, et al., 2022). The ease of access and the reduction in the time spent shopping are some of the advantages of e-commerce that contribute and justify the growth in its use. This transformation has made brands seek to differentiate themselves in order to gain a competitive advantage and gain notoriety in the market in order to capture the attention of potential consumers (Bakirlioglu et al., 2022). Thus, e-commerce gains relevance among producers in the way they sell, to achieve this goal of improving the consumer experience, using technology, competitive prices and reaching a wider segmentation of consumers through communication and transactions over the internet (Leonnard et al., 2019). As well as e-commerce, consumer behavior has also changed, they are more critical and selective, and brands must stand out among so many brands already on the market in order to attract more customers. As well as e-commerce, consumer behavior has also changed. Nonetheless, E-commerce does not surpass the experience of a physical store, where it is possible to see, touch, and feel the products, as well as to have the physical experience of the space, interact with the salesperson, clarify some doubts, as well as to experience the moment of purchase decision. On-site shopping provides an advantage to consumers as they can interact, see, touch and try directly with the product. Consumers can also interact with the salesperson or store assistant to get information about the product. These experiences cannot be fully acquired when shopping via e-commerce

(Leonnard et al., 2019). Thus, there is a gap that can be improved in order to meet the consumer's needs, and in order to meet their expectations of a certain product, so as not to disappoint them. Leonnard et al. (2019) says that consumers are often disappointed when they have the product in their hands. Therefore, the importance of creating something that enhances the e-commerce consumer's experience and revolutionizes the fashion industry arises, needing to be as precise as possible, so that brands can reach an even greater competitive advantage, as mentioned in Bakirlioglu *et. al.* (2022).

1.3. Consumer Behavior in the Use of Augmented Reality in Fashion E-Commerce

Augmented Reality has provided an interaction that is being widely used in the fashion retail setting, as it has impacted the way consumers interact with a determined product, in a way that influences their decision and attitude with respect to purchase intent, as well as how they buy. According to Boardman et al. (2020), technology has had a significant impact on everyday life, not only derived from the way we communicate, but also in the way we interact and shop, as technological innovations, including AR, have the ability to change traditional shopping patterns and customer attitudes towards fashion shopping. With the use of this technology by brands and consumers, it provides added value and opportunities, as well as a more interactive and exciting experience, respectively. As a result, retailers are expecting technology to provide a more exciting and innovative experience to increase the number of customers in stores. Consumer adoption of advanced technologies will generate much of the opportunity for upcoming fashion retailers in the next decade (Boardman et al., 2020). The higher the level of interaction with the product, the greater the consumer's pleasure of it and the better the consumer gets to know it. As a result, close connections are created between the consumer and the brand, increasing the intention to buy. Thus, consumers get more pleasure during the purchase process by interacting with the product and getting more information about it. Consequently, the brand creates a strong connection with its consumers as the range of products and brands encourages excitement and the thrill of exploring the unexpected (Xue et al. 2023).

E-commerce has some disadvantages that have already been mentioned above, and AR promotes the elimination of these, making the consumer have a more real notion of the product. A large proportion of online shoppers return clothes because they got the wrong size, or the color is not what they expected. So augmented reality helps combat this problem, as you can get a better perception because it's possible to try digitally. By doing so, it automatically decreases the chances of returning products bought online. Online shoppers return more clothes than any other category. Returns are mostly due to the wrong size or color (Baytar et al., 2020). Visualizing how does it look on themselves

or in a certain place, user satisfaction increases. Augmented reality provides e-commerce with new solutions to solve problems in presenting products to shoppers. Augmented reality used in e-commerce serves to make products look realistic, increasing user satisfaction and helping to promote product sales (Singgih et al., 2021). In addition to these advantages, it improves consumer perception, which will generate brand development and consumer perception formation and, consequently, an increase in sales (Leonnard et al., 2019). Since there are consumers who buy more sizes of the same product, this technology proves to be a win-win for both the brand and the consumer. Clothing shoppers buy several pieces of a given item (in terms of size, color and style) to see which one they prefer, with the intention of returning the rest. In this case, the use of augmented reality can be an asset for retailers, as it gives greater confidence in the sizes they want to try on at home and reduces the purchase of multiple versions of the same garment, which is a high cost in terms of storage and shipping. The same applies in physical stores with this technology, helping shoppers to select and find what they like more easily (Baytar et al., 2020).

Given these benefits of using AR in e-commerce, companies must rethink their differentiation from the competition and adopt creative methods in order to gain a competitive advantage to satisfy their consumers. Some retailers are embracing technological innovations by incorporating AR to keep up with the competition between physical and online markets. Moreover, e-commerce companies should use augmented reality as it has the best consequences with its use because it is more complex and innovative compared to other technologies already used in e-commerce (Billewar et al., 2022). However, as mentioned in Leonnard et al. (2019) physical fashion stores still have a huge impact on sales, brand representation and customer loyalty. The fact that you can try the product of choice and get additional real-time customer support are factors that brands/companies consider in whether to adopt or not this type of technology.

1.4. Hypothesis Development

The literature review relating to the development of the hypotheses was based on Tech Acceptance Model (TAM) that provides an insight into why consumers may accept or reject the use of a certain technology and thus provides fashion retailers with a better understanding of whether they should invest in technologies such as AR (Boardman et al., 2020). The TAM suggest two major beliefs: perceived usefulness and perceived ease of use and enables these beliefs to form individual attitudes including the attitude to construct intention to use the technology and cause behavior (Chung et al., 2015). According to Xue et al. (2023), TAM and User Experience (UX) should be combined because they

focus on different technological aspects, but they complement each other: TAM has a stronger focus on utilitarian aspects, while UX research investigates the experiential component.

The consumer experience when using augmented reality in e-commerce is a determining factor that influences their evaluations and purchasing decisions, as it will determine whether they move forward. The experience that the consumer has when using this technology is fundamental, and some essential factors that will influence this moment, improving the quality of the consumer experience. The perceived enjoyment is a factor that highly influences the consumer experience, since by making the use of AR something interactive and where it can get more information from the product (Xue et al., 2023), it can make the shopping experience more fun (Xue et al., 2023). Perceived enjoyment is defined as the degree to which the use of technology is perceived to be enjoyable, regardless of the performance of the perceived outcome (Yu et al., 2019). Thus, the pleasure and value of the experience influence consumer behavior in virtual environments (Watson et al., 2018). So, the following hypothesis is presented:

H1: Perceived Enjoyment positively relates to Purchase Intention

For this technology to be used, it is necessary that the consumer perceives that it is useful, and Perceived Usefulness is a factor that has a great influence on its use and consumer behavior, and can be defined as an indicator that measures how effectively and efficiently technology is used to help consumers get the information they need, evaluate products and make purchases (Leonnard et al., 2019). The increase and quality of information can positively affect the perception of quality, contributing to consumer certainty and supporting consumer decision making, however, in the fashion e-commerce the usefulness of AR is much higher, since users do not have access to physical products, but through this technology they can obtain knowledge that can increase the comfort of the purchase decision (Riar et al., 2021). So, the higher the consumer's perception of the benefits, the more likely the consumer is to buy again (Anifa & Sanaji, 2022). In this way, the following hypothesis can be presented:

H2: Perceived Usefulness positively relates to Purchase Intention

If AR does not prove useful to the consumer, they will not use it, however, perceived ease of use is a major influencing factor, reflecting the degree to which an innovative technology is perceived as difficult to understand when using (Huang & Liao, 2015). If the consumer does not find the technology intuitive or easy to use, not only will they not be able to use it (Xue et al., 2023), they will also not be as interested. In order to create a bond with customers through technologies, these new technologies need to be readily available and user friendly (Boardman et al., 2020). The variables Perceived Ease of Use and Perceived Usefulness can be considered the most critical factors regarding the use of an interactive technology (Huang & Liao, 2015), which is the case of Augmented Reality, since they are the

antecedent factors of the intention to use it (Jetter et al., 2018). Therefore, the following hypothesis can be proposed:

H3: Perceived Ease of Use positively relates to Purchase Intention

The more dynamic and sensory the consumer experience, the greater the benefits for the company. The way consumers behavior and buy has changed, they have become more demanding, and brands must ensure that they feel connected, making sure that their experience is memorable and different from many others they have had in the past. A unique and extraordinary online shopping experience can have immense consequences for customers (Billewar et al., 2022). Interactive technology has become a critical means to enhance consumers' online shopping experience, making it more attractive and engaging. The thought of using this technology combined with e-commerce and the consumer experience, provides more confidence at the moment of purchase decision and product certainty. There is a growth in confidence in an online purchase with the use of augmented reality, where the consumer is able to think that they are trying and interacting with either a pair of glasses, a new makeup look or clothes from next season's fashion line, forgetting that it is a technology, improving their experience, increasing the comfort of the decision (Ruyter et al., 2017). When consumers, as well as managers, realize the added value of this technology and the advantages it brings, that is, the perceived value, it becomes a tool they will want to use. The special presence of AR translates into favorable customer evaluations of the online service experience, both in terms of perceived value and comfort in their decision (Ruyter et al., 2017). Consequently, the perceived value influences the sales and their increase, if positive, so if retailers can create an engaging experience through augmented reality for their customers, it could translate into an increase in sales (Boardman et al., 2020). If managers take full advantage of this technology, it will increase the perception of the value Augmented Reality has for the consumer. We can define the Perceived Value as the overall perception of gains and losses, and the evaluation of perceived utility. It is a process in which consumers make judgments about costs or benefits based on price comparison in the purchasing process (Hewei & Youngsook, 2022). The advantages of using AR are many, for both parties, so it is an asset, and when used correctly it increases satisfaction and boosts the purchase intention. Perceived Value has a substantial impact on ongoing Purchase Intention (Hewei & Youngsook, 2022). We can conclude that the higher the perceived value of a product or service, the higher the purchase intention. Thus, the following hypothesis is presented:

H4: Perceived Value positively relates to Purchase Intention

When consumers are highly engaged with a particular product, their expectations can trigger a feeling of uncertainty, for fear of making a bad choice (Sun et al., 2022). Thus, augmented reality helps to reduce the feeling of uncertainty and provide confidence at the time of purchase, since the consumer can have a highly visually stimulating experience, obtaining a lot of information about the

product, namely with fashion items. Virtual fitting allows customers to experience 3D visual products, making the experience more realistic, providing the highest level of information about a given product through virtual stimulation. Customers are expected to have higher satisfaction with virtual fitting, strengthening the relationship of the experience and customer behavior, increasing purchase intention (Rhee & Lee, 2021). The relationship between the consumer's perception of the product and the consumer's internal demands, value and interest is defined as Product Involvement, and will depend on the consumers' perception of the importance and risk of the product. The higher the price, the higher the involvement (Sun et al., 2022). So, the higher the involvement, the greater the need for detailed information about the product. Thus, during online shopping, customers' information processing and decision making may differ depending on their degree of involvement with a particular product (Rhee & Lee, 2021). The involvement with the product is reflected in the purchase decision, which differs from consumer to consumer, depending on some factors, as well as the way they behave at the time of the purchase decision and, consequently, their satisfaction. As such, the following hypothesis can be proposed:

H5: Product Involvement positively relates to Purchase Intention

The fact that the consumer has access to information about a particular product has a significant influence on the purchase intention. Therefore, in online shopping, the solution given by retailers is to provide this information in the most complete, understandable, and transparent way possible, providing confidence at the time of the purchase decision, decreasing the perceived risk, increasing satisfaction and purchase intention (Uhm, et al., 2022). To combat some risks, there are solutions for companies to mitigate them and promote a sense of consumer trust. The solutions that online shops can do is to minimize the risk of returns policy by defining clear policies and procedures and adhering to these standards. In addition, presenting clear product information and providing convenience during online shopping can reduce perceived product risk (Tham et al., 2019). There are multiple definitions of trust, but it always involves the relationship between two parties: “According to Spekman (1988), trust is the cornerstone of the strategic partnership between the seller and the buyer. Rousseau et al. (1998) define trust as a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another” (Escobar-Rodríguez & Bonsón-Fernandez, 2017). It is through trust that it is possible to reduce the consumer's fear of the risk associated with the online purchase transaction. When companies want to gain users' trust in the system, they must consider two factors: the quality of the information they provide and the perception of security they have in the transaction. The information should be as complete as possible and should be presented in a clear and concise way so as not to lead to confusion, since it can cause the consumer to feel distrustful and insecure about the web, the seller or the payment system (Escobar-Rodríguez &

Bonsón-Fernandez, 2017). So, trust is the solution to face the risk that the consumer may feel. In this way, the following hypothesis can be formulated:

H6: Trust positively relates to Purchase Intention

Perceived risk is a determining factor in the process of an online purchase and can be defined as the uncertainty of the bad decision consumers may have when making purchasing decisions, and the possibility of being dissatisfied when purchasing a product compared to the buyer's goal (Tham et al., 2019). According to Bonnin (2020), there are four aspects that Perceived Risk can assume, of which we can highlight: psychosocial risk (harm to identity or self-esteem); financial risk (loss of money); time risk (loss of time because of late delivery for example) and product or performance risk (when expectations about the product are not met when it is used). Perceived risk is a decisive factor in the use of Augmented Reality and consumer behavior. Consumers only decide to buy a product if it has no associated risk. AR provides more concrete and vivid information about the product that helps consumers to understand and evaluate the quality and performance of products, reducing the risks perceived by the online consumer before making a purchase (Uhm et al., 2022). Thus, this technology associated with e-commerce can help reduce the perceived risks on the part of the consumer, since they offer relevant information to the consumer, contributing to an increase in purchase intention, derived from the confidence that this tool can offer. The following hypothesis can be formulated:

H7: Perceived Risk positively relates to Purchase Intention

In Figure 1, it is possible to see the hypotheses and the conceptual model.

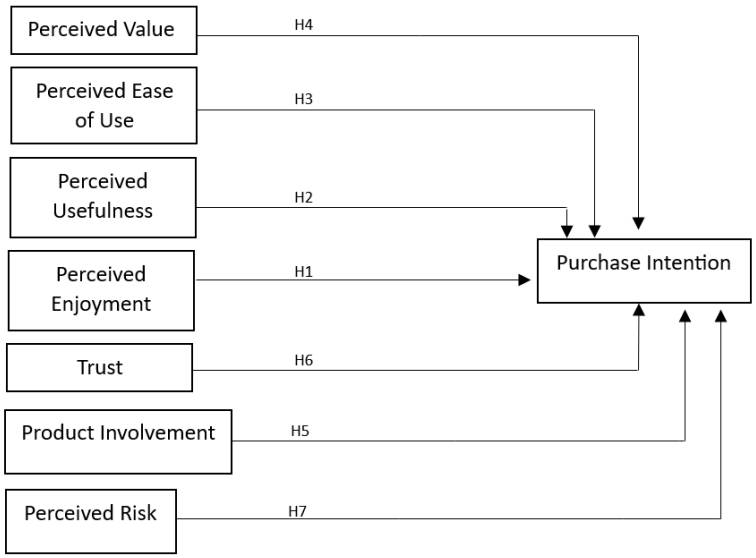

Figure 1 - Conceptual Model

2. Methodology

2.1. Sample

The data collection method used was the quantitative method, through a questionnaire conducted on the Google Forms platform, using a non-purposive sampling. In order to allow their veracity and trust, the surveys were conducted confidentially and anonymously. The survey in this study is aimed at people who have already used Augmented Reality technology in fashion e-commerce, in order to understand what's their perception and which impact the use of this technology has on the purchase decision of the consumer.

AR has been showing its features and advantages, both for the consumer and for the brands that implement it in their strategies. However, the investment is high and there are certain consumers who are afraid to use it. Regarding E-Commerce, which is widely used, it also has its advantages and disadvantages for both parties. However, Augmented Reality in E-Commerce powers this platform and raises it to another level, since it combats its biggest problem. Consumers tend to prefer shopping in a physical store since they can experience, touch, feel the texture and material of a given product, among other reasons that are found throughout the research. Augmented Reality helps to refine these senses through its technology, placing virtual objects in the consumer's physical environment, so that the consumer can have a better perception of the product itself. Thus, it avoids disappointments on the part of the consumer, as well as returns or exchanges. Both the brand and the consumer gain by using this technology in their e-commerce platforms. Thus, this research will help to better understand which factors, positive and negative, and the consequent impact on the consumer's experience with its use.

2.2. Variables

The questionnaire presents 9 groups, where the first one is related to the respondents' sociodemographic data, and the remaining groups are related to the variables of the conceptual model: perceived value, perceived ease of use, perceived usefulness, perceived enjoyment, trust, product involvement, perceived risk, and purchase intention. A total of 36 items, excluding the sociodemographic data group, were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement of these items is derived from variables in previous studies, which have been adapted to the specific content of this academic research.

The group corresponding to the Perceived Value variable was inspired by the questionnaire in the article "Why mobile users trust smartphone social networking services? A PLS-SEM approach", whose authors are Shuchih Ernest Chang, Wei-Cheng Shen and Anne Yenching Liu, which in turn was based on Teas and Agarwal (2000). This group has a total of 3 statements, which allows measuring what value the user of Augmented Reality attributes to this technology (Chang et al., 2016).

The next group, which corresponds to the variable Perceived Ease of Use, was based on the questionnaire in the scientific article "Exploring the facts influencing the adoption and usage of Augmented Reality and Virtual Reality applications in tourism education within the context of COVID-19 pandemic" by Shiwei Shen, Kexin Xu, Marios Sotiriadis and Yujiao Wang (2022), in which they adapted it from previous studies in the same research area (Chiao et al; Huang et. al., 2013; Sun et al, 2015). This group has a total of 4 statements (Shen, et al.).

The group that refers to the variable Perceived Usefulness, Perceived Enjoyment, Trust and Purchase Intention are based on the article "Analyzing facts affecting satisfaction and purchase intention towards mobile augmented reality e-commerce applications in Indonesia" by Stefanie Liu and Togar Alam Napituplu (2020). The groups of Perceived Usefulness, Perceived Enjoyment and Purchase Intention variables have a total of 3 statements each, and the Trust variable has 5 statements (Liu & Napituoulu, 2020).

The Product Involvement variable group presents 3 statements, based on the article "Mental Imagery, Product Involvement and Presence at Virtual Reality Supermarket", by Sandra Maria Correia Loureiro, Carolina Correia and João Guerreiro. The questions in this variable were measured using a scale adapted by the authors mentioned above, elaborated by Sperars and Singh (2014) (Loureiro et al., 2022).

Finally, the group that corresponds to the variable Perceived Risk was inspired through the questionnaire conducted by the authors Ümit Şengel, Gökhan Genç, Merve Işkin, Mustafa Çevrimkaya, loannis Assiouras, Burhanettin Zengin, Mehmet Sariişik and Dimitrios Buhalis, in the article "The impacts of negative problem orientation on perceived risk and travel intention in the context of COVID-19: a PLS-SEM approach". This group presents 11 statements, which assist in measuring the risk that the user perceives when using Augmented Reality technology. The authors mentioned above, applied the perceived risk scale used by Küpeli and Özer (2020), with several dimensions of psychological, social, financial and general risk (Şengel et al., 2022).

2.3. Data Collection

In a first stage, a questionnaire was conducted where a pre-test was sent to four participants via a link, in order to get feedback, verify possible errors, and modify them if necessary. “Pretesting is the stage in the development of a questionnaire that determines the potential effectiveness of the questionnaire. (…) is used to refine the questionnaire design and identify errors in the questionnaire which may only be apparent to the population concerned (…)” (Reynolds et al., 1993).

All participants have different academic backgrounds and different ages. Some of the statements in the questionnaire underwent some changes, such as:

Table 1 - *Changes in the questionnaire, after the Pre-Test*

Previous Statement	Statement After	The Reason
Augmented Reality in Fashion E-commerce save my time.	The use of Augmented Reality in Fashion-E-Commerce saves me time in my buying decision.	It was not explicit in which aspect the respondent can save his time, and it is in the purchase decision.
Augmented Reality in Fashion E-commerce help me find the most information about fashion.	Using Augmented Reality in Fashion E-Commerce helps me find the most information about certain fashion products.	It was not correct since technology helps to find information regarding certain fashion products, and in this case, not fashion in general.
I feel safe in my transactions with Augmented Reality in Fashion E-commerce.	I feel secure in my banking transactions in a purchase through the use of Augmented Reality in Fashion E-Commer.	It was not clear what type of transaction, nor when it takes place.
Overall, caused me to be concerned with experiencing some kind of losses.	In general, it causes me concern if the experience of the products (clothing, accessories, shoes), with the use of Augmented Reality in	When I referred to "losses", I did not specify, being that I meant in case the experience is not as intended.

	online fashion stores, is not as expected.	
I did get my money's worth from products provided by using Augmented Reality in Fashion E-commerce.	In case I want to return a fashion product purchased online using augmented reality, I get my money back in full.	In this statement, it assumes that the respondent returned something, so I formulated the sentence in case I wanted to.

The total sample is 119 respondents of Portuguese nationality. The results were obtained by sharing the questionnaire on social networks, namely LinkedIn and Instagram, during a period of three months (from January 5th to April 12th 2023). The questionnaire can be found in Appendix A and B, with both versions in Portuguese and English.

Regarding the sociodemographic data, the percentage of male respondents were 36.1%, and 63.9% were female. Regarding age, 69,7% were between 18 and 25, 16% were between 26 and 35 years old, 3,4% were between 36 and 45 years old, 8,4% were between 46 and 55 years old, and 2,5% were between 56 and 65 years old. As far as academic qualifications are concerned, with primary education there are 0.8%, with secondary education 16%, with a technical-vocational course 2.5%, with a degree 61.3%, with a master's 19.3%, and 0 with a PhD.

Table 2 - Sociodemographic Data

n=119		
Gender		**Age**
Male	36.1%	<18 = 0
Female	63.9%	18-25 = 69,7%
		26-35 = 16%
		36-45 = 3,4%
		46-55 = 8,4%
		56-65 = 2,5€
		>65 = 0
Literary Abilities		
Without Education = 0		

Primary Education = 0.8%
Secondary education = 16%
Technical-Vocational Course = 2.5%
Degree = 61.3%
Master's = 19.3%
PhD. = 0

3. Results

The analysis model to be used to test the conceptual model is Partial Least Squares Structural Equation Modeling (PLS-SEM), through the SmartPLS 4 software. This analysis model has become a popular method for estimating path models with latent variables and their relationships (Hair Jr et al., 2021, p. 2). One of the aspects of the score extracted from the latent construct is the analysis of the Importance-Performance Map Analysis (IPMA), which is used in the last part of the research to assess the performance of the main factors influencing the main dependent variables in the model, adding value to the PLS-SEM conclusions through additional results and important information (Zabukovšek et al., 2022).

The first step in PLS-SEM analysis is to evaluate the measurement model, where the objective is to determine the degree to which the questions load on the hypothetically defined construct. The analysis of the external model includes unidirectional predictive relationships between each of the latent constructs that is linked to the observed indicator. The assessment involves examining the reliability of the individual items (indicator reliability), the reliability of each latent variable, internal consistency (Cronbach's alpha and composite reliability, convergent validity (Average Variance Extracted - AVE), and discriminant validity (Fornell-Larcker criterion, cross-loading, HTMT criterion).

Hair Jr et al. (2021) said that for the composite reliability criterion, higher values indicate higher levels of reliability, and researchers can consider values between 0.60 and 0.70 as acceptable in exploratory research. The results showed that the standardized factor loading of all items were above 0.6 (with a minimum value of 0.682) and were all significant at $p < 0.001$. Thus, it proves the reliability of the individual indicators.

Table 3 - Composite reliability, average extracted, correlations, and discriminant validity checks

Latent Variables	α	CR	AVE	1	2	3	4	5	6	7	8

Perceived Ease of Use	0,778	0,870	0,692	**0,832**	0,340	0,367	0,279	0,390	0,197	0,208	0,607
Perceived Enjoy	0,860	0,914	0,781	0,271	**0,884**	0,086	0,601	0,621	0,628	0,536	0,536
Perceived Risk	0,936	0,948	0,698	-0,337	-0,052	**0,835**	0,134	0,102	0,181	0,091	0,309
Perceived Usefulness	0,862	0,916	0,786	0,214	0,526	0,115	**0,887**	0,647	0,699	0,686	0,390
Perceived Value	0,901	0,925	0,713	0,322	0,545	-0,025	0,585	**0,844**	0,454	0,430	0,440
Perceived Involvement	0,806	0,885	0,721	0,142	0,532	0,161	0,594	0,400	**0,850**	0,814	0,498
Purchase Intention	0,809	0,913	0,840	0,143	0,452	0,061	0,574	0,380	0,670	**0,917**	0,477
Trust	0,859	0,905	0,704	0,490	0,458	-0,277	0,329	0,379	0,411	0,396	**0,840**

Note: α: Cronbach Alpha; CR: Composite reliability; AVE: Average Variance Extracted. Bolded numbers are the square roots of AVE. Bellow the diagonal elements are the correlations between the constructs. Above the diagonal elements are the HTMT ratios.

Cronbach's Alpha and composite reliability are the most common measures used in internal consistency, where reliability can be measured based on the interrelationship of the observed item variables (Ab Hamid et al., 2017). Hair Jr et al. (2021) said that Cronbach's Alpha is another measure of internal consistency reliability that assumes the same thresholds but yields lower values than the composite reliability. Cronbach's Alpha and Composite Reliability (CR) values exceed the threshold of 0.7, as we can see in Table 3, confirming the internal consistency reliability.

Convergent validity "(…) is the extent to which a construct converges in its indicators by explaining the items' variance. Convergent validity is assessed by the average variance extracted (AVE) across all items associated with a particular reflectively measured construct and is also referred to as communality" (Hair Jr et al. 2021). We can confirm convergent validity Convergent Validity was also confirmed, as Bagozzi and Yi (1988) said, since it meets three key aspects (1) all items had a positive and significant loading on their respective constructs; (2) all constructs had Composite Reliability (CR) values higher than 0.7; and (3) the Average Variance Extracted (AVE) of all constructs exceeded the threshold of 0.5.

The last step to be done concerns the Discriminant Validity. According to Hair Jr et al. (2021), this analysis reveals to which extent a construct is empirically distinct from other constructs both in terms of how much it correlates with other constructs and how distinctly the indicators represent only this single constructs. Two approaches can be used (1) Fornell and Larcker criterion or (2) Heterotrait-monotrait ratio (HTMT) criterion.

The first method, the Fornell and Larcker criterion "is established if a latent variable accounts for more variance in its associated indicator variables than it shares with other constructs in the same model. To satisfy this requirement, each construct's Average Variance Extracted (AVE) must be compared with its squared correlations with other constructs in the model" (Henseler et al., 2015). Table 3 shows that its biggest correlation with any constructs. According to Fornell-Larcker, the square root of the AVE of each construct is greater than its relationship with another construct (Henseler et al., 2015).

Regarding the second method, the Heterotrait-monotrait ratio, Hair Jr et al. (2021) said that the HTMT criterion is defined as the mean value of the (geometric) indicator correlations across constructs relative to the mean of the average correlations of indicators measuring the same construct. Regarding the Heterotrait-monotrait (HTMT) ratio of correlation, if the value of HTMT is higher than this threshold, it can be concluded that there is a lack of discriminant validity. Some authors suggest a threshold of 0.85 (Ab Hamid et al., 2017). As the table 4 shows, all values of the HTMT ratios are below 0.85, providing further evidence of discriminant validity.

Table 4 - HTMT Ratios

	Perceived Ease of Use	Perceived Enjoy	Perceived Risk	Perceived Usefulness	Perceived Value	Product Involvement	Purchase Intention	Trust
Perceived Ease of Use								
Perceived Enjoy	0,340							
Perceived Risk	0,367	0,086						
Perceived Usefulness	0,279	0,601	0,134					
Perceived Value	0,390	0,621	0,102	0,647				
Product Involvement	0,197	0,628	0,181	0,699	0,454			

Purchase Intention	0,208	0,536	0,091	0,686	0,430	0,814		
Trust	0,607	0,536	0,309	0,390	0,440	0,498	0,477	

After checking for potential collinearity problems between the constructs, we move on to the significance and relevance of the model's relationships. According to Hair Jr et al. (2021), first ascertain that collinearity issues do not bias or distort the regression results. VIF values above 3 are indicative of collinearity. The VIF values are all 1.00, which was below the indicative critical value.

The next step is to analyze the coefficient of determination (R^2). The R^2 measures the variance explained in each of the endogenous constructs and is therefore a measure of the explanatory power of the model. The R^2 ranges from 0 to 1, with higher levels indicating higher degree of explanatory power (Hair Jr et al., 2021). The coefficient of the determination R^2 for the endogenous variable of Purchase Intention is 51,1% (0,511). This value surpassed the threshold value of 10% (0,1).

Hair Jr et al. (2021) said that the Q^2 indicates whether the PLS-SEM-based predictions outperform the most naïve benchmark, defined as the indicator mean from the holdout samples. A Q^2 predict larger than zero indicates de PLS path model outperforms this most naïve benchmark. The Q^2 values for the endogenous (0,124 and 0,439) were above zero, which indicated the predictive relevance of the model. We used bootstrapping with 5,000 subsamples to evaluate the significance of the parameter estimates.

Table 5 - Path Coefficients – Mean, STDEV, T-Values, p-values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STEV)	T Statistics (|O/ STDEV)	P Values
Perc_Ease_Use -> Perc_Risk	-0,252	-0,251	0,102	2,460	0,014
Perc_Ease_Use -> Purch_Inten	-0,057	-0,055	0,077	0,730	0,465
Perc_Enjoy -> Perc_Risk	-0,078	-0,080	0,103	0,760	0,447
Perc_Enjoy -> Purch_Inten	0,025	0,020	0,106	0,239	0,811
Perc_Risk -> Purch_Inten	-0,025	-0,029	0,067	0,373	0,709
Perc_Usef -> Perc_Risk	0,131	0,131	0,090	1,468	0,142
Perc_Usef -> Purch_Inten	0,261	0,262	0,108	2,405	0,016
Perc_Val -> Perc_Risk	0,020	0,013	0,113	0,179	0,858

Perc_Val -> Purch_Inten	-0,004	-0,001	0,089	0,040	0,968
Prod_Involv -> Perc_Risk	0,266	0,267	0,117	2,280	0,023
Prod_Involv -> Purch_Inten	0,461	0,465	0,080	5,734	0,000
Trust > Perc_Risk	-0,278	-0,284	0,125	2,226	0,026
Trust -> Purch_Inten	0,131	0,125	0,091	1,445	0,149

Considering table 5, we can conclude that the results show that Perceived Enjoyment doesn´t affect positively Purchase Intention (β= 0.025, n.s.). The results also show that Perceived Usefulness has a significantly positive effects on Purchase Intention (β= 0.261, p < 0,05). Perceived Ease of Use doesn´t affect positively Purchase Intention (β= - 0.057, n.s.). Perceived Value doesn´t affect positively Purchase Intention (β= - 0.004, n.s.). Product Involvement has a significantly positive effects on Purchase Intention (β= 0.461, p < 0.001). Trust doesn´t affect positively Purchase Intention (β= 0.131, n.s.). Perceived Risk doesn´t affect positively Purchase Intention (β= - 0.025, n.s.).

The results of Table 5 provide support Purchase Intention being positively affected by Perceived Usefulness and Product Involvement. we can conclude that the results do not support the following hypotheses: H1, H3, H4, H6, H7, but do support the hypothesis: H2 and H5.

Through the IPMA it is possible to draw conclusions in both dimensions: importance and performance, which is particularly important for setting priorities for management actions. Consequently, it is preferable to focus primarily on improving the performance of constructs that exhibit a high level of importance in terms of their explanation of a given target construct, but at the same time have a relatively low performance (Ringle et al., 2022). Thus, in the following figures we can see that the most important variable by far is Product Involvement, as it is furthest to the right, followed by Perceived Usefulness, giving us an overview of the priorities to be followed. Then Perceived Risk, Perceived Pleasure, Perceived Value, Perceived Risk and Perceived Ease of Use.

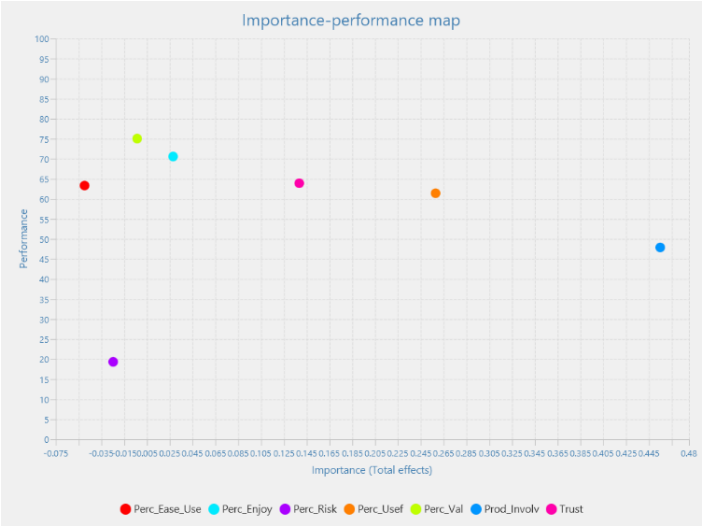

Figure 2 - Importance - Performance Map - Variable

We can have a more detailed analysis of each variable through this model, and the following graph shows more relevance in the items of the Product Involvement variable, namely Prod_Involv1, followed by Prod_Involv3, allowing us to understand in greater detail what is most relevant. The item Prod_Involv1 corresponds “For me, the use of Augmented Reality in fashion e-commerce is a necessity” and item Prod_Involv3 corresponds to “For me, the use of Augmented Reality is important in fashion e-commerce”, in the survey.

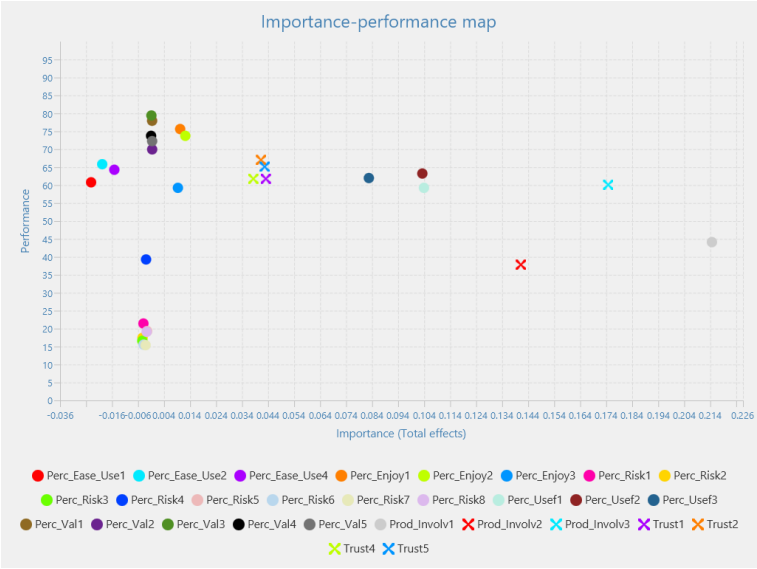

Figure 3 - Importance - Performance Map - Item

4. Discussion

According to the literature review in this paper, the use of Augmented Reality in fashion e-commerce has a positive impact on consumer purchase intention behavior, as well as the existence of factors that explain the use of this technology. This technology has become an asset for consumers as it allows them to interact with the product, helping them to create a mental image, resulting in increased consumer confidence and comfort when making a purchase decision.

The results revealed that fashion e-commerce companies should invest mainly in the Product Involvement factor, as well as in Perceived Usefulness, as these are by far the most important variables in Purchase Intention, according to the analysis carried out using the IPMA. In more detail, in the Product Involvement variable, we can see that the use of Augmented Reality in fashion e-commerce is important and a necessity, also complementing Perceived Usefulness. The user must perceive this technology as useful in order to use it, either to find the information they need or to evaluate the products in order to make the purchase decision and obtain comfort in it (Leonnard et al., 2019), especially in fashion e-commerce, where it is not possible to touch and try on, and this technology helps a lot in this barrier (Riar et al., 2021). Thus, when consumers are highly engaged with a particular product (Product Involvement), they may feel uncertain about their purchase due to the high expectations they have (Sun et al., 2022), and the way that can help increase confidence at the time of purchase is Augmented Reality, feeling the need and usefulness of using it to reduce their doubts. The results showed that Perceived Usefulness has an incredibly significant impact on the Purchase Decision, as does Product Involvement.

The findings show that consumer behavior and the way they buy has changed, and companies must keep up with the trend, ensuring that the consumer experience is unique and memorable (Billewar et al., 2022), in order to make it more attractive and engaging. When consumers and managers perceive the value and advantages that this technology offers, they will want to use it (Ruyter et al, 2017), influencing an increase in sales if the perception is positive and managers take full advantage of it (Boardman et al., 2020). However, the results indicate the opposite, with Perceived Value not affecting purchase intention, which may be due to the fact that consumers have a wrong perception of the value of using this technology, it is misunderstood, and they don't use it (Ruyter et al., 2020), in addition to the fact that it is something new on the market.

The findings also show that the Augmented Reality is a very interactive and fun technology and at the same time we can get more information about the product, and that Perceived Enjoyment is a factor with a lot of influence on the consumer experience and the decision to buy in fashion e-commerce (Xue et al., 2023), however the results do not prove the literature review, as they indicate

that Perceived Enjoyment does not affect the intention to buy. The biggest users of the internet are university students who are very familiar with technology and prefer to obtain the information they want rather than enjoy using it (Liat & Wuan, 2014).

For the user to be able to effectively use this technology, they have to find it intuitive or easy to use, consequently influencing the purchase of products in fashion e-commerce, however the results showed that Perceived Ease of Use does not affect the purchase decision. According to Gunawan et al. (2019), the fact that ease of use does not affect the consumer's purchasing decision can be explained by the fact that it is a requirement for today's Marketplace and does not add any value to the purchasing decision, neither does it cause them to make any purchases.

Finally, the research shows that sometimes consumers have uncertainties and fears about making a bad decision when buying a product, so companies seek to provide as much information as possible to consumers through Augmented Reality, in order to reduce the perceived risk in fashion e-commerce, and to promote a sense of trust and purchase intention (Tham et al., 2019). The variables Trust and Perceived Risk are associated, and both are very important for the intention to buy a product, but the results obtained show that both factors have no influence, and the reason may be associated with the consumer not feeling risks in the activity of buying and selling in e-commerce, as well as having confidence, continuing to be interested in buying products online in order to satisfy their needs (Zuelseptia et al., 2018).

5. Conclusion

5.1. Theoretical contributions/ implications

This research contributes to the literature regarding the external factors that most influence the use of Augmented Reality in fashion e-commerce, with special emphasis on Product Involvement and Perceived Usefulness, which have been shown to have a major impact on consumer behavior and, consequently, on brands that use this technology. When consumers are involved with a particular product, their expectations increase, as do their insecurities about the product not being what they expected (Sun et al., 2022). Thus, the use of Augmented Reality can help increase comfort and confidence in the purchase. It is also adjacent to Perceived Usefulness, where the consumer perceives this technology as useful, as it helps them to find information and evaluate products, obtaining comfort in their decision (Leonnard et al., 2019), enhancing the possibility of purchase, especially in fashion e-commerce, where it is not possible to touch and try on. This technology is an asset for both the consumer and the manager, as the consumer can have an interactive experience with the product and create a more realistic mental image, increasing confidence at the time of the purchase decision and overcoming one of the biggest disadvantages of e-commerce, maximizing purchase intent. In this way, managers must ensure that consumers feel connected, ensuring that the experience is memorable and different from many others they have had. Once managers and consumers realize the value of this technology and the advantages it can bring, they will want to use it.

5.2. Managerial Implications

Fashion industry managers in e-commerce should put into action some practices associated with the use of Augmented Reality on these online platforms, as it has benefits for both parties, reflecting in a possible increase in sales. Thus, managers should invest in the possibility of the consumer trying on the product, whether it's a shirt, a pair of glasses or sneakers, allowing the consumer to have a more realistic image of the product in an interactive way, and to obtain and evaluate the information they need, increasing confidence and satisfaction at the time of the purchase decision. If the consumer has a good experience using it, it improves the relationship they have with the brand and the possibility of purchase intent, benefiting managers' objectives in terms of sales and positioning. Furthermore, if the experience is positive and perceived as useful, it increases the intention to use this technology and boosts consumer acceptance of the use of augmented reality.

Based on the results obtained, managers should take into consideration consumers who are strongly engaged with a product, as their expectations are high and it is not good for the brand, as well as for the consumer, to be disappointed if the product is not what they visualized in their mind. In order to reduce this risk and increase purchasing comfort, managers should invest in the quality of the implementation of augmented reality, allowing the consumer to have a more real image of the product, and for their experience to be memorable and different from others they have had. The results also indicate that managers should continue to invest in very clear privacy policies, so that consumers continue to trust this technology when using it. It must also be intuitive and easy to use since, in such a digital and technologically advanced world, it's the basics. Consumer behavior has been changing, and managers must follow the trend so that their experience is incredible and different, in order to take full advantage and increase sales.

5.3. Limitations and future/ further research

Although this study has shown important results, it also has some limitations. The questionnaire sample was small due to the lack of use of Augmented Reality technology in fashion e-commerce, as well as a lack of knowledge of the concept. As mentioned, the concept is not familiar to everyone, and is easily confused with Virtual Reality, some might have even used this technology in the past and don't associate it with the term. Therefore, the study of the impact of this technology on fashion e-commerce deserves to be carried out with a larger number of consumers. In addition, age and country are factors that influence the use, and future research should investigate these. It might also be interesting to explore the reasons why this technology is not as well-known as the concept of Virtual Reality, from the perspective of the manager as well as the consumer. Finally, since the value of Augmented Reality can sometimes be questioned by managers, a suggestion for future research is a case study in which it is possible to see the before and after of implementing the technology in a particular brand, in order to show results and encourage its use.

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7. Appendix

7.1. Appendix A: Survey in Portuguese

Introduction	O presente questionário tem o objetivo de recolher dados para uma investigação no ISCTE - Instituto Universitário, sendo que esta se baseia numa análise do impacto que a tecnologia da Realidade Aumentada pode ter no comportamento do consumidor, nomeadamente nas plataformas de E-Commerce, mais especificamente na indústria da moda. Este questionário destina-se a todos os que já utilizaram a tecnologia da Realidade Aumentada no Fashion E-Commerce. A Realidade Aumentada é uma tecnologia que sobrepõe elementos ou informações virtuais no ambiente físico/real do utilizador através da câmara de um dispositivo eletrónico (exemplos mais a baixo). Os dados recolhidos serão utilizados exclusivamente para fins académicos, sendo que a participação deste estudo é anónima, e que todas as respostas permanecerão em total sigilo e confidencialidade. Este questionário tem a duração de aproximadamente 5 a 10 minutos. Caso ocorra o surgimento de alguma dúvida pode entrar em contacto comigo através do meu e-mail: maria.rmneto22@gmail.com Obrigada desde já pela sua colaboração e disponibilidade! Um exemplo da utilização da Realidade Aumentada é a loja IKEA, que desenvolveu uma aplicação que permite ver como é que ps móveis do seu catálogo ficam em determinados espaços, através da câmara do seu dispositivo eletrónico.

	 Um exemplo de Realidade Aumentada aplicada à indústria da moda, no E-Commerce, são marcas como a Nike, Adidas e New Balance que permitem que o utilizador experimente como é que um modelo de ténis assenta no pé através da câmara do seu dispositivo eletrónico. 
Section 1: General Questions	
Sexo	Feminino Masculino
Idade	<18 18-25 26-35 36-45 46-55 56-65 >65
Habilitações Literárias	Sem escolaridade Ensino Básico Ensino Secundário Curso Técnico-Profissional Licenciatura Mestrado Doutoramento
Já utilizou a tecnologia da	Sim Não

Realidade Aumentada?	
Section 2: Perceived Value	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. A utilização da Realidade Aumentada nas lojas de moda online pode acelerar a pesquisa de informação sobre determinado artigo. 2. Posso obter facilmente informação a partir da utilização da Realidade Aumentada nas lojas de moda online. 3. Usar Realidade Aumentada pode ajudar-me nas lojas online de moda. 4. A utilização da Realidade Aumentada nas lojas online de moda, pode-me ajudar a encontrar produtos apropriados. 5. Ao utilizar a Realidade Aumentada nas lojas online de moda, poderei obter rapidamente informação atualizada sobre produtos de moda, e isto é útil para mim.
Section 3: Perceived Ease of Use	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. Penso que utilizar Realidade Aumentada nas lojas online de moda é fácil. 2. Penso que é muito simples aprender a utilizar a Realidade Aumentada nas lojas online de moda. 3. Penso que é necessário muito esforço para utilizar a Realidade Aumentada nas lojas online de moda. 4. Penso que a utilização da Realidade Aumentada nas lojas online de moda é clara e compreensível.
Section 4: Perceived Usefulness	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo	1. A utilização da Realidade Aumentada nas lojas online de moda poupa-me imenso tempo na decisão de compra. 2. A utilização da Realidade Aumentada nas lojas online de moda ajuda-me a tomar as minhas decisões de compra.

Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	3. A utilização da Realidade Aumentada nas lojas online de moda ajuda-me a encontrar a maior quantidade de informação sobre determinados produtos de moda.
Section 5: Perceived Enjoyment	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. Divirto-me ao utilizar a Realidade Aumentada nas lojas online de moda. 2. A utilização da Realidade Aumentada nas lojas online de moda encoraja-me a experimentar vários produtos de moda. 3. Mal vejo o tempo passar enquanto utilizo a Realidade Aumentada nas lojas de moda online.
Section 6: Trust	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. Na utilização da Realidade Aumentada nas lojas de moda online confio que mantenham as minhas informações pessoais em segurança. 2. Na utilização da Realidade Aumentada nas lojas de moda online confio que mantenham as minhas informações financeiras (cartão de crédito, contas bancárias) em segurança. 3. Tenho a certeza de que a utilização da Realidade Aumentada nas lojas de moda online partilhará as minhas imagens de experimentação virtual. 4. Confio na informação fornecida pela utilização da Realidade Aumentada nas lojas online de moda. 5. Sinto segurança nas minhas transações bancárias numa compra através da utilização da Realidade Aumentada nas lojas online de moda.
Section 7: Product Involvement	

Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. Para mim, a utilização da Realidade Aumentada nas lojas online de moda é uma necessidade. 2. Para mim, a utilização da Realidade Aumentada nas lojas online de moda é uma preocupação. 3. Para mim, a utilização da Realidade Aumentada é importante nas lojas online de moda.
Section 8: Perceived Risk	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. A ideia de utilizar a Realidade Aumentada nas lojas online de moda faz-me sentir psicologicamente desconfortável. 2. A ideia de utilizar a Realidade Aumentada nas lojas online de moda dá-me uma sensação de ansiedade indesejada 3. A ideia de utilizar a Realidade Aumentada nas lojas online de moda faz-me sentir uma tensão desnecessária. 4. De forma geral, causa-me preocupação se a experimentação dos produtos (roupa, acessórios, calçado), com a utilização da Realidade Aumentada nas lojas de moda online, não for igual ao esperado. 5. Penso que cometo um erro se utilizar a Realidade Aumentada nas lojas online de moda. 6. Sinto que me coloco em problemas se utilizar a Realidade Aumentada nas lojas de moda online. 7. A utilização da Realidade Aumentada nas lojas de moda online leva-me a ser considerada uma pessoa idiota por algumas pessoas cuja opinião eu valorizo. 8. Desperdiço dinheiro ao utilizar a Realidade Aumentada nas lojas de moda online. 9. O investimento financeiro que faço ao utilizar a Realidade Aumentada nas lojas de moda online é sensato.

	10. No caso de querer devolver um produto de moda comprado online, com a utilização da realidade aumentada, recebo a totalidade do meu dinheiro. 11. Preocupa-me que a utilização da Realidade Aumentada nas lojas de moda online implique despesas adicionais inesperadas.
Section 9: Purchase Intention	
Indique, de uma escala de 1-5, sendo que 1 corresponde a "Discordo Totalmente" e 5 a "Concordo Totalmente", de acordo com as afirmações seguintes.	1. Gostaria de comprar os artigos que experimentei virtualmente com a Realidade Aumentada nas lojas de moda online. 2. Comprarei frequentemente com a Realidade Aumentada nas lojas de moda online.

7.2. Appendix B: Survey in English

Introduction	The purpose of this questionnaire is to collect data for a research at ISCTE - Instituto Universitário, which is based on an analysis of the impact that Augmented Reality technology can have on consumer behavior, namely on E-Commerce platforms, more specifically in the fashion industry. This questionnaire is aimed at anyone who has used Augmented Reality technology in Fashion E-Commerce. Augmented Reality is a technology that adds virtual elements or information to the user's physical/real environment using the camera of an electronic device (examples below).

	The data collected will be used exclusively for academic purposes. Participation in this study is anonymous and all responses will remain completely confidential. This questionnaire lasts approximately 5 to 10 minutes. If you have any questions, you can contact me by e-mail: maria.rmneto22@gmail.com Thank you in advance for your cooperation and availability! An example of the use of Augmented Reality is the IKEA store, which has developed an application that allows you to see how the furniture in its catalog looks in certain spaces, through the camera of your electronic device.  An example of Augmented Reality applied to the fashion industry, in E-Commerce, are brands such as Nike, Adidas and New Balance, which allow the user to experience how a model of sneaker fits on the foot through the camera of their electronic device. 
Section 1: General Questions	
Gender	Female Male
Age	<18 18-25 26-35

	36-45 46-55 56-65 >65
Academic qualifications	No education Basic Education Secondary Education Technical-Vocational Course Degree Master's Degree Doctorate
Have you ever used Augmented Reality technology?	Yes No
Section 2: Perceived Value	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. The use of Augmented Reality in online fashion stores can speed up the search for information about a particular item. 2. I can easily obtain information from the use of Augmented Reality in online fashion stores. 3. Using Augmented Reality can help me in online fashion stores. 4. Using Augmented Reality in online fashion stores can help me find appropriate products. 5. By using Augmented Reality in online fashion stores, I can quickly obtain up-to-date information about fashion products, and this is useful to me.
Section 3: Perceived Ease of Use	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the	1. I think using Augmented Reality in online fashion stores is easy. 2. I think it's very simple to learn how to use Augmented Reality in online fashion stores. 3. I think it takes a lot of effort to use Augmented Reality in online fashion stores. 4. I think that the use of Augmented Reality in online fashion stores is clear and understandable.

following statements.	
Section 4: Perceived Usefulness	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. The use of Augmented Reality in online fashion stores saves me a lot of time when making a purchasing decision. 2. The use of Augmented Reality in online fashion stores helps me make my purchasing decisions. 3. Using Augmented Reality in online fashion stores helps me find the most information about certain fashion products.
Section 5: Perceived Enjoyment	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. I have fun using Augmented Reality in online fashion stores. 2. Using Augmented Reality in online fashion stores encourages me to try out various fashion products. 3. I hardly notice the time passing while using Augmented Reality in online fashion stores.
Section 6: Trust	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. When using Augmented Reality in online fashion stores I trust them to keep my personal information safe. 2. When using Augmented Reality in online fashion stores I trust them to keep my financial information (credit card, bank accounts) secure. 3. I am sure that the use of Augmented Reality in online fashion stores will share my virtual try-on images. 4. I trust the information provided by the use of Augmented Reality in online fashion stores. 5. I feel secure in my banking transactions in a purchase through the use of Augmented Reality in online fashion stores.

Section 7: Product Involvement	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. For me, the use of Augmented Reality in online fashion stores is a necessity. 2. For me, the use of Augmented Reality in online fashion stores is a concern. 3. For me, the use of Augmented Reality is important in online fashion stores.
Section 8: Perceived Risk	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. The idea of using Augmented Reality in online fashion stores makes me feel psychologically uncomfortable. 2. The idea of using Augmented Reality in online fashion stores gives me a feeling of unwanted anxiety 3. The idea of using Augmented Reality in online fashion stores makes me feel unnecessary tension. 4. In general, it worries me if trying on products (clothes, accessories, shoes) using Augmented Reality in online fashion stores doesn't turn out as expected. 5. I think I'm making a mistake if I use Augmented Reality in online fashion stores. 6. I feel I'm getting into trouble if I use Augmented Reality in online fashion stores. 7. Using Augmented Reality in online fashion stores leads me to be considered an idiot by some people whose opinion I value. 8. I waste money by using Augmented Reality in online fashion stores. 9. The financial investment I make by using Augmented Reality in online fashion stores is sensible. 10. If I want to return a fashion product bought online using augmented reality, I get my money back. 11. I am concerned that using Augmented Reality in online fashion stores will lead to unexpected additional expenses.

Section 9: Purchase Intention	
Indicate, on a scale of 1-5, where 1 corresponds to "Strongly Disagree" and 5 to "Strongly Agree", according to the following statements.	1. I would like to buy the items I tried on virtually with Augmented Reality in online fashion stores. 2. I will often store with Augmented Reality in online fashion stores.