Project Dissertation Report on

A study to analyze users' attitudes and perceptions towards AR experience in Retail with special reference to Lenskart.

Submitted By

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CERTIFICATE

I hereby certify that the Major Research Project titled "A study to analyze users' attitudes and perceptions towards AR experience in Retail with special reference to Lenskart" which is submitted by Nupur Saxena, 2K22/DMBA/089, Delhi School of Management, Delhi Technological University, Delhi in partial fulfilment of the requirement for the award of the degree of Master of Business Administration (MBA) is a record of the project work carried out by the students under my supervision. To the best of my knowledge, this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere

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DECLARATION

I, Nupur Saxena, Roll No. – 2K22/DMBA/89 student of Delhi School of Management, Delhi Technological University hereby declare that the Major Research Project titled “A study to analyze users' attitudes and perceptions towards AR experience in Retail with special reference to Lenskart” submitted by me in partial fulfillment of the requirement for the award of the degree of Master of Business Administration (MBA) is my original work to the best of my knowledge. This major research project was written entirely by me in my own words and not copied from elsewhere.

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I accept full responsibility for the contents of this project and permit the Delhi School of Management to use it for academic or research purposes.

Nupur Saxena

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ABSTRACT

Augmented reality (AR) has completely changed the retail industry with its interactive product information, virtual try-on capabilities, and improved product visualization. The uptake of AR technology by consumers is still minimal, despite these benefits. By examining customer perceptions and experiences with augmented reality in retail contexts, this study attempted to close the knowledge gap. It focused on Lenskart, one of India's top online eyewear retailers.

Data from a sample of individuals in different age groups, genders, and occupations was gathered via an online survey. There were no statistically significant relationships found in the data between age and the decision to use augmented reality (AR) for eyeglass shopping, or between gender and the use of eyewear or preferred methods of purchase.

Nonetheless, it was discovered that the entire AR experience was substantially correlated with both hedonic motivation (enjoyment and user-friendliness) and purchase intention (recommendation and purchase reliance). A more positive overall experience was reported by users who thought that augmented reality (AR) technology was fun and easy to use, and who stated that they intended to suggest brands that used AR or relied on it when making purchases.

These results imply that a key element driving the adoption of AR is user experience. To encourage broader acceptance of this technology, retailers like Lenskart should place a high priority on developing interesting and user-friendly augmented reality experiences. Future studies could look into how to customize the augmented reality experience and how other elements, including technical know-how or previous exposure to AR, affect consumer acceptance. Retailers may successfully integrate AR technology into the retail industry and improve their AR strategy by taking care of these issues.

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1. INTRODUCTION

1.1 Overview

Every step of the value chain—from product search to manufacture to purchase to delivery—is now completed faster thanks to the introduction of new technology. The role of Internet sales in commerce has grown significantly. Globally, e-commerce accounted for more than 19% of retail sales in 2023. According to forecasts, the online sector will account for about 25% of all retail sales worldwide by 2027, and these figures will only rise as internet usage continues. However, with the fierce competition on the internet, businesses and marketers are finding it increasingly challenging to differentiate themselves from the competition through delivering value. The two strategies for success in this fiercely competitive market are improving the general customer experience and adding the newest digital tools to support various procedures.

The field of digital marketing is continuously introducing new techniques to more successfully engage people. One of the digital trends that are reshaping the future is augmented reality, which has the potential to be very beneficial for marketing, the retail sector, and most importantly consumers. Incorporating augmented reality into marketing campaigns aims to improve the shopping experience, build customer relationships, and increase revenue. With mobile devices, augmented reality marketing is an effective strategy that helps organizations boost engagement and strengthen brand value in the most relatable way possible.

In the area of marketing, augmented reality (AR) has become a significant interactive technology. It is being utilized more frequently in retail settings and is frequently created as smart device applications. Customers can get content in new ways thanks to its capacity to superimpose virtual elements—like information or images—over the real world. These elements can interact with the real world in real-time. As a result, it can change a wide range of customer behaviors, including product trials and information searches. The requirement to comprehend its effects on customer behavior and the experience it provides will only expand as its use rises.

Previous studies of AR adoption in online retailing have typically adopted the technology acceptance model (Huang and Liao, 2015; Pantano et al., 2017; Rese et al., 2017). However, it's still unknown how AR technology will affect the user experience. Customers believe augmented reality enhances customer service and lessens confusion while making decisions.

As smart technologies have been ingrained in people's consumer habits and modern lifestyles, the business setting is undergoing a global revolution. Incorporating cutting-edge, non-traditional retail environments like augmented reality (AR) apps, smart retail, and mobile apps provides customers with a unique shopping experience. As "enablers of innovation and improvements in customers' quality of life," these technical advancements play a crucial role.

AR applications create chances for distinctive experiences in retail environments by fusing the real world with the virtual world. Thus, mobile augmented reality apps offer consumers who are "on the go" pleasant and engaging experiences that last for 24 hours, which can lead to favorable behavioral and attitudinal changes. Additionally, mobile augmented reality apps facilitate customers' shopping experiences by improving their ability to find information and make purchases.

The research agenda for examining users' attitudes and perceptions regarding AR experiences in retail is presented in this paper. expanding on prior understanding of interactive technology and how it affects customer behavior. Interactive technology has significantly changed how customers interact with brands and go shopping. Participation in online communities, B2C and C2C interactions through social media, increased usage of mobile phones and smartphone applications, and involvement with immersive virtual reality are some of the most significant advances since the evolution of Web 2.0 and Web 3.0. A wide range of studies has been conducted on the issues associated with consumer responses to more established interactive technologies; nevertheless, there is a lack of discussion regarding the potential effects of new augmented reality technology on consumers, and no systematic research strategy has been presented.

1.2. BACKGROUND

The term "augmented reality" (AR) has been gaining momentum in the field of developing technologies. It's a technology that's changing how we connect with the world around us, changing everything from gaming and healthcare to education and shopping. However, what precisely is augmented reality? How does it operate? And why, in the era of digital technology, is it becoming so important?

What is Augmented Reality?

A technology known as augmented reality, or AR, overlays digital data, such as text, audio, or images, on top of our real-world surroundings. Augmented Reality (AR) improves our real-world surroundings by including digital features, in contrast to Virtual Reality (VR), which produces a fully immersive virtual experience.

Although the idea of augmented reality (AR) has been around for a while, it has only recently gained widespread recognition due to technological developments and the success of AR apps like Pokémon Go. Unlike virtual reality (VR) and mixed reality (MR), which aim to blend the real and virtual worlds, augmented reality (AR) incorporates digital features into our physical world.[1]

The Evolution of Augmented Reality

It's amazing to watch AR go from concept to reality. Tom Caudell, a researcher at Boeing, first used the phrase "augmented reality" in the early 1990s to describe the blending of computer-generated pictures into the physical environment. Still, the idea of augmenting the real world with data has existed for much longer. An early example of augmented reality technology was the "heads-up display" in military aircraft, which gave pilots vital information within visual range.

Louis Rosenberg created the first fully immersive augmented reality system at the U.S. Air Force Research Laboratory two years later. Since NASA's X-38 spacecraft used augmented reality (AR) for navigation for the

first time in the late 1990s, the technology experienced a significant development. Let's take a quick look at some key turning points in the development of augmented reality.

Launched in 2000, AR Quake was the first AR game in which players wore a head-mounted display and carried a backpack including a computer and gyroscopes.

Augmented reality apps for cell phones first appeared in the early 2000s. One such software is AR Tennis, a two-player game that was created in 2005 for Nokia phones. The first augmented reality (AR) app for smartphones appeared in the early 2000s; one such app was the 2005 Nokia phone's two-player AR Tennis game.

Blippar launched the first cloud-based augmented reality app in 2008. Four years later, Nintendo and Niantic released Pokemon Go, the wildly successful location-based augmented reality game that introduced AR to the general public.

Microsoft launched HoloLens, an untethered holographic computer, in the same year.[2]

Technological developments throughout time have increased AR's usability and accessibility for daily use. The integration of augmented reality (AR) in mobile applications has been made possible by the notable advancement of smartphones that come with superior cameras and sensors. AR is becoming more than just a toy or a feature in games; it's a tool being utilized to solve problems in the real world and create new experiences across a range of industries.

How Does Augmented Reality Work?

The foundation of augmented reality is a camera-equipped device running augmented reality software, such as a tablet, smartphone, or smart eyewear. Using computer vision technology that examines the video stream, the software detects objects when a user directs the gadget at them.

Then, much like how a web browser loads a page via a URL, the gadget receives data about the object from the cloud. The fact that the augmented reality information is displayed as a 3-D "experience" overlayed on the object as opposed to a 2-D page on a screen is a key distinction. Thus, the user's perception is partially digital and partially real.

Augmented Reality (AR) may show customers the data coming from objects in real-time and let them operate them with gestures, voice commands, or touchscreens. Saying "stop" aloud or touching a stop button on the digital graphic overlay in an augmented reality experience, for instance, might instruct a product through the cloud. When utilizing an augmented reality headset to communicate with an industrial robot, an operator may be able to view performance statistics superimposed on the robot and manipulate its controls.

The size and perspective of the augmented reality display automatically adapt to the changing context as the user walks. While some information disappears from view, other textual or graphical content appears. When looking at the same object in an industrial setting, users in different roles—such as a machine operator and a maintenance technician—can be provided with various AR experiences that are customized to meet their specific demands.[3]

Types of Augmented Reality

AR comes in a variety of forms, each with unique attributes and applications.

Marker-based augmented reality: In this kind of AR, to generate augmented reality, it only needs to identify markers. Markers are patterns that can be identified by the camera on a smartphone or any other type of camera. Once the photographs are taken, they are processed so that they don't visually depend on the surroundings. Pictures that are taken can be drawn on paper or be photos of actual objects that are then altered to create a virtual world. A device scans the markers to generate a new world with text, images, videos, and animations. Digital content is shown, similar to how a physical marker—like a QR code—is viewed using an AR device. Apps that

enable users to scan those markers with their existing device cameras enabling marker-based augmented reality.

Restaurants are a fantastic place to see this retail application of augmented reality in action. Marker-based augmented reality is used, for instance, in interactive menus that allow users to explore different ingredients and see how a dish might look in their customized AR stores.

Markerless AR: Also referred to as location-based AR, this kind provides location-based data using accelerometers, GPS, and digital compasses. Because it gives users more control and lets them observe and easily modify 3D items in their reality, markerless AR is a different kind of augmented reality. When the merchant lacks knowledge of the user's geographical location or real world, they employ this type of augmented reality.

The sensors will convert 2D photos into interactive 3D visuals by fusing software, video graphics, and audio with various input data from the user's smartphone or headset. The generated results are more accurate because of the multiple employment of mapping and localization technologies, even when the objects are out of the user's visual field.

Markerless augmented reality apps have several benefits over marker-based AR applications. If a headset is not available, the user can launch the augmented reality application from any location using a portable device. A broader field of view is provided by the technology, and sharing of the content is possible.

Projection-based AR: This kind uses artificial light to be projected onto real surfaces, and it recognizes when a person interacts with it. The projection-based reality is arguably one of the most straightforward applications of augmented reality because it provides computer-generated digital data within a stationary context rather than requiring a handheld device or headset. Users and the created objects can move

within a designated space, where the information produced generates the necessary illusion.

Projection-based augmented reality can be used in retail to highlight the differences between two products or to illustrate the attributes of a new product during product launch events. Nike, for example, created a projection AR experience at their London studio that let customers design their 3D model of Nike sneakers.

Superimposition-based AR: This kind of modifies the environment perception entirely or in part by substituting an enhanced view for the old one. Instead of creating a brand-new digital object, superimposition-based augmented reality presents an alternative perspective on an already existing one. The augmented view looks at an additional aspect of an actual, already-existing product.

Numerous businesses in the retail industry have marketed their goods using this technology. Users may now take photos with Kylie Cosmetics items thanks to a unique Instagram filter that the firm unveiled.

Another firm that produces cosmetics, MAC, allows customers to try on various items and see how they look on the corporate website. To assist customers in trying new items conveniently and hygienically, the company also provides AR mirrors in its physical stores. [4]

Applications of Augmented Reality

AR has numerous uses in a variety of industries:

- **Playing video games**: AR is used by games like Pokémon Go and Ingress to superimpose virtual characters and objects on the actual environment, resulting in an immersive gaming experience that combines the virtual and real worlds. These games have made augmented reality (AR) more widely

accepted by showcasing its ability to produce interesting and dynamic experiences (Koh, Oh & Mackert, 2023).

- **Education**: By bringing educational content to life, augmented reality may enhance and personalize learning. AR can be used, for instance, to produce interactive textbooks, offer virtual tours of historical locations, or even visualize difficult scientific ideas in three dimensions. This can improve students' comprehension and memory of the material, improving the efficacy and enjoyment of instruction.

- **Healthcare**: AR is revolutionizing the healthcare sector with applications ranging from medical treatment and treatment to surgical simulations and diagnosis. Medical students receive training from it, surgeons receive assistance during procedures, and patients even have a better understanding of their medical concerns. For example, augmented reality (AR) has been utilized to augment conventional procedures in cardiac rehabilitation, yielding advantages for patients and healthcare providers alike (Ladkhedkar & Yadav, 2022).

- **Retail**: Businesses are utilizing AR to offer in-store navigation, virtual try-on experiences, and more. Before making a purchase, clients can utilize augmented reality (AR) to visualize how furniture or clothing would look in their house. This helps retailers increase sales and decrease returns while also improving the shopping experience.

- **Construction and Architecture**: By superimposing digital models onto the actual construction site, augmented reality (AR) can assist architects and construction workers in visualizing building designs in three dimensions. This can help save time and money by identifying any problems before the building starts.[3]

Augmented Reality (AR) in Retail

The use of augmented reality in retail today is a challenge as well as an innovation that is transforming the online buying experience. Modern trends emerge every second, giving experts in the retail sector fresh chances and educational experiences.

Try-before-you-buy events and other novel retail experiences are made feasible by augmented reality. Before making a purchase, customers can test a product or service to determine if it can meet their needs or address an issue. Customers can even personalize a product to get something that was made just for them.

However, precisely how is augmented reality applied in the retail industry? What new prospects should this constantly developing technology present for us in the future? We are going to understand that in detail.

How is Augmented Reality Different from Virtual Reality?

Both virtual and augmented reality technologies provide several advantages, including increased engagement, immersive experiences, and improved collaboration. However, how these two technologies operate and the competitive advantages they provide to the business differ.

To put it briefly, virtual reality takes the place of your current reality, whereas augmented reality adds something to it. In the retail industry, augmented reality enables customers to alter virtual objects and concepts in a physical setting to provide a variety of advantages. Virtual reality, on the other hand, transports people to a non-existent parallel reality. By using the goods or services they want to purchase, individuals escape the actual world and enter a new one.

Due to the way both technologies alter e-commerce, they have a positive effect on the retail shopping experience. Consumers are no longer taken aback by-products that fall short of their expectations or perform poorly. However, these two technologies differ in a few key ways that impact how they are used in practical situations.

Retail Companies' Use of Augmented Reality

Augmented reality has several applications in the retail industry, ranging from gamification and exciting live events to AR product packages, takeaway information, and instructions. These are the most typical examples: -

1. **AR Produces Engaging Live Events and New Product Introductions**

   In the retail space, augmented reality is the most effective tool available to brands looking to generate awareness around a new product. Consumers may serve as active players who truly get to sample the products, as opposed to being passive viewers—albeit virtually. Additionally scalable, this technology allows the organization to host multiple events at numerous venues without being constrained by setup or physical constraints.

   To promote the OnePlus Nord smartphone, OnePlus organized an augmented reality event that people could attend from the comfort of their homes during the pandemic.

2. **AR-Based Customized and Personalized Product Visualization**

   Augmented reality is a great opportunity for retailers to customize products by adding or eliminating features to better meet the needs of their customers. Customers will find that their buying experience is enhanced and that they can make selections about purchases more quickly and intelligently. Users may also see how a specific product will seem in their environment at a given time.

   With the help of L'Oréal's new augmented reality experience, clients can use only their cell phones to try on the brand's newest products in a pleasant and secure environment. Before making a purchase, customers can test the hues of various products by downloading an app.

3. AR Narrates a Product Story

The rationale behind leveraging augmented reality to improve a retail business's performance is the significance of storytelling marketing. An engaging and dynamic tale about the evolution of a product or the history of a brand can be told through augmented reality. The buyer will feel closer to the product and the brand overall as a result of this narrative.

To increase consumer engagement and loyalty to the brand and its goods, Jack Daniel takes consumers on an exploration of the brand's history.

4. Regain Customers with Augmented Reality Retention Content

Those customers who haven't decided what to buy are sent home with access to an augmented reality application to guarantee that they will return to the actual store. This can help customers decide what to buy by enabling them to fully investigate a good or service that they're still on the fence about.

When a merchant is unable to demonstrate the product in doubt to a potential buyer, displaying an augmented reality replica steps in as the next best thing. Leading contractors in the gas, drainage, and urban water circulation sectors purchase plastic piping systems from Pipelife Latvia. The business can demonstrate to contractors and other interested parties the potential of its products by using augmented reality services.

5. Captivating Augmented Reality Packaging

Customers can access the smart AR packaging with their cell phones. To access an immersive augmented reality experience that offers discount codes exposes new product models or tastes, or tells the story of the business, users only need to aim their phone's camera towards a QR code.

To advertise its energy drinks, Lucozade Energy has started an augmented reality campaign. A person can view a documentary about their favorite musician by pointing their smartphone at a bottle of the company's products.

6. **Augmented Reality Gamification to Boost Customer Loyalty**

   Customers are given a gamified experience with augmented reality (AR) that extends beyond the choice to buy, increasing their sense of engagement with the company, its goods, and services.

   Augmented reality content from Herbal Essences encourages responsible disposal of plastic bottles. Additionally, this highlights the objective and message of the business for consumers.

   By providing children in the Middle East with a code that they may scan to play augmented reality games while discovering the firm, Kellogg's gave its customers in the region another exclusive experience. [4]

Benefits of AR for Retail Stores

Applications for augmented reality have a significant impact on both online and offline sales because they give customers an entirely new shopping experience. Customers may make better purchasing decisions when products and services are introduced in unique manners, provide additional details about various models, and highlight the potential benefits of each new offering. This is because they can be sure they are investing in something that will genuinely benefit them.

Applications for augmented reality improve the consumer experience. By developing an immersive and engaging reality that allows customers to see, imagine, and touch a thing without actually purchasing it, they also make the most of the efforts put forward by the sales team. The following are a few advantages of implementing AR in retail: -

1. **AR Is a Helpful Tool for Brand Awareness**

   AR has the potential to be the most effective tool for differentiating your business in a crowded market. Customers are more inclined to interact with a

company they perceive as offering something unique when they perceive it as something different from what they have seen previously.

Users can take advantage of a particular augmented reality experience developed by Beck's Beer at a distinctive art gallery that has been set up in multiple places throughout the US, UK, and Europe. Using augmented reality (AR) applications that viewers could view on their smartphones, the displays showcased the combined work of multiple artists. Customers might get the digital content by visiting the company's Facebook page.

In addition, brand recognition is increased when third-party retail stores display the brand alongside others. To differentiate its items in the highly competitive market of third-party stores, Philips, for instance, employed this approach.

2. AR Lowers Profits

9% of things purchased in physical stores are returned, compared to more than 20% purchased online. People may not be happy with a product after making an online purchase for a variety of reasons.

The main explanation is that the goods might not fit properly or might not appear exactly like it was advertised. Some customers believe the product didn't offer adequate value, while others believe it didn't genuinely assist in solving the issue for which they purchased it.

Businesses can help reduce return rates by allowing customers to see and potentially even use products before they pay for them with augmented reality retail applications. At the moment, several clothing retailers are utilizing this technology.

3. AR Boosts Retail Conversion Rates

Since consumers are more inclined to purchase a product they have digitally experienced and visualized, augmented reality (AR) initiatives in the advertising industry have been incredibly successful.

As a result, more companies are using this technology to showcase the possibilities of upcoming goods. Shopify reports that augmented reality-using brands have seen a 200% increase in retail conversion rates.

The technology affects conversions in several ways. The first factor has to do with AR's novelty, which draws users in and encourages them to try something new. Additionally, since younger consumers are more accustomed to utilizing augmented reality, it increases their brand appeal.

4. Using AR for Interactive Upselling

Augmented reality may make a buyer feel compelled to buy a product they had not previously given much thought to. When purchasing sports equipment, for instance, a consumer may be introduced to additional items, such as shoes or sunglasses to complement their attire.

Brands can use augmented reality retail applications to promote and cross-promote their sibling brands and other commodities. Using the IKEA app, buyers can replicate the proposed setup by adding additional items from the store. With the use of this application, Bombay Sapphire hopes to increase sales of their goods by showcasing interactive digital material.

5. Utilizing AR for Powerful Visual Merchandising

Through the use of augmented reality, retail merchandising can be made more effective by showcasing a product's qualities and capabilities in an interactive setting. Even if the product isn't available at the store, augmented reality (AR) enables customers to see it and decide whether to purchase it.

Additionally, merchandisers can show off just the best-selling items while letting clients use augmented reality to explore the other inventory virtually. Using this technology, Timberland helped shoppers see the company's clothes in an augmented reality promotion. This is effective for both the company's new product launches and its older collection promotions.

6. AR about Data Analytics

Retailers are better able to analyze consumer behaviour and the elements influencing their purchasing decisions by utilizing the data supplied by various augmented reality platforms and applications. Additionally, they can test a variety of augmented reality applications to provide customers with the greatest possible experience and market additional goods and services in the future.

By its very nature, the retail sector produces a lot of data, and augmented reality gives decision-makers access to more concrete data. For instance, the Try-before-you-buy policy that is presently being implemented by several retail brands can reveal precisely which trends are becoming more and more popular as well as which ones should be abandoned or given a second thought. [4]

This research paper will examine users' attitudes and perceptions regarding their augmented reality experiences in the retail industry, with a particular focus on **Lenskart**. Lenskart uses an augmented reality try-on filter to transform the online shopping experience. The company wants to increase its online presence and penetration in India.

Established in 2010 With minimal financial resources but a strong desire to change the world, an ex-Microsoft "techie" founded Lenskart, one of the fastest-growing eyewear companies in existence today.

'VALYOO Technologies' was founded by Peyush, Amit Chaudhary, and Sumeet Kapahi. The goal was to establish our superior production, do away with the retailers, and provide directly to clients to genuinely add "value" to their lives. By doing this, they were able to save expenses while maintaining high levels of quality. They were further assisted by in-house robotic lens assembly and manufacture, which guaranteed perfect accuracy and superior quality control.

Lenskart is redefining the eyeglasses industry with its quickly expanding business that reaches out to over one million customers monthly through a unique blend of a robust internet presence and distinctively designed physical storefronts.

BEST QUALITY

Produced by robots

They are the first and only company in India to use robotic technology to provide glasses with three decimal places of accuracy. With an automated system that permits lens inspection, geometric center determination, and loading of the lenses for edging without the need for a finishing block, these German-imported machines guarantee precision on all fronts.

The machine's mind

Their call center strives to please every customer, address their issues, and consider their input. Their employees have zero tolerance for mistakes.

They let the figures do the talking

They offer five times more styles of eyewear than any other vendor in India, with over 5000 styles available. From well-known labels like Oakley and Ray-Ban to the greatest house brands.

An eye for an eye

The range they offer includes reading glasses, contact lenses, sunglasses, and everything else you need to view this amazing world more clearly.

The entire globe is ours

Make eyeglasses for kids, adults, and everyone else on the globe, it is real.

Everything covered

They have all of the necessities for daily life. Daily attire Evening attire Furthermore, they refresh our styles annually to stay current with global fashion trends, drawing inspiration from global fashion hubs and top designers.

VALUE FOR MONEY

Not everything wonderful in the world is costly. They offer more affordable costs than any nearby optician. They provide the most eye-catching packages for contact lenses to our consumers.

No intermediary. No additional fees. Simply said, there should be no middlemen. Since their products are direct from the manufacturer, there are no additional expenses or burdens.

Lenskart has always been committed to using technology to help people purchase eyewear. Over the years, Lenskart has made numerous investments in technologies such as augmented reality, machine learning, and data science.

The goal of Lenskart's AR journey at first was to completely transform the online eyewear purchase experience. Purchasing glasses online has historically involved doubts about fit and style.

A significant weakness in the online eyewear purchase experience was discovered by Lenskart: customers were unable to see how eyeglasses would appear on their faces. They carried out user research to resolve this. They found a three-step selection process by analyzing in-store behavior: -

First Browsing: Buyers skim through the available frames and shortlist a couple purely based on appearance.

Putting on and Comparing: Users put on frames in person and frequently go back and forth between possibilities. They usually ask friends who are involved in the decision-making process for their opinions.

Final Decision: After reducing the number of options, users ask about cost and warranty. Notably, Lenskart's pricing structure allowed customers to prioritize look over price, making it less of a deciding issue.

Understanding this problem, Lenskart purposefully used augmented reality technology. They collaborated with AR industry pioneer Meta to introduce an AR try-on filter for Instagram. This calculated action was made to appeal to a younger, tech-savvy demographic that was familiar with social media. Before making a purchase, consumers could virtually test various frames with the Instagram effect. This creative strategy sought to promote online sales by decreasing buy reluctance, boosting user confidence, and so on.

By incorporating an augmented reality try-on experience straight into its app, Lenskart increased the scope of its AR initiatives. Compared to the Instagram filter, this in-app function provided a greater assortment of frames and a more customized experience. Through the deliberate introduction and development of AR features, in the Indian eyewear marketplace, Lenskart has placed itself at the forefront of technical innovation by addressing a significant consumer concern. [5]

1.3 Problem Statement

The introduction of Augmented Reality (AR) technology has caused significant disruption in the retail sector. Although augmented reality (AR) offers the ability to completely transform the shopping experience by offering interactive product information, try-before-you-buy features, and virtual product representation, consumer acceptance is still quite low. A significant knowledge gap exists regarding how customers perceive and react to augmented reality (AR) in retail settings.

Through an investigation of users' attitudes and views of augmented reality with special reference to Lenskart, this study project seeks to address this gap.

1.4 Objective of the Study

The primary objective of the project is: -

- To study and comprehend the advantages that users believe augmented reality (AR) offers in retail settings with special reference to Lenskart.
- To study the usability and user experience of augmented reality applications in retail environments with special reference to Lenskart.
- To study consumer worries about security and data privacy when utilizing augmented reality apps in retail stores with special reference to Lenskart stores.
- To study the main elements that support or hinder consumers' adoption of augmented reality (AR) technology in retail settings with special reference to Lenskart.

1.5 Scope of the Study

The purpose of this study is to find out how consumers feel about Augmented Reality (AR) experiences in retail settings with special reference to Lenskart. The main goal will be to comprehend how consumers view augmented reality (AR) technology's overall value, use, and enjoyment in the buying process.

In particular research topics will consist of: -

Perceived utility: What impact can augmented reality technology have on a user's capacity to make well-informed purchasing decisions (e.g., visually trying on clothes, picturing furniture placement)?

Perceived enjoyment: Is buying more enjoyable, captivating, and participatory with AR?

Technology adoption: What elements motivate a user to keep experimenting with augmented reality experiences in retail environments?

Perceived value: In comparison to conventional methods, can augmented reality offer value to the buying experience?

User demographics: How do attributes like age, gender, and level of tech expertise affect how users view augmented reality?

2. LITERATURE REVIEW

Augmented Reality

Innovating technology known as augmented reality (AR) has drawn a lot of interest from experts and scholars in a variety of fields and sectors. Augmented Reality (AR) provides consumers with improved experiences, contextual insights, and interactive capabilities by seamlessly fusing digital information with the real world. [6]

A new interface between the digital and physical worlds is created by this collection of technologies, which overlay digital data and visuals over the user's physical environment. This technology creates interactive experiences by superimposing digital features on the real environment, which could revolutionize the way consumers make purchases. Retailers are using augmented reality (AR) solutions at a rapid pace. They include features such as remote-accessible virtual showrooms, interactive product displays, and virtual try-ons for clothing and furnishings.

Within the retail industry, augmented reality (AR) enables customers to see how things suit them individually or in their surroundings without having to worry about trying to picture how the object may seem in real life. Apart from the added convenience of reduced travel and shopping times, augmented reality (AR) supports users in their difficult task of mentally converting two-dimensional information into a three-dimensional environment by offering an interface that corresponds with users' natural information processing abilities. As a result, augmented reality (AR) has the potential to help customers make better judgments when making purchases and enjoy more enjoyable shopping experiences. [7]

Although augmented reality (AR) has many potential applications in retail, its successful deployment depends on an understanding of user attitudes and perceptions of these experiences. This study paper analyses user experiences using augmented reality in retail contexts with a particular focus on Lenskart's virtual try-on technology. We may learn a great deal about the elements that affect user adoption

and pinpoint areas that require development by looking at user viewpoints. In the end, this will assist retail stores in creating AR experiences that are fascinating and user-centered in addition to being cutting-edge technologically.

Augmented Reality in Retail

From a retail standpoint, allowing buyers to virtually experience things before they buy them is a promising use of augmented reality (AR). Studies have shown that customers can best understand the benefits of a product and determine whether it is a good fit for them when they have firsthand experience with it.
It might be logistically difficult to provide direct product experiences, particularly in online retail. With the advent of augmented reality (AR), consumers may now visually experience things in the absence of tangible ones, controlling expectations and fostering purchasing confidence.

For instance, L'Oréal and Sephora use augmented reality (AR) to show clients how different cosmetic items would change their appearance, and Amazon and IKEA use it to assist buyers decide if products or furniture sold online are compatible with their existing room décor.

Justifying investments in this new technology requires an understanding of how augmented reality (AR) may boost income.

It's still unclear, though, how augmented reality will affect actual product sales. AR has the potential to increase sales by decreasing confusion about product fit by assisting buyers in visualizing things in their settings of consumption.

AR, on the other hand, may also deter sales if it creates the impression that the items might not fit well. The impact of AR on sales may also be minimal because the technology cannot convey sensory product qualities (such as product texture or fragrance) that could be significant in buying decisions. [8]

User Attitude and AR in Retail

The potential of Augmented Reality (AR) technology to transform the retail industry has received substantial attention due to its rapid rise. It is essential to comprehend user attitudes and views regarding augmented reality experiences in retail for their effective adoption. This section will examine pertinent theories that guide users' adoption of technology and talk about how they relate to augmented reality in retail settings.

Technology Acceptance Model (TAM) - The Technology Acceptance Model (TAM), which was created by Davis et al. in 1989, is a popular paradigm for explaining why people embrace new technologies. According to TAM, a user's intention to use technology is favorably influenced by perceived utility, which is the assumption that technology will improve their job efficiency, and perceived convenience for use, which is the degree of effortlessness in utilizing the technology. Users are more inclined to embrace augmented reality (AR) in the retail setting if they believe it might be useful for things like seeing products in their house or obtaining comprehensive product information. On the other hand, adoption may be hampered by worries about how complicated or user-friendly AR interfaces are. [9]

Unified Theory of Acceptance and Use of Technology (UTAUT) - Venkatesh et al. (2003) built on the Technology Acceptance Model (TAM) to present the Unified Theory of Acceptance and Use of Technology (UTAUT), which takes into account more aspects that affect technology adoption. According to UTAUT, user acceptability is influenced by several factors, including perceived utility and ease of use, performance expectancy (belief that AR will improve results), social influence (perception of others' opinions on AR), effort expectancy (perceived ease of learning AR), and facilitating conditions (access to resources to use AR). In retail environments, a user's impression of augmented reality's advantages may be influenced by social media buzz or referrals from friends, which may encourage them to give it a try. [10]

Perceived Benefits of AR in Retail

Because it makes shopping richer and more engaging, augmented reality (AR) technology can completely change the retail sector. It's critical to comprehend how users perceive augmented reality to ensure its successful adoption. Based on research findings from pertinent studies, this paper examines how augmented reality (AR) improves the shopping experience in several ways.

Improved Access to Information and Product Visualization:

Visualizing things in realistic situations is one of AR's main advantages for retail. By enabling consumers to digitally arrange things in their homes, augmented reality (AR) can enhance spatial visualization and raise purchase intention.

Furthermore, by superimposing interactive product information right over virtual goods, augmented reality elements in e-commerce improve consumer experience and pleasure. This simplifies the shopping process by removing the need to look for product specs or reviews [5]

Enhanced Involvement and Joy:

Compared to conventional methods, AR's interactive nature makes for a more engaging buying experience. According to Huang et al. (2019), who looked into the usage of augmented reality virtual try-on apps, they improved user engagement and playfulness, which made shopping more pleasurable. Luo et al. (2020) found that augmented reality (AR) enhanced the perceived fun of shopping for garments, which could result in higher consumer satisfaction and loyalty.

Perceived Challenges of AR in Retail

With its ability to provide interactive product visualization, virtual try-on experiences, and personalized shopping journeys, augmented reality (AR) holds great promise to transform the retail sector. Nevertheless, broad user acceptance of augmented reality in retail environments has not yet been attained, despite its

potential. In addition to insights from other pertinent academic sources, this section examines the perceived obstacles mentioned in the study article "Factors Affecting Augmented Reality Adoption in the Retail Industry" by Syed Shah Alam et al. (2021). [11]

Technical Limits:

Alam et al. (2021) have identified latency as a major concern. Users may become frustrated and suffer a sense of unreality if there are delays in the processing and presentation of augmented reality content.
According to "How Augmented Reality Can — and Can't — Help Your Brand" by Sandeep R. Chandukala, Srinivas K. Reddy, and Yong-Chin Tan, user perception might be adversely affected by poor loading times or inactive AR features.

Device reliance is another technical drawback. Many AR experiences available today are dependent on particular devices or wearables. Customers without suitable devices or those who are worried about utilizing their smartphones for in-store augmented reality experiences (e.g., battery drain, data usage) may be excluded from this. [12]

Issues with the User Experience:

Concerns about the user experience may impede AR adoption in addition to technological ones. Privacy is a crucial factor, as noted by Alam et al. (2021). Users may be leery of augmented reality experiences that gather personal information, particularly if it's not apparent how the information will be used. Similar to this, user data may be compromised by security flaws in AR apps. According to research by Ruofei Chen, Patsy Perry, Rosy Boardman, and Helen McCormick (2021), users' top worries about the adoption of AR are security and privacy. Usability is also very important. Users may lose interest in augmented reality (AR) if the interfaces are hard to use or understand. [13]

Issues with the Value Proposition:

Perceived value, lastly, can present serious difficulties. Consumers may wonder if augmented reality is any better than more conventional ways to shop. Does augmented reality offer a definite advantage in terms of information availability, product visualization, or the general purchasing experience? Users may be less likely to adopt AR if they don't perceive a clear benefit. Concerns regarding AR's novelty effect may also surface. Even while people may get excited about augmented reality experiences at first, if they don't find them to be worthwhile or interesting over time, they may lose interest in them.

The Impact of AR on Consumer Behavior

Consumer behaviour in retail contexts could be greatly impacted by augmented reality (AR). Using information from the research paper "Consumer Behavior with Augmented Reality in Retail: A Review and Research Agenda" by Virginie Lavoye, Joel Mero, and Anssi Tarkiainen (2021) as well as other pertinent sources, this section examines how AR can affect several components of the shopping trip.

Improving the Process of Choosing a Purchase:

According to Lavoye et al. (2021), augmented reality can enhance product visualization. AR can lower ambiguity and boost confidence in purchasing decisions by enabling customers to virtually try on clothing and arrange furnishings in their homes. In a similar vein, having easy access to comprehensive product information via augmented reality overlays can enable customers to make wise decisions.

Developing Hedonistic and Utilitarian Value:

Lavoye et al. (2021) talk about the ideas of hedonic and utilitarian value. By lowering risk and improving efficiency (e.g., finding things in a store), augmented

reality (AR) can create utilitarian value (e.g., ensuring furniture fits in a space). Experiences that are delightful and entertaining produce hedonic value. The gamification components and interactive nature of AR can increase the enjoyment and engagement of buying.

Customization and the Digital Persona:

Another important area where AR might influence customer behavior is personalization. Customization of AR experiences can increase a consumer's sense of connection to a business and promote brand loyalty. According to Lavoye et al. (2021), augmented reality has the ability to customize the virtual self. Users may be more likely to consider making a purchase if they are able to experiment with various styles and products, for example, through virtual try-on experiences.[14]

AR and the Future of Retail

The retail sector could undergo a transformation thanks to augmented reality (AR), which will change how customers engage with companies and products. Based on the research paper "Augmented reality in retail: a systematic review of research foci and future research agenda" by Chen, Perry, and Boardman (2022), this review investigates how AR can influence the future of retail.

New Developments in AR Retail Apps:

According to Chen et al. (2022), augmented reality is increasingly being used for virtual try-on experiences. Users may visually view themselves wearing clothing, makeup, or other things thanks to this technology, which boosts confidence when making purchases. Beyond virtual try-ons, augmented reality (AR) can be utilized for interactive retail displays that use AR overlays to show product details, user evaluations, and recommendations.

Closing the Retail Gap Between Online and Offline:

Bridging the gap between online and offline buying experiences is a major trend in AR retail. Product reviews and customized recommendations from the internet can be easily incorporated into the physical retail setting with augmented reality. This encourages omnichannel retail, which combines online and offline channels to offer a cohesive online and offline shopping experience.

Retail Experiential Using AR:

The potential for augmented reality to offer experiential shopping is an interesting new direction. AR has the power to create interactive experiences out of static product displays. Consider using augmented reality (AR) to learn more about the history and manufacturing process of a specific product, or to virtually arrange furniture in your house before making a purchase.

Looking Ahead: Difficulties and Possibilities

Although AR provides a window into the retail industry's future, issues still need to be resolved. The user experience may be hampered by technical constraints like latency and device dependence. Furthermore, data gathering privacy issues in AR applications need to be carefully considered.

But there are a lot of options that AR offers. AR has the potential to improve customer engagement, personalize the purchasing experience, and open up new revenue streams for businesses. Future research priorities, as suggested by Chen et al. (2022), center on user experience design, augmented reality's place in social purchasing, and the moral implications of AR in retail settings. [13]

Ethical Considerations of AR in Retail

The retail experience could be greatly enhanced by augmented reality (AR), but this breakthrough also raises ethical questions that need to be addressed. Using

information from the research publications "Ethical Considerations in augmented reality applications" by Pase (2012) and "VR and AR: The Ethical Challenges Ahead" by Craig and Georgieva (2018), this review examines these issues in the context of retail.

Privacy Issues:

One of the most important ethical factors is data privacy. User information, such as location, demographics, and product preferences, is frequently gathered by AR applications. Pase (2012) highlights the importance of obtaining user consent for data usage and maintaining transparency in data-gathering procedures.

Cybersecurity weaknesses:

Sensitive user data may be compromised by security flaws in augmented reality apps. Retailers must put robust security measures in place to safeguard customer data and uphold confidence. The wider ethical issues surrounding VR and AR are brought to light by Craig and Georgieva (2018), who point out the possibility of user data being misused for manipulation or targeted advertising.

Discrimination and Algorithmic Bias:

Applications for augmented reality might reinforce algorithmic prejudice. For instance, based on user data, personalized suggestions may unintentionally leave out particular items or groups of people. Retailers must make sure AR systems are developed and applied equitably and morally.

Effects on Addiction and Social Interaction:

Because AR is so immersive, there are worries about how it will affect social interaction. An over-reliance on AR experiences may impede in-person connections

and cause social isolation. Craig and Georgieva (2018) address the possibility of addiction to augmented reality experiences and stress the importance of responsible design principles that encourage positive usage habits.

The Duty of Retailers:

It is the duty of retailers utilizing AR technology to give ethical issues a top priority. This includes open data policies, user control over data gathering, strong security protocols, and algorithms that are inclusive and equitable. [15]

The Future Research Agenda:

Even though a lot of study has been done to examine augmented reality's possibilities in retail, there are still unanswered questions about how users feel about this technology. This section highlights important topics for further study and suggests fresh approaches and research ideas to fill in these knowledge gaps.

Research Gaps in the Present:

Limited Knowledge of User Perceptions: The majority of studies to date have been done on the technical aspects of augmented reality (AR) or how it can affect business strategies. Further comprehensive research investigating users' perceptions of augmented reality in retail environments is required. This involves learning about users' perceptions of the value, fun, and simplicity of AR experiences.

Absence of Long-Term Effect Research:

A lot of current research focuses on how users react to augmented reality initially. To learn more about the long-term effects of augmented reality on user behaviour, buying decisions, and brand loyalty, longitudinal studies are required. Does user interest in AR diminish with time? What effects does frequent use of AR have on consumer behaviour?

Limited Studies on Particular User Groups:

The majority of studies take a broad user viewpoint. However, user perceptions of augmented reality may differ depending on age, gender, level of tech proficiency, and the purpose of the purchase. Future research ought to examine how these elements affect consumers' views of augmented reality in retail.

The purpose of the research is to close the knowledge gap about user views toward augmented reality in one particular retail market: eyeglasses. Few studies have examined users' experiences using augmented reality (AR) to try on things like glasses, while most research has focused on how users perceive AR in general when it comes to retail. To close this gap, our research looks into how users feel about augmented reality technology when choosing and buying eyewear.

3 Research Methodology

3.1 Research Design

To examine user attitudes and perceptions of augmented reality experiences in retail settings, this study uses a descriptive research design.

A methodological approach called descriptive research is used to collect data and characterize the features of a population or phenomenon without explaining why things are the way they are.

The purpose of descriptive research is to gather and describe data about a particular phenomenon, population, or situation, which makes it perfect for investigating consumer experiences with relatively new technology such as augmented reality in retail.

3.2 Research Tool

The purpose of this study is to find out how consumers perceive Augmented Reality (AR) experiences in retail environments. A self-administered questionnaire will be the main research tool used for data collecting to accomplish this goal.

The questionnaire will include inquiries about user demographics, prior experiences with augmented reality (AR) in retail, opinions regarding the usage of AR for product visualization, advantages and disadvantages of AR retail experiences, and general user happiness. To collect both quantitative and qualitative data, a mix of closed-ended (multiple choice, Likert scale) and open-ended questions will be utilized.

4 Data Collection and Analysis

4.1 Data Collection

The process of gathering and analyzing the information from a target source to use that information for research or other purposes is known as data collection. The collected data can be primary data or secondary data.

Primary data: - The firsthand information that we gather from our source of interest is called primary data. This can be collected in multiple ways such as through interviews, surveys, focus groups, or other research methods.

Secondary data: - The information that has previously been gathered and examined by someone else comes under the category of secondary data. This can be collected from various sources such as journals, government documents, authentic sites, books, and other sources.

A self-administered questionnaire consisting of sixteen questions was used to gather data. Its purpose was to evaluate user attitudes and perceptions of augmented reality as well as buy intentions based on consumers' in-store experiences. Demographics, past AR experience, general opinions toward AR, and particular views of the benefits and downsides of AR in retail contexts were all recorded in the questionnaire.

A total of 160 individuals who were between the ages of 16-45 and above and had prior exposure to augmented reality—but not compulsory in a retail setting—made up the sample. The participants were asked to complete the questionnaire after they tested out the AR functionality of the Lenskart app.

Statements: -

Age

Gender

Occupation

S1 I use eyewear such as specs, glasses, lenses, etc.

S2 I have been using eyewear for (months/ years.)

S3 My primary criteria for selecting eyewear are

S4 My preferred mode of buying eyewear is

S5 I have utilized platforms like ..... to purchase eyewear.

S6 Have you ever tried AR technology in apps like lenskart?

S7 I enjoy using the AR technology.

S8 In my opinion, the AR technology for trying on eyewear is very intuitive and user-friendly

S9 The AR technology is accurate in depicting how the eyewear will look on my face.

S10 I can rely on AR technology to make the right decision for my purchase.

S11 I will purchase the brand in the near future which offers the AR experience.

S12 I will recommend the AR-enabled brands to others.

S13 I would rate my overall experience of using AR technology on a scale of 1-10.

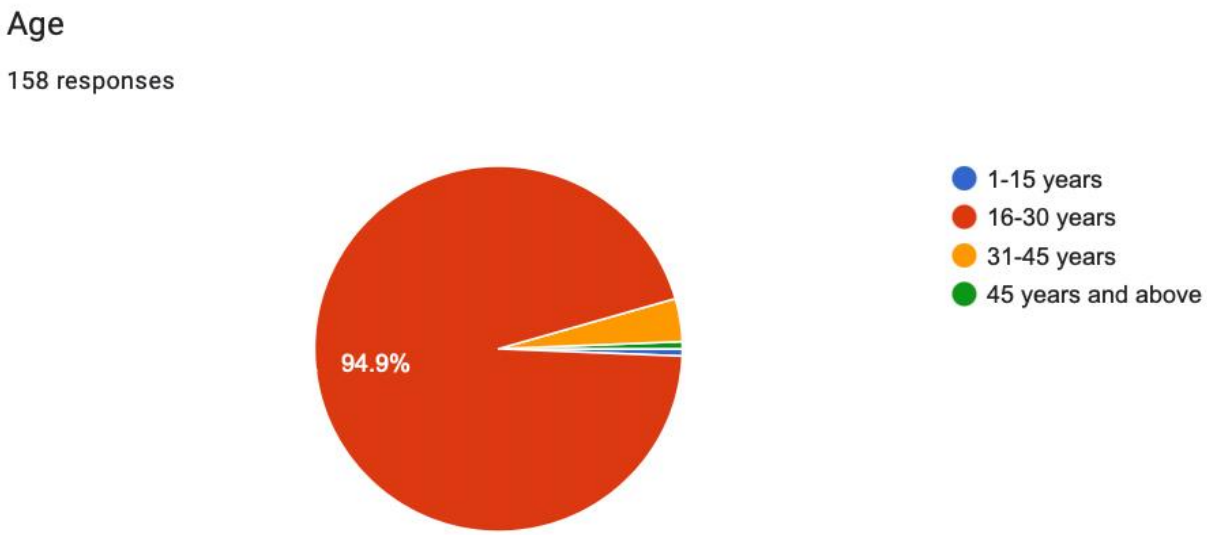
4.2 Data Analysis

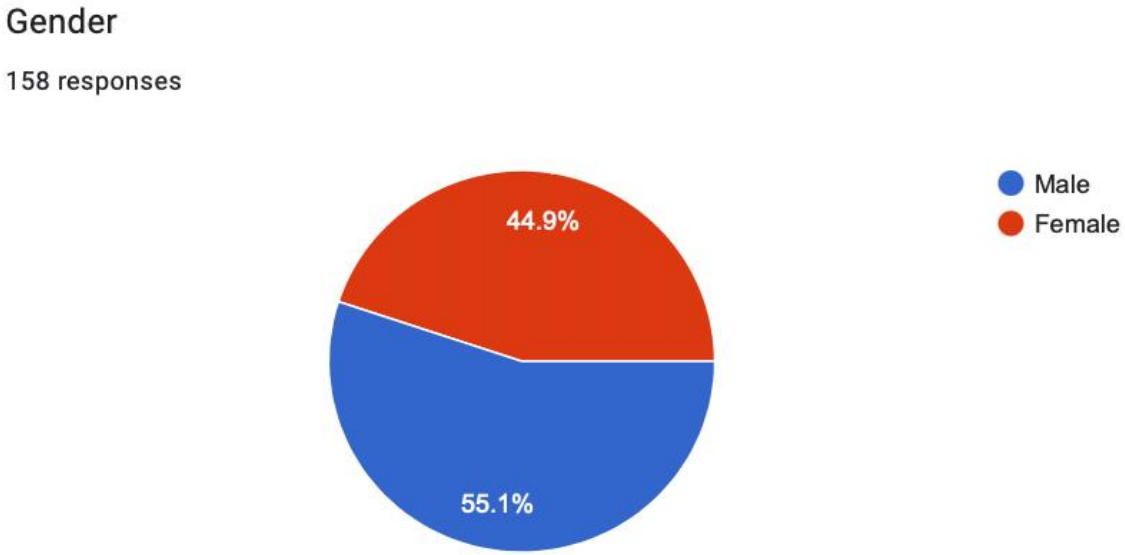
Data analysis is the process of cleaning, organizing, and interpreting the data to get valuable insights that can be put into action to get the desired results.

The data gathered is analysed in this part to determine how users feel about Lenskart's augmented reality experience.
We will investigate the connections between user demographics (gender, age, and occupation) and survey responses.
Depending on the data, the analysis will use methods like ANOVA, linear regression, and chi-square testing.

A breakdown of demographics

The demographic profile of research participants is analysed in this section to identify the user characteristics related to Lenskart's augmented reality experience. We gathered information by giving 158 participants a questionnaire. We shall start by outlining the participants' demographic characteristics.
To illustrate the distribution of age groups, genders, and occupational categories, charts and graphs will be used.





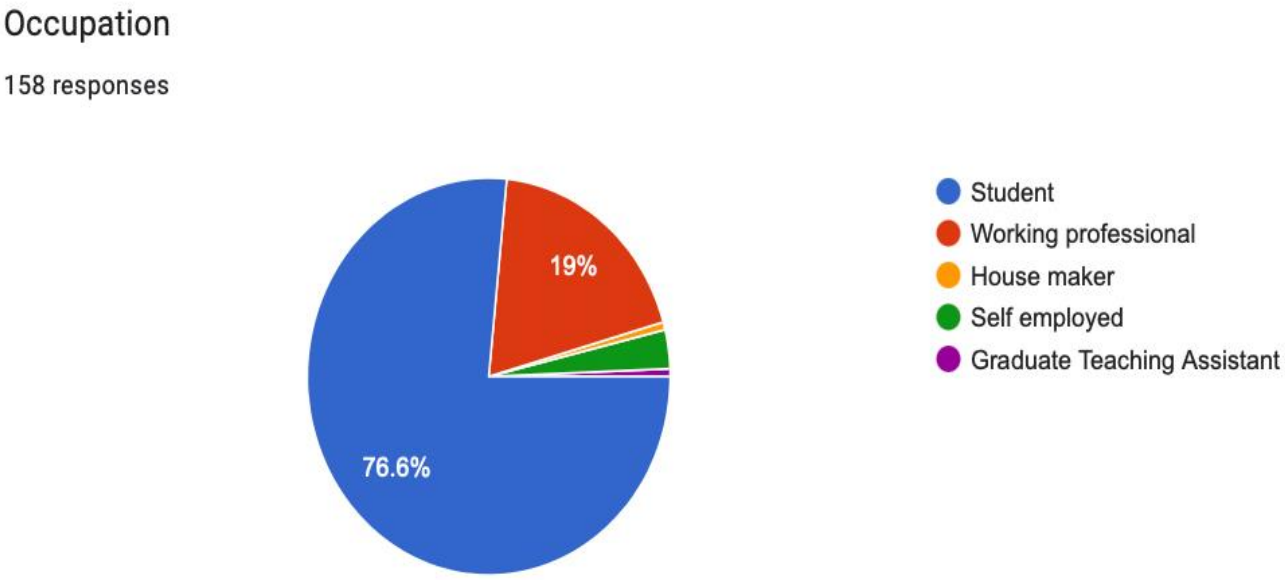


Figure 4.1: Demographic profile of research participants

The participants were divided into a number of age categories, with the majority falling into the 16–30 age range (Figure 1). Of those surveyed, 44.9% identified as female and 55.1% as male (Figure 2). The participants' backgrounds ranged widely in terms of occupation, with working professionals and students having the highest prominence (Figure 3).

Analysis of Gender and Eyewear Use

To determine if gender is related to the usage of corrective eyewear (glasses, contacts, etc.), a chi-square test was performed.

The null hypothesis (H_0) stated that Gender has no significant association with the use of eyewear such as specs, glasses, lenses, etc.

In contrast, the alternative hypothesis (H_1) proposed that Gender has a significant association with the use of eyewear such as specs, glasses, lenses, etc.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.175[a]	1	.140		
Continuity Correction[b]	1.644	1	.200		
Likelihood Ratio	2.212	1	.137		
Fisher's Exact Test				.178	.099
N of Valid Cases	157				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 15.83.

b. Computed only for a 2x2 table

Figure 4.2: Analysis of Gender and Eyewear Use

According to the table provided, the chi-square test produced a statistic of $\chi^2 = 2.175$ with a significance level (p-value) of p =.140. We are unable to reject the null hypothesis since the p-value is higher than the generally recognized significance level of alpha =.05.

If the null hypothesis is not rejected in this situation, it means that there is insufficient data to draw the conclusion that gender and eyeglass use are statistically significantly correlated. Put otherwise, the data refutes the hypothesis that there is a relationship between gender and the usage of eyewear at the 5% significance level.

Analysis of Gender and the preferred mode of Buying Eyewear

The study employed a chi-square test of independence to examine the potential statistical significance of a relationship between gender (male or female) and the preferred method of purchasing eyewear—online versus in-person.

The null hypothesis (H_0) stated that Gender has no significant association with the preferred mode of buying eyewear.

In contrast, the alternative hypothesis (H_1) proposed that Gender has a significant association with the preferred mode of buying eyewear.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.967[a]	1	.325		
Continuity Correction[b]	.552	1	.458		
Likelihood Ratio	.984	1	.321		
Fisher's Exact Test				.349	.230
N of Valid Cases	157				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.04.

b. Computed only for a 2x2 table

Figure 4.3: Analysis of Gender and the preferred mode of Buying Eyewear

With one degree of freedom, the chi-square statistic (χ^2) is 9.67 (df). The reported p-value of 0.325 exceeds the widely accepted significance threshold of 0.05.

Since the null hypothesis cannot be ruled out because the p-value (0.325) is higher than 0.05. This indicates that, at the 5% significance level, there is no statistically significant correlation between gender and preferred methods of purchasing eyewear. Stated differently, there is insufficient evidence in the data to conclude that a person's gender influences their preference for eyewear purchases

Analysis of Age and Trying AR Technology in apps like Lenskart

To find out if there is a statistically significant correlation between age and using augmented reality (AR) in apps such as Lenskart, a chi-square test of independence was performed.

The null hypothesis (H_0) stated that Age has no significant association with trying AR technology in apps like Lenskart.

In contrast, the alternative hypothesis (H_1) proposed that Age has a significant association with trying AR technology in apps like Lenskart.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.375[a]	17	.137
Likelihood Ratio	30.165	17	.025
N of Valid Cases	157		

a. 33 cells (91.7%) have expected count less than 5. The minimum expected count is .34.

Figure 4.4: Analysis of Gender and Trying AR Technology in apps like Lenskart

17 degrees of freedom (df) and a chi-square statistic (χ^2) of 23.375 are present. The reported p-value of 0.137 is higher than the typical significance level of 0.05.

Since the null hypothesis cannot be ruled out because the p-value (0.137) is higher than 0.05. This indicates that, at the 5% significance level, there is no statistically significant correlation between age and attempting AR technology in apps such as Lenskart. Put otherwise, the data does not support the conclusion that users' age influences their decision to use AR technology in these apps.

Analysis of Occupation and the Primary Criteria for Selecting Eyewear

To determine whether there is a statistically significant correlation between the key criteria for choosing eyeglasses and occupation, a chi-square test of independence was performed.

The null hypothesis (H_0) stated that Occupation has no significant association with the Criteria for selecting eyewear

In contrast, the alternative hypothesis (H_1) proposed that Occupation has a significant association with the Criteria for selecting eyewear

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.474[a]	24	1.000
Likelihood Ratio	8.371	24	.999
N of Valid Cases	157		

a. 31 cells (88.6%) have expected count less than 5. The minimum expected count is .01.

Figure 4.5: Analysis of Occupation and the Primary Criteria for Selecting Eyewear

As a result, we fail to reject the null hypothesis. The chi-square statistic (χ^2) is 6.474 with 24 degrees of freedom (df), and the p-value—which is reported as 1.000—is higher than the commonly used significance level of 0.05. This means that, at the 5% significance level, there is no evidence to support the conclusion that people's primary criteria for choosing eyewear are influenced by their occupation.

The results table of the chi-square test also shows that the predicted counts of 31 out of 88.6% of the cells have values less than 5. In some cases, this can increase the p-value, making it more challenging to identify a meaningful association—particularly in large tables with numerous categories.

Analysis of Two-Way ANOVA for Interaction between Age and Gender on Overall AR Experience

To find out if age and gender have a statistically significant interaction effect on how much people enjoy using AR technology overall, a two-way ANOVA test was performed.

The null hypothesis (H_0) stated that Age and gender have no significant association with the overall experience of using AR.

In contrast, the alternative hypothesis (H_1) proposed that Age and gender have a significant association with the overall experience of using AR.

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using AR technology on a scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.030[a]	4	3.008	.778	.541
Intercept	667.507	1	667.507	172.730	.000
Age	7.392	2	3.696	.956	.387
Gender	.862	1	.862	.223	.637
Age * Gender	2.170	1	2.170	.561	.455
Error	587.396	152	3.864		
Total	9067.000	157			
Corrected Total	599.427	156			

a. R Squared = .020 (Adjusted R Squared = -.006)

Figure 4.6: Analysis for Interaction between Age and Gender on Overall AR Experience

The interaction factor (Age * Gender) in the ANOVA table has a p-value of 0.455, which is higher than the usually accepted significance level of 0.05.

Since the null hypothesis cannot be ruled out because the p-value (0.455) is higher than 0.05. This implies that age and gender have no statistically significant interaction effects on how AR technology is used overall. Stated differently, there is no indication from the data that the impact of age or gender on AR experience varies. The whole AR experience appears to be influenced differently by age and gender.

Analysis of Two-Way ANOVA for Interaction between Age and Occupation on Overall AR Experience

To find out if age and Occupation have a statistically significant interaction effect on how much people enjoy using AR technology overall, a two-way ANOVA test was performed.

The null hypothesis (H_0) stated that Age and Occupation have no significant association with the overall experience of using AR.

In contrast, the alternative hypothesis (H_1) proposed that Age and Occupation have a significant association with the overall experience of using AR.

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using AR technology on a scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.107[a]	7	3.015	.777	.608
Intercept	453.426	1	453.426	116.822	.000
Age	12.024	2	6.012	1.549	.216
Occupation	12.341	4	3.085	.795	.530
Age * Occupation	5.092	1	5.092	1.312	.254
Error	578.320	149	3.881		
Total	9067.000	157			
Corrected Total	599.427	156			

a. R Squared = .035 (Adjusted R Squared = -.010)

Figure 4.7: Analysis for Interaction between Age and Occupation on Overall AR Experience

The interaction factor (Age * Occupation) in the ANOVA table has a p-value (0.254) that is higher than the usually accepted significance level of 0.05. This shows that the overall experience of utilizing AR technology is not affected by the statistically significant interaction between age and occupation. Stated differently, there is no indication from the data that the impact of age and occupation on AR experience varies, and vice versa. The whole AR experience appears to be influenced independently by age and occupation.

Analysis of Two-Way ANOVA for Interaction between Occupation and Gender on Overall AR Experience

To find out if Occupation and Gender have a statistically significant interaction effect on how much people enjoy using AR technology overall, a two-way ANOVA test was performed.

The null hypothesis (H_0) stated that Occupation and Gender have no significant association with the overall experience of using AR.

In contrast, the alternative hypothesis (H_1) proposed that Occupation and Gender have a significant association with the overall experience of using AR.

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using AR technology on a scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28.660[a]	7	4.094	1.069	.386
Intercept	757.823	1	757.823	197.832	.000
Occupation	6.368	4	1.592	.416	.797
Gender	4.212	1	4.212	1.100	.296
Occupation * Gender	19.107	2	9.554	2.494	.086
Error	570.767	149	3.831		
Total	9067.000	157			
Corrected Total	599.427	156			

a. R Squared = .048 (Adjusted R Squared = .003)

Figure 4.8: Analysis for Interaction between Occupation and Gender on Overall AR Experience

The interaction factor (Occupation * Gender) in the ANOVA table has a p-value of 0.386, which is higher than the usually accepted significance level of 0.05.

Since the null hypothesis cannot be ruled out because the p-value (0.386) is higher than 0.05. This shows that there isn't a statistically significant interaction effect between gender and occupation on how AR technology is experienced overall. Stated differently, there is no indication from the data that the impact of gender or occupation on AR experience varies. The whole AR experience appears to be influenced differently by age and gender.

Transforming statements into two variables

Hedonic motivation:

1) I enjoy using AR technology.

2) In my opinion, the AR technology for trying on eyewear is very intuitive and user-friendly.

Purchase intention:

1) I will recommend the AR-enabled brands to others.

2) I will purchase the brand in the near future which offers the AR experience.

3) I can rely on AR technology for making the right decision for my purchase.

Regression Analysis for the Association between Hedonic Motivation, Purchase Intention, and Overall AR Experience

The study employed multiple regression analysis to investigate the potential significant relationships between hedonic motivation (HM) and purchase intention (PI) and the overall experience of utilizing augmented reality technology.

The null hypothesis (H_0) stated that Hedonic motivation and purchase intention have no significant association with the overall experience of using AR.

In contrast, the alternative hypothesis (H_1) proposed that Hedonic motivation and purchase intention have significant associations with the overall experience of using AR.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627[a]	.393	.385	1.537

a. Predictors: (Constant), HM, PI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	235.483	2	117.741	49.821	.000[b]
	Residual	363.944	154	2.363		
	Total	599.427	156			

a. Dependent Variable: I would rate my overall experience of using AR technology on a scale of 1-10.

b. Predictors: (Constant), HM, PI

Figure 4.9: Association between Hedonic Motivation, Purchase Intention, and Overall AR Experience

The hedonic motivation and purchase intention variables account for approximately 39.3% of the variance in the total AR experience, according to the model summary table's R-squared value of 0.393. The null hypothesis is rejected since the p-value for the F-statistic (0.000) is smaller than the usually accepted significance level of 0.05.

Since the null hypothesis can be rejected since the p-value (0.000) is less than 0.05. This implies that hedonic motivation, purchasing intention, and the total AR technology experience are statistically significantly correlated. To put it another way, those who find augmented reality (AR) entertaining and easy to use (hedonic motivation) and those who plan to suggest brands that utilize AR or who rely on AR to make purchases (purchase intention) typically have a more favorable overall experience with AR technology.

5 FINDINGS AND RECOMMENDATIONS

5.1 Findings

Demographics: Most participants were between the ages of 16 and 30, with a fairly equal distribution of men and women. Students and working professionals made up the bulk of the occupations.

Gender and Eyewear Use/Purchase means: Neither the use of eyewear nor the favored means of acquiring it were found to be statistically correlated with gender. This implies that gender is not a significant factor in these areas.

Age and Adoption of AR Technology: Age was not statistically significantly correlated with using AR features in apps such as Lenskart. When deciding whether to use augmented reality to buy for eyewear, age appears to have less of an impact.

Occupation and Eyewear Selection Criteria: The main factors used to choose eyewear were not statistically significantly impacted by occupation. Most people's selections of eyewear are probably not greatly influenced by their jobs.

Interaction Effects on Overall AR Experience: The analyses did not find any statistically significant interaction effects on the overall AR experience between gender, age, and occupation. These elements appear to have separate effects on consumers' perceptions of augmented reality technologies.

Hedonic Motivation & buy Intention: The total AR experience was substantially correlated with both hedonic motivation (enjoyment and user-friendliness) and buy intention (recommendation and purchase dependence). People who expressed more satisfaction, ease of use, and willingness to purchase expressed a more favourable experience with augmented reality.

5.2 Recommendations

Emphasis on User-Friendly and Engaging AR Experiences: Lenskart and other merchants ought to place a high priority on developing AR experiences that are entertaining, user-friendly, and educational in addition to being informative. Positive user experiences and intuitive design are essential for AR adoption.

Draw Attention to Benefits and Solve Issues: Promotional campaigns could highlight augmented reality technology's benefits, like improved product information and virtual try-on capabilities. Clear disclosure that addresses any privacy and security issues may also increase user confidence.

Target Relevant Demographics: In light of the results, Lenskart may choose to focus its augmented reality marketing efforts on younger consumers (16–30 years old), since they may be more receptive to experimenting with new technology.

Customize the AR Experience: Depending on user preferences and demographics, future study may investigate how to make the AR experience more unique. This could entail customizing virtual try-on features or product recommendations to meet the needs of each individual.

Examine the Impact of Other characteristics: Although gender, age, and occupation did not demonstrate significant interaction effects, more research may be needed to determine the influence of other characteristics, such as technical proficiency or prior exposure to AR technology, on the overall AR experience.

6 LIMITATIONS AND CONCLUSION

6.1 Limitations

Sample Size and Generalizability: It's possible that the study's sample size is insufficient to fully reflect the target population. The results might not apply to all prospective Lenskart users in all demographics and geographical areas.

Self-Reported Data: The study used self-reported data from questionnaires, which is prone to biases such memory recall problems or social desirability.

Restricted Analytical Scope: The study concentrated on particular variables such as occupation, gender, and age. We did not investigate other factors that might have affected the overall AR experience, like technical proficiency or previous AR exposure.

Cross-Sectional Design: Data is collected using a cross-sectional design, which was used in this study. It is unable to determine if one variable causes another or how opinions on augmented reality technologies might evolve over time.

6.2 Conclusion

This study examined how users perceived and used augmented reality (AR) in the context of purchasing eyewear, with a particular emphasis on Lenskart. Hedonic motivation (enjoyment and user-friendliness) and purchase intention were positively associated with the overall AR experience, despite the lack of significant correlations between age and the decision to use AR for eyewear shopping or between gender and either of the two categories. According to these results, consumers who find augmented reality (AR) technology entertaining and easy to use, who plan to advise brands that utilize AR, or who rely on AR to make purchases, generally have a better overall experience.

The most significant points learned include:

- The key elements driving the adoption of AR are enjoyment and user-friendliness.

- Privacy and security concerns could prevent people from using AR.

- Younger age groups (16–30) might be more open to using augmented reality technology.

Potential opportunities for future investigation include:

- Investigating how to tailor the augmented reality experience to the preferences and demographics of the user.
- Looking into how certain elements, such as technical know-how or past exposure to augmented reality, affect the overall AR experience.
- Utilizing longitudinal study approaches to comprehend the evolution of user attitudes and actions about augmented reality technologies.

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