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Term Project Report on
Impact of Augmented Reality (AR) on Customer
Buying Decisions in India

Submitted By:

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Under the Guidance of:

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CERTIFICATE

I, Dr. Rajan Yadav, hereby certify that Ms. Sakshi Sharma Roll No. 2K22/EMBA/20 of Delhi School of Management, Delhi Technical University, Bawana Road Delhi – 110042 of EMBA 2022-2024 has submitted project on “Impact of Augmented Reality on Customer Buying Decisions in India” to Delhi School of Management towards the requirement of MBA program.

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DECLARATION

I, Sakshi Sharma Roll No. 2K22/EMBA/20 student at Delhi School of Management, Delhi Technical University, Bawana Road Delhi – 110042 studying in EMBA 2022-2024 hereby declare that I have completed the project on “**Impact of Augmented Reality on Customer Buying Decisions in India**” during the semester 3rd of academic year 2022-2024 under the guidance of project guide Dr. Rajan Yadav. The information submitted is true and original to the best of my knowledge.

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Delhi Technological University

ACKNOWLEDGEMENT

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I sincerely thank to all of them in helping me to carrying out this project work. Last but not the least, I wish to avail myself of this opportunity, to express a sense of gratitude and love to my friends and my beloved parents for their mutual support, strength, help for everything.

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ABSTRACT

This study embarked on an exploratory journey into the dynamic world of Augmented Reality (AR) and its influence on customer buying decisions in the Indian market. Utilizing primary data collected through an online survey, the research rigorously examined the extent to which AR technology in shopping environments affects consumer engagement, satisfaction, and purchasing behavior. The investigation centered around the hypothesis that AR technology significantly enhances the shopping experience, leading to positive buying decisions, with a particular focus on the role of enhanced product visualization in fostering higher customer engagement and satisfaction.

A carefully selected sample of 100 participants provided a comprehensive array of insights. The study explored demographic differences, revealing intriguing trends across various age groups and genders. The validity of the findings was verified through statistical analysis, using chi-square test, which underscored the statistical significance of the results in supporting the hypotheses.

The first hypothesis posited that customers are highly likely to make a purchase when brands offer AR technology for product visualization. This indicates a strong inclination among buyers towards interactive and immersive shopping experiences provided by AR.

The second hypothesis checks the perception that AR leads to a significant increase in customer engagement and satisfaction. Consumers reported a heightened sense of confidence in their purchasing decisions when they utilized AR tools for product visualization, emphasizing the technology's role in reducing the ambiguity associated with online shopping.

Finally, the third hypothesis concluded that AR technology is a powerful influencer in the buying process. The allure of AR not only captivates but also retains customer interest, thereby positively impacting sales.

In essence, this study unveils the transformative potential of AR in reshaping the retail landscape in India, highlighting its pivotal role in augmenting customer experiences, and influencing buying decisions.



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CHAPTER 1: INTRODUCTION

Augmented Reality (AR) is a cutting-edge technology that overlays digital information onto the physical environment, enhancing the real world with computer-generated perceptual information. This can be visual, auditory, haptic, or a combination thereof, effectively blurring the line between the physical and digital worlds. AR's capacity to create immersive experiences has found applications across various industries, ranging from entertainment and education to healthcare and retail.

Globally, AR technology is redefining consumer experiences, but its impact is particularly noteworthy in the burgeoning Indian market, characterized by a rapidly growing digital infrastructure and an increasingly tech-savvy consumer base. In India, AR is not just a technological advancement; it's a paradigm shift in how consumers interact with brands and make purchasing decisions.

At its core, AR in retail and e-commerce revolves around enhancing customer engagement and product visualization. Unlike traditional online shopping experiences, AR provides customers with a more interactive and immersive way to view products, which in turn can significantly influence their purchasing decisions. This technological leap is particularly relevant in India, where digital adoption is growing exponentially, and consumers are constantly seeking more enriched and engaging shopping experiences.

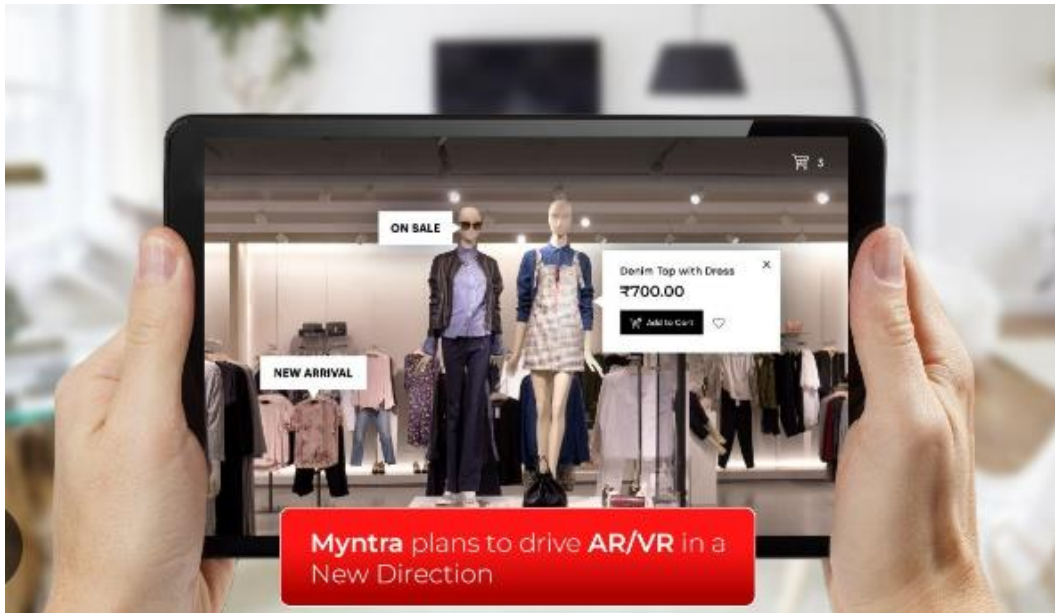
The potential of AR in the Indian market is vast. From virtual try-ons in fashion to 3D visualizations of furniture in real environments, AR is bridging the gap between the physical and digital realms of retail. Such applications not only enrich the customer experience but also empower them with detailed product insights, leading to more informed purchase decisions.

Few examples from the Indian Market:

- Furniture: **Pepperfry** uses AR to help customers visualize furniture in their homes before they buy. Customers can scan a QR code on a furniture item in-store or at home to see it overlaid in their space.

- Clothing: **Myntra** has an AR feature that allows customers to see how clothes look on them before they buy them. Users can scan a QR code on a clothing item or take a picture of themselves and see the clothes overlaid on their body.
- Jewellery: **Tanishq** uses AR to allow customers to try on jewellery virtually. Users can scan a QR code on a jewellery item or take a picture of themselves and see the jewellery overlaid on their body.
- Travel: **MakeMyTrip** uses AR to allow customers to explore hotels and destinations in detail. Users can scan a QR code on a hotel or destination page to see a 3D model of the location.

Pepperfry Blog



1.1: BACKGROUND

Augmented Reality (AR) represents a significant advancement in how technology intersects with and enhances everyday experiences, particularly in the realm of consumer shopping. This innovative technology overlays digital information – images, sounds, and other sensory enhancements – onto the real world, creating a composite view that augments the natural environment. In the retail sector, AR has become a pivotal tool for bridging the gap between physical and digital shopping experiences, offering a unique blend of convenience and interactivity.

AR's significance in the retail landscape is rooted in its ability to transform traditional shopping methods. It offers customers a more engaging and immersive experience, which is especially pertinent in an increasingly online shopping world. This technology allows consumers to visualize products in their own space or on themselves, thus providing a more realistic feel of the product before making a purchase.

1.2: PROBLEM STATEMENT

Despite the growing integration of Augmented Reality (AR) in the retail sector, there is a notable gap in understanding its specific impact on customer buying decisions in the Indian market. While AR's potential to transform shopping experiences is acknowledged, its direct influence on consumer engagement, satisfaction, and purchasing behavior in India remains underexplored. This lack of comprehensive research creates a crucial need to investigate how AR technology, particularly in product visualization, affects the Indian consumers' decision-making process in the context of their unique market dynamics.

1.3: OBJECTIVE OF THE STUDY

The primary objective of this study is to evaluate the impact of Augmented Reality (AR) on customer buying decisions in India.

The study specifically aims to:

- a) Assess the degree to which AR technology in retail influences customer engagement and satisfaction in the Indian consumer market.
- b) Determine the effectiveness of AR in enhancing the shopping experience and its subsequent influence on the likelihood of making a purchase.
- c) Analyze the role of AR in reducing uncertainty and increasing confidence in online shopping decisions.
- d) Investigate the broader implications of AR technology on the retail landscape in India, particularly in terms of customer retention and sales enhancement.

1.4: SCOPE OF STUDY

The study targets a demographic range that reflects the diversity of the Indian market, including different age groups, genders, and urban and rural divisions. This diverse demographic approach ensures that the insights and conclusions drawn are reflective of the broader Indian consumer base. The focus on India as a geographical region is particularly pertinent given the country's rapidly expanding digital infrastructure and its emerging status as a hub for technological innovation in retail.

By delving into the various facets of how AR influences consumer behaviour in India, from engagement and satisfaction to the likelihood of making a purchase, the study aims to contribute significantly to the understanding of AR's role in modern retail. The findings are expected to provide valuable insights for retailers, marketers, and technology developers looking to harness the potential of AR in enhancing customer experiences and driving purchase decisions.

The scope of the study is thus defined by its focus on the Indian market, its comprehensive demographic coverage, and its emphasis on the diverse applications of AR in retail. Through this study, a deeper understanding of the transformative power of AR in the Indian retail landscape will be sought, offering a blueprint for future research and implementation in this field.

CHAPTER 2: LITERATURE REVIEW

The literature review for this study delves into existing research and scholarly articles that explore the impact of Augmented Reality (AR) technology on consumer behaviour, with a particular focus on its influence in the retail sector. Key areas of interest include studies on AR's role in enhancing customer engagement and satisfaction, its effectiveness in product visualization, and its overall influence on the shopping experience and purchasing decisions.

Several studies have highlighted the potential of AR to revolutionize the retail experience by providing consumers with immersive and interactive product interactions. Javornik (2016) in "Augmented Reality: Research Agenda for Studying the Impact of its Media Characteristics on Consumer Behaviour" discusses the unique media characteristics of AR and how they contribute to creating engaging user experiences.

Another pivotal study by Poushneh and Vasquez-Parraga (2017), "Augmented Reality in Retail: A Literature Review and Future Research Agenda," emphasizes the role of AR in enriching the online shopping experience and reducing the uncertainty associated with it.

Research specific to the Indian market is somewhat limited. I couldn't find one specific to the Indian market. There is a rising tide of AR technology among Indian consumers, driven by the increasing penetration of smartphones and internet usage. My study aims to provide crucial insights into how AR technology is being received in emerging markets like India and its potential to influence consumer behaviour.

CHAPTER 3: RESEARCH METHODOLOGY

This study on the impact of Augmented Reality (AR) on customer buying decisions in the Indian market primarily relies on primary data. The data was collected through a structured online questionnaire, designed to gauge a wide range of responses regarding the influence of AR technology in shopping environments on consumer behavior, particularly focusing on engagement, satisfaction, and purchasing decisions.

3.1: Data Collection

The questionnaire was methodically crafted to extract both qualitative and quantitative insights into the consumers' perceptions and interactions with AR technology. The survey included a series of questions relating to demographic details such as age, gender, and location, followed by specific inquiries concerning the participants' familiarity with, and usage of, AR technology in various shopping scenarios. The questions were structured to evaluate the impact of AR on different facets of the shopping experience, including product visualization, engagement level, satisfaction, and purchase likelihood.

3.2: Sample Size and Demographics

A total of 90 responses were collected, providing a diverse representation of the Indian consumer base. This sample size was determined to be sufficient for a preliminary investigation into the subject matter. Responders were segmented based on demographic characteristics to understand the diverse perceptions and interactions different groups have with AR technology.

3.3: Questionnaire Design

The questionnaire comprised 20 questions, segmented into various categories:

- **Demographic Information:** Questions 1-4 gathered basic demographic data.
- **AR Familiarity and Usage:** Questions 5-6 aimed to assess the respondents' familiarity with and frequency of using AR technology.
- **Impact on Buying Decision:** Questions 7-10 focused on AR's influence on the purchasing process.
- **Engagement and Satisfaction:** Questions 11-14 explored the engagement level and satisfaction with AR product visualization.
- **Post-Purchase Perspective:** Questions 15-16 evaluated the impact of AR on post-purchase satisfaction and product return likelihood.

- **Future Prospects and Recommendations:** Questions 17-20 gauged the future outlook and potential recommendations for AR in shopping.

Respondents rated their answers on a scale ranging from highly likely/engaged/satisfied to highly unlikely/not engaged/dissatisfied, allowing for a nuanced analysis of attitudes and perceptions towards AR in the Indian market.

3.4: Statistical Analysis

To ascertain the statistical significance of the responses, the chi-square test of statistical significance was employed. This test is instrumental in determining whether the observed distribution of responses differs significantly from what might be expected under normal circumstances. It allows for drawing conclusions about the population based on the sampled data and is particularly useful in analyzing categorical data, as in this study.

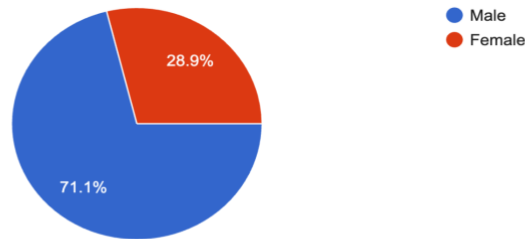
In summary, this research methodology incorporates a structured survey, a diverse sample size, and robust statistical analysis. The primary aim is to thoroughly investigate and understand the impact of AR on customer buying decisions in the Indian market, based on primary data collected from a representative sample. The findings from this study will contribute to the broader understanding of AR's role in modern retail, particularly in the rapidly evolving Indian market.

CHAPTER 4: DATA ANALYSIS AND INSIGHTS

Based on the descriptive statistical analysis:

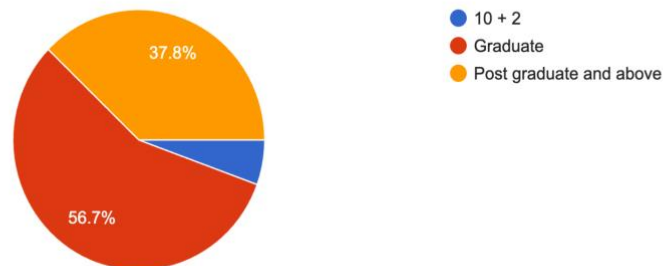
- **Gender:** Out of 90 respondents, 64 are male and 26 are female.

Gender
90 responses



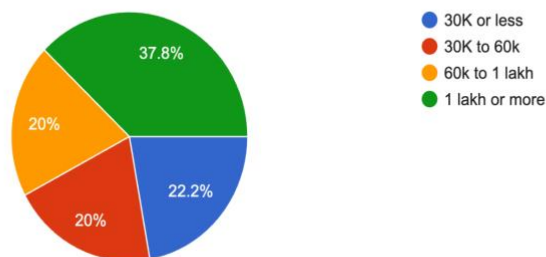
- **Education Qualification:** The majority of respondents are graduates (51), followed by those with postgraduate or higher qualifications (34), and a small portion with 10+2 level education (5).

Education qualification
90 responses



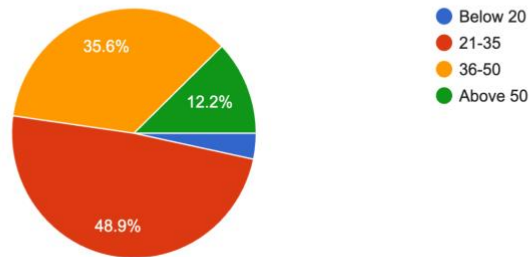
- **Income Level (per month):** The income levels are fairly distributed with 34 earning 1 lakh or more, 20 earning 30K or less, and both 60K to 1 lakh and 30K to 60K categories have 18 respondents each.

Income level (per month)
90 responses



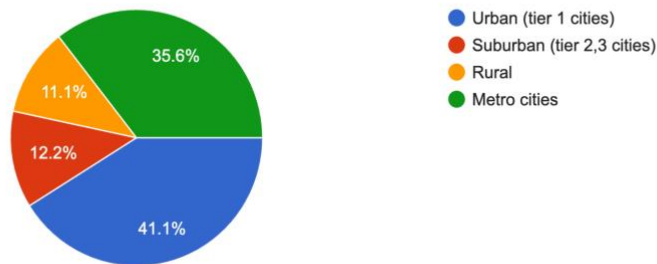
- **Age Group:** The predominant age group of respondents is 21-35 (44), followed by 36-50 (32), with fewer respondents above 50 (11) and below 20 (3).

What is your age group?
90 responses

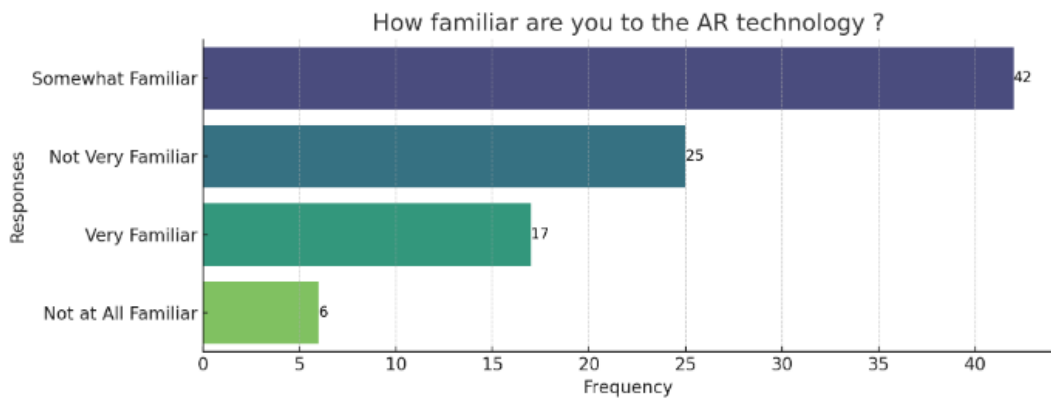


- **Type of Area:** Most respondents live in urban (tier 1 cities) (37) and metro cities (32), with fewer from suburban (tier 2,3 cities) (11) and rural areas (10).

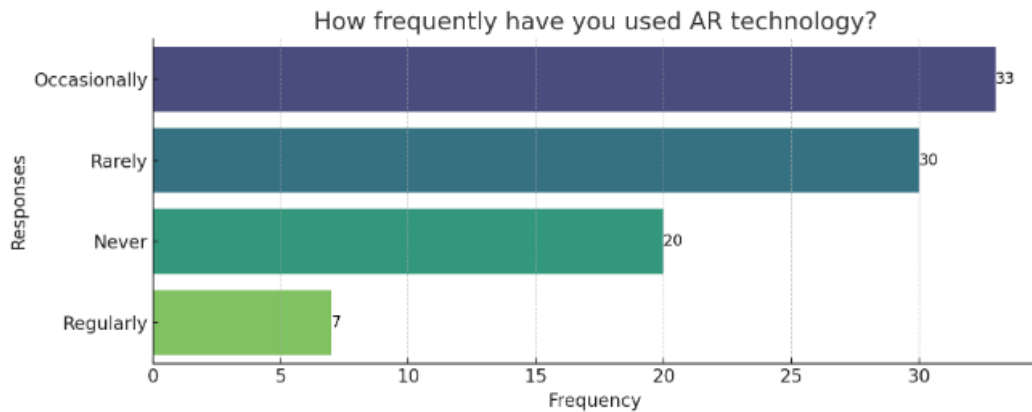
What type of area you live in?
90 responses



Familiarity with AR technology: Only 6 out of 90 responders are completely unfamiliar with the AR technology. So, ~95% of our responders are familiar with AR.



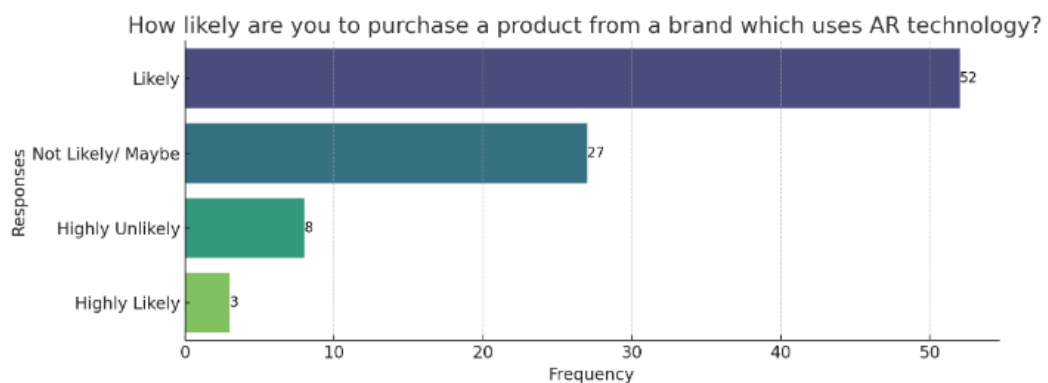
Frequency of AR experience: 20 out of 90 (22%) responders have never experienced AR first-hand. Also, around 70% people have only experienced it rarely/ occasionally. This tells us that even though majority of people are familiar with AR as a concept but only a few of them have used or experienced it first-hand.

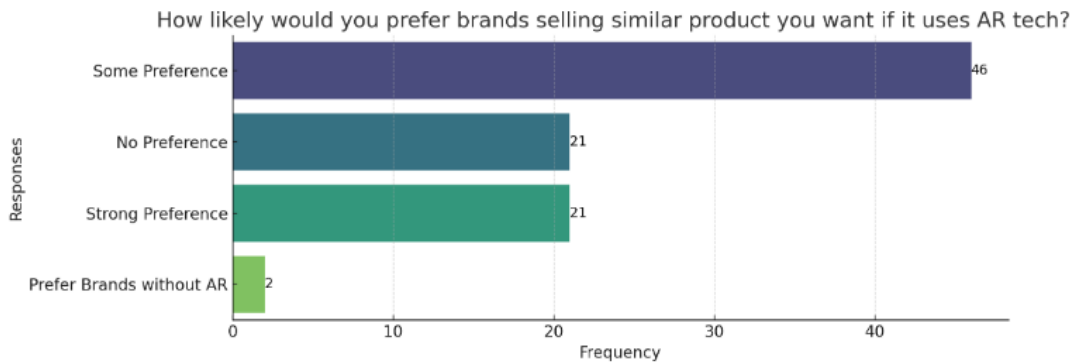
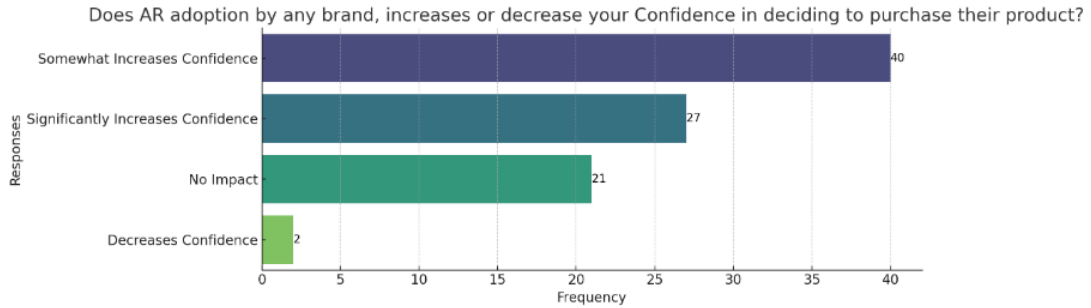


Let's start with testing our hypothesis for statistical significance. If all 3 hypotheses are statistically significant, we can confidently state our final insights from them.

- **Hypothesis 1:** The use of AR technology in shopping experiences significantly influences customer buying decisions in the Indian market.

For this, we'll look at the response from questions in the section: **Impact on Buying Decision**. If the results are statistically significant, we can say AR technology has an impact on the customer's buying decision. I will use chi-squared test of statistical significance. I am using the responses from the following 3 questions for this hypothesis:





Null Hypothesis: There is no effect of AR technology on consumer buying decision in Indian market.

Merging the responses from the above 3 questions:

Strongly Positive	51
Positive	138
Neutral	69
Negative	12

	Strongly agree	Agree	Neutral	Disagree
Observed (O)	51	138	69	12
Expected (E)	67.5	67.5	67.5	67.5
O-E	-16.5	70.5	1.5	-55.5
(O-E) ²	272.25	4970.25	2.25	3080.25
((O-E) ²)/E	4.033333333	73.63333333	0.033333	45.63333

$$\chi^2 = 123.33$$

Degree of freedom 3

Significance 0.05

Critical Value	7.815
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Since, 123.3 > 7.815 i.e. $\chi^2 >$ critical value

We can reject the Null Hypothesis.

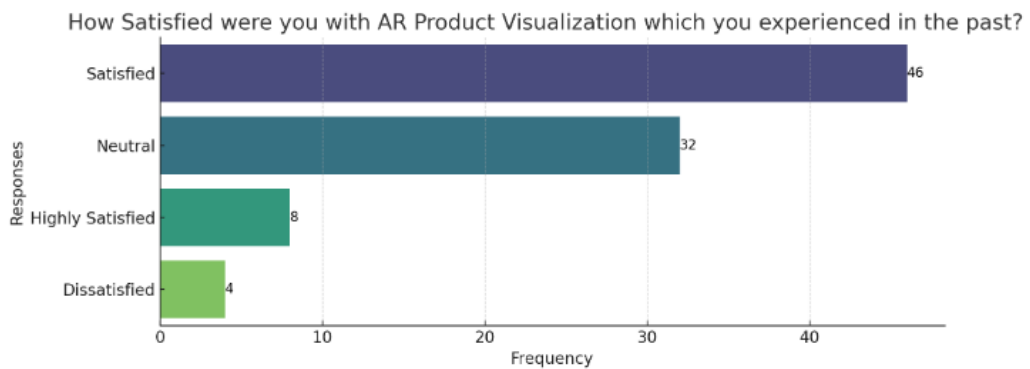
So, our results are statistically significant.

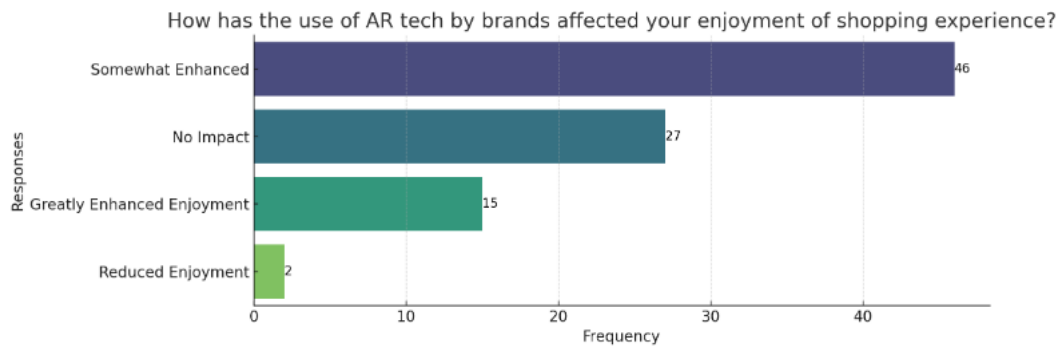
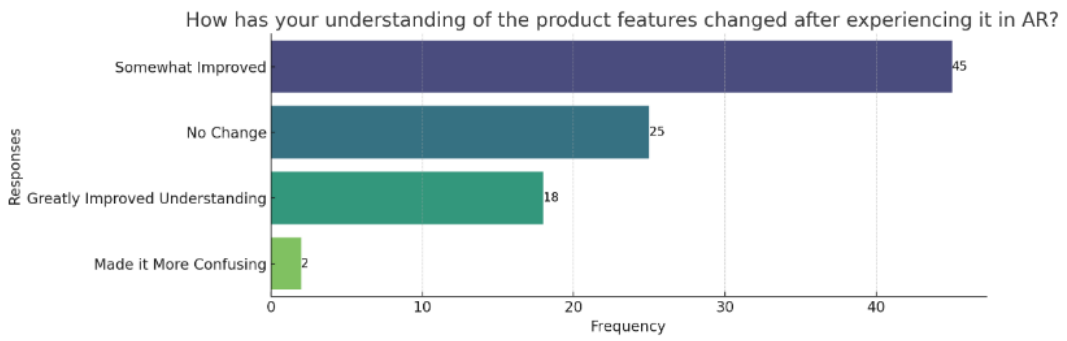
Strongly Positive	51
Positive	138
Neutral	69
Negative	12

That means, there is a strong positive correlation between use of AR technology in shopping experiences and the corresponding influence on customer buying decisions in the Indian market. (Insight #1)

- **Hypothesis 2:** AR leads to a significant increase in customer engagement and satisfaction.

Here, we'll assess the engagement with the AR shopping experience and the satisfaction with AR product visualization. For this, I am using the responses from the following 3 questions:





Merging the responses from the above 3 questions:

Strongly Positive	41
Positive	137
Neutral	84
Negative	8

Null Hypothesis: NO effect of AR technology on customer engagement and satisfaction of buying the product.

	Strongly agree	Agree	Neutral	Disagree
Observed (O)	41	137	84	8
Expected (E)	67.5	67.5	67.5	67.5
O-E	-26.5	69.5	16.5	-59.5
(O-E) ²	702.25	4830.25	272.25	3540.25
((O-E) ²)/E	10.4037	71.55926	4.033333	52.44815

$$\chi^2 = 138.44$$

Degree of freedom	3
Significance	0.05
Critical Value	7.815

Here, $138.44 > 7.815$. that means, $X^2 > \text{critical value}$.

Hence, we can reject the NULL hypothesis.

So, our results are statistically significant.

Strongly Positive	41
Positive	137
Neutral	84
Negative	8

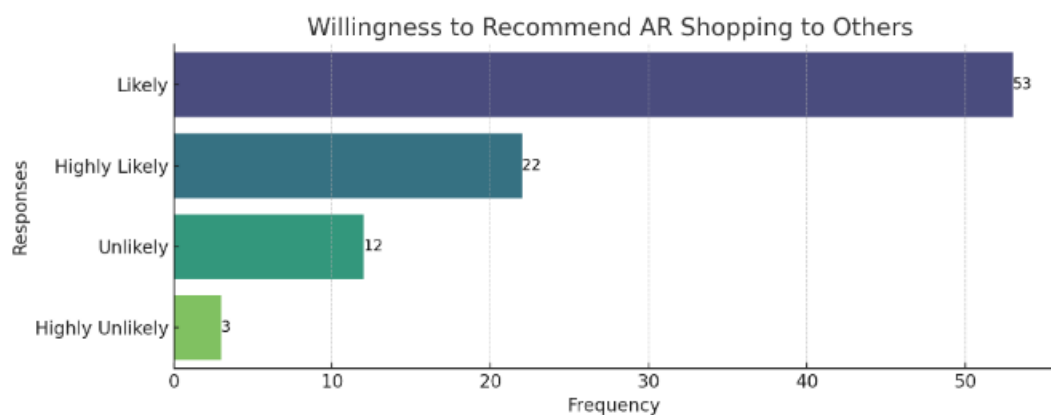
- **So, from the above results we can easily say, that use of AR tech, while shopping leads to a significant increase in the customer engagement and satisfaction. (Insight #2)**
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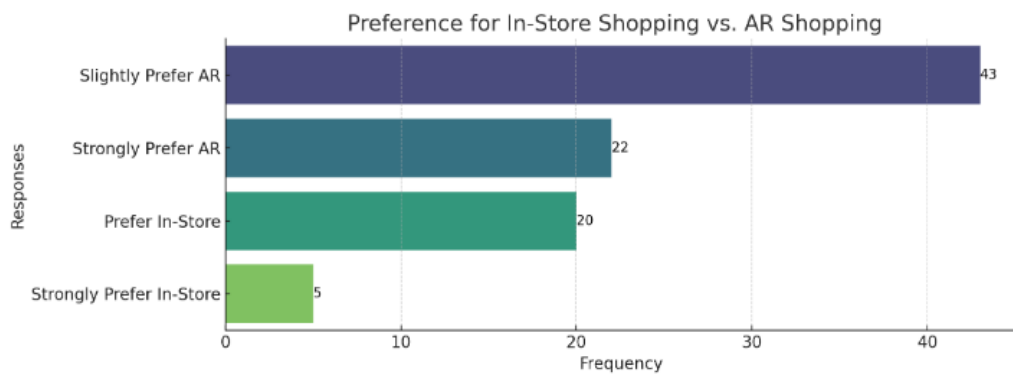
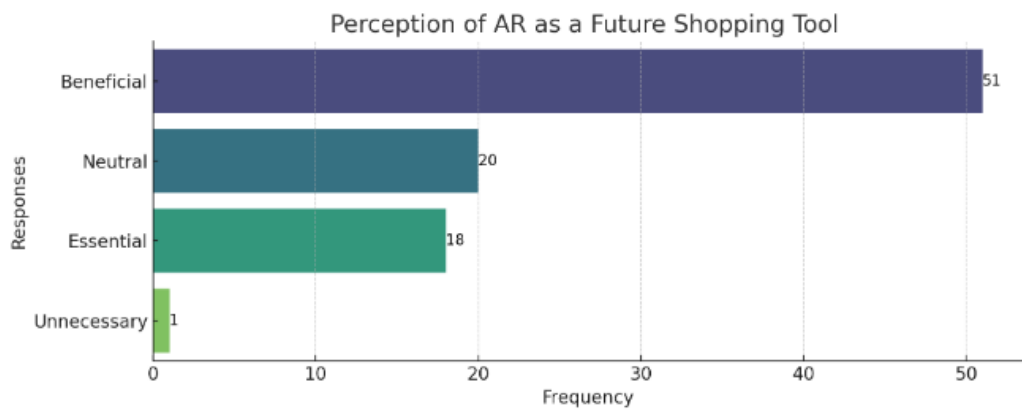
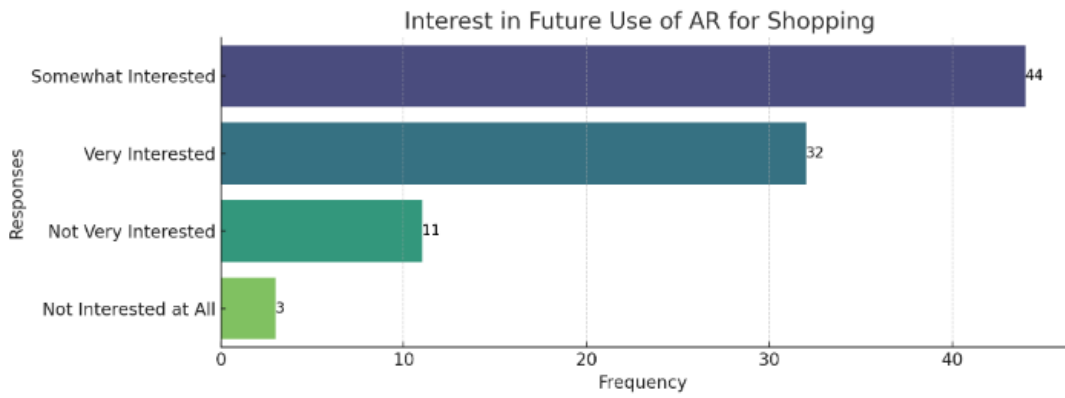
- **Hypothesis 3:** AR technology is a powerful influencer in the buying process.

We'll examine how AR technology affects the enjoyment of the shopping experience and the willingness to recommend AR shopping to others.

Let's start with our NULL Hypothesis: NO effect of AR technology on customer engagement and satisfaction of buying the product.

For this test, I will use the responses from the following 4 questions:





Result set:

Strongly Positive	94
Positive	191
Neutral	63
Negative	12

	Strongly agree	Agree	Neutral	Disagree
Observed (O)	94	191	63	12
Expected (E)	90	90	90	90
O-E	4	101	-27	-78
(O-E) ²	16	10201	729	6084
((O-E) ²)/E	0.177778	113.3444	8.1	67.6

$$\chi^2 = 189.2222$$

Degree of freedom	3
Significance	0.05
Critical Value	7.815

Since, $189.2 > 7.815$
 We get, $\chi^2 >$ critical value, in this case as well.

We can reject the NULL hypothesis.

Strongly Positive	94
Positive	191
Neutral	63
Negative	12

Now that we know the above results are statistically significant.

So, from the above results we can easily calculate, (Strongly positive + Positive/total) == 79.1% of the responders have a positive influence/ experience of AR technology in their buying process. (Insight #3)

CHAPTER 5: CONCLUSION

Here are the major findings of the study:

1. The chi-squared test of significance of three of our hypotheses tells us that results of this study are statistically significant.
2. From the result set of hypotheses #1, we concluded that: *there is a strong positive correlation between use of AR technology in shopping experiences and the corresponding influence on customer buying decisions in the Indian market.*
3. From the result set of hypotheses #2, we concluded that: **use of AR tech, while shopping leads to a significant increase in customers' engagement and satisfaction.**
4. From the result set of hypotheses #3, we concluded that: **AR technology has a positive influence on customers' overall buying decision.**

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