

LEARNER NUMBER	51699044
NAME	Isabelle Ferreira Cruz Soares
COURSE	Bachelor of Arts (Honours) in Marketing
DISSERTATION TOPIC	Virtual Reality and Augmented Reality in Marketing and Society's Acceptance
SUPERVISOR	Raza Butt
WORD COUNT	5,792
DUE DATE	27/11/2022

I certify that:

I consent to having my dissertation be retained in the library for the purpose of future research. Yes ☒ No ☐

[Note that if no check boxes are selected, this dissertation will be regarded as NOT properly submitted, and may be subject to a late submission penalty]

INTELLECTUAL PROPERTY STATEMENT

By checking the box below: I/we (if submitting on behalf of a group) certify that this assignment is my/our own work and is free from plagiarism. I/we understand that the assignment may be checked for plagiarism by electronic or other means and may be transferred and stored in a database for the purposes of data-matching to help detect plagiarism. The assignment has not previously been submitted for assessment in any other module or to any other institution.

☒ Agree

Signature: Isabelle Ferreira

Date: 04/11/2022

Notes:



Virtual Reality and Augmented Reality in Marketing and Society's Acceptance

Compiled by:

Isabelle Ferreira Cruz Soares

Independent College Dublin

November 2022

Abstract

Virtual reality and augmented reality have changed from being extremely expensive to becoming accessible in the workplace, in classrooms, in video games, in retail, and in museums. It is feasible to gauge society's perceptions of VR and AR applications and their predictions for future development now that they are more widely used.

This paper examines some of the existing uses of augmented reality and virtual reality in marketing and related sectors and presents qualitative and quantitative research with the goal of determining if society is prepared to adopt these technologies into daily life.

Table of Contents

Chapter I	5
1. Introduction	5
1.1. Background of Research	5
1.2. Purpose of Study	6
1.3. Research Objectives	7
Chapter II	8
2. Literature Review	8
2.1. Current Applications in Marketing and Related Industries	8
2.1.1. Virtual Workplace	8
2.1.2. Marketing Education with Realistic Experiences	9
2.1.3 Immersive Museums	9
2.2. VR and AR Adding Value to Marketing Strategy	10
2.2.1. VR Increasing Revenue	10
2.2.2 Product Evaluation	10
2.2.3. Marketing Campaign	11
2.2.4. Tourism Campaign	11
2.3. Potential Risks	12
2.3.1. VR Sickness	12
2.3.3. Addiction	13
2.4. Price Range and Availability	13
2.5. Societal Impact of VR and AR	14
Chapter III	16
3. Methodology	16
3.1. Introduction	16
3.2. Philosophy Employed	16
3.3. Research Methodology	16
3.4. Data Collection Method	17
3.5. Sampling	17
Chapter IV	18
4. Findings and Discussion	18
4.1. Introduction	18
4.2. Data Analysis	18
Theme 1: How virtual reality and augmented reality is being used in marketing and related industries?	18
Theme 2: How can VR and AR add value to a company's marketing strategy?	21
Theme 3: What are the potential risks of VR & AR when they reach mass adoption?	22
Theme 4: Is virtual reality and augmented reality affordable?	23
Theme 5: Is society willing to accept and use virtual reality and augmented reality?	24

Chapter V	28
5. Conclusion and Limitations	28
5.1. Conclusion	28
5.2. Limitations	28
5.3. Recommendations	29
Bibliography	29
Appendices	32
Appendix I: Informed Consent Form/Plain Language Statement	32
Appendix II: Online Survey Questions	33
Appendix III: Interview Transcript	36
Appendix IV: Ethical Form A	38

Chapter I

Virtual Reality & Augmented Reality in Marketing and Society's Acceptance

1. Introduction

Virtual reality has been developed over the past 20 years, but since the COVID-19 pandemic, it has gained more public attention and undergone dramatic technological advancement as a result of the worldwide order to stay at home and the closure of all organisations, which made any kind of human interaction difficult.

Virtual Reality (VR) is a computer-generated environment that immerses the viewer in their surroundings by using realistic-looking pictures and objects. By wearing a virtual reality helmet or headset, users can see this environment.

In augmented reality, real-world items are improved with computer-generated perceptual information, sometimes spanning many sensory modalities including visual, auditory, haptic, somatosensory, and olfactory, allowing an interactive experience of a real-world environment.

As a result, AR is frequently referred to as a Mixed Reality (MR) system since it does not seek to replace the real environment with a simulation. Using immersive technology, MR combines reality and virtuality, including augmented reality and augmented reality (Milgram, P. and Kishino, F., 1994)

The risks that such cutting-edge technology could pose to society must also be considered, as must the willingness of people from different generations to use it on a daily basis, at work, and for recreation.

1.1. Background of Research

I work in social media marketing, and I have noticed that since TikTok and other video platforms have become popular in recent years, society has changed toward video content

and information. For content to be appealing to the majority, it must be as engaging and quick as possible.

This was particularly true during the COVID-19 pandemic when society was put on lockdown and video chats became the main means of communication, as well as for shopping and even employment. I believe that all of these causes contributed to the further development of VR and AR, and this has sparked my curiosity in finding out more about these elements, how they affect society and companies, and any potential consequences they may have.

Because of many augmented reality polemic themes like people buying virtual properties, I think society is still concerned about how virtual experiences might replace real-life experiences. However, some people still do not understand the advantages of virtual reality for education, healthcare, and workforce training.

1.2. Purpose of Study

In order to understand what role VR and AR will play as society shifts to a more digitally focused environment, the purpose of this project is to identify and analyse the research on VR and AR conducted by various authors. It also aims to gather public opinion on various applications of VR and AR, particularly in marketing.

This is a significant topic that might affect society in a similar way to how social media did a few years ago. I want to investigate how this cutting-edge technology is now used in marketing and related fields in order to evaluate the advantages that it will present to society as a whole.

I believe it is equally vital to emphasise the advantages and disadvantages of virtual reality in terms of entertainment and immersion. I'm curious to know what people think of virtual reality and augmented reality, as well as if they would be comfortable with additional technology obstructing their real-world experiences.

1.3. Research Objectives

1. How can virtual reality and augmented reality be applied in marketing and related industries?
2. How might VR and AR improve a company's marketing strategy?
3. What are the disadvantages of VR and AR when they attain widespread adoption?
4. Determine if virtual reality and augmented reality are affordable.
5. Is society ready to adopt and employ virtual and augmented reality?

Chapter II

Virtual Reality & Augmented Reality in Marketing and Society's Acceptance

2. Literature Review

2.1. Current Applications in Marketing and Related Industries

Virtual and augmented reality utilised for games, like the well-known Pokemon Go, are becoming more understood in society, but this technology aims to transform humanity's future in far more ways than only for amusement.

As with every other crisis, Covid-19 stimulated creativity and expedited the development of VR technology since people were forced to work from home instead of going to the office. Organisations struggled to discover ways to gauge productivity and communicate with employees, while people found it difficult to be creative and pay attention when working anywhere other than the office due to a lack of social interaction.

Virtual reality was developed rapidly to address a variety of issues that businesses were facing as well as to offer entertainment and chances for people to participate and live realistic virtual lives. The following are some instances of VR and AR applications.

2.1.1. Virtual Workplace

According to Torro O., Jalo H. and Pirkkalainen H. (2021), earlier organisational trials with desktop-based virtual worlds were mainly ineffective in terms of garnering interest and immersion; however, sensory immersion in VR via the use of head-mounted displays (HMDs) may be considered as a significant step forward for businesses transitioning their operations to digital realities. Because there hasn't been much research done on it, VR has just recently developed to the point where it can be said to have a lot of promise for use in many organisations.

In addition, many 2D displays, such as whiteboards or virtual desktops, may be set up in a virtual environment to display a significant amount of information. Thus, users may customise their own geographic information system and optimise their potential by remembering key information more easily, especially in knowledge-intensive occupations.

2.1.2. Marketing Education with Realistic Experiences

The ability to see 3D content in an immersive setting is a powerful tool for increasing user comprehension of challenging subjects and situations. Users may become fully engaged in virtual material, which can include everything from the design of a movie scene to the chemical structure of a drug. (O. Torro, H. Jalo, and H. Pirkkalainen, 2021)

The results have been fantastic, and it has given those children access to a whole new range of options. The benefits include the fact that kids learn better when they have actual travel experiences and it fosters creativity and inventive thinking, and it results in more engaged students.

Studies by Drake-Bridges et al. (2011) in the field of marketing education have revealed the impact VR can have in the classroom by investigating retail applications through simulations like Second Life and by creating positive learning experiences through active learning techniques rather than passive ones, resulting in highly motivated students.

2.1.3 Immersive Museums

One of the biggest live event opportunities of the epidemic age, Van Gogh has grown to be a multi-million dollar possibility. With sold-out performances in Toronto, Chicago, San Francisco, Los Angeles, New York, and other cities, the original Immersive Van Gogh quickly attained blockbuster status as one of the hottest shows. The exhibition enables visitors to enter Van Gogh's world by illuminating his brushstrokes in a riot of colour, which is brought to life by 60,600 video frames, 90,000,000 pixels, and projections covering an area of more than 500,000 square feet. (PR Newswire, 2021)

2.2. VR and AR Adding Value to Marketing Strategy

VR marketing may help businesses close the gap between experience and action. They may substitute a digital experience for a physical one via virtual reality, which can be utilised to promote goods and services. VR may be used to market new products as well as demonstrate current developments. Below are a few examples of how VR and AR are increasing value in marketing strategy.

2.2.1. VR Increasing Revenue

Customers who utilised augmented reality (AR) during the session spent more time browsing and viewed more products than those who did not, according to research by Tan, R. Chandukala, and K. Reddy (2021). Customers that used AR on average viewed 1.28 times more goods and spent 20.7% longer on the app. More importantly, their likelihood of making a purchase during the session was 19.8% higher than that of clients who did not use augmented reality, showing that augmented reality may help businesses boost sales.

2.2.2 Product Evaluation

Customers may now digitally experience products in the absence of tangible objects due to the advancement of AR, controlling their expectations and fostering purchasing confidence (Porter, Michael E. and James E. Heppelmann, 2017).

For instance, Amazon and IKEA employ this technology to help customers decide if products or furniture pieces they buy online are appropriate for their present home design, and L'Oréal and Sephora use AR to demonstrate to buyers how various cosmetic products would look. Particularly during the lockdown when consumers were unable to access the stores, this is certainly a differentiating aspect between these businesses and the competitors, and having this tool makes it a beneficial addition to their purchasing decision.

Peukert C., Pfeiffer J., Meißner M., Pfeiffer T. & Weinhardt C. (2019) stated that "the VR environment can generate a variety of potential advantages, particularly for the retail

business. Similar to e-commerce websites, VR stores are not constrained by opening hours and are therefore accessible 24/7 from any place with Internet access."

However, sales might be hampered by AR if it gives the idea that the items will not fit well. The impact of AR on sales may be low due to the inability of the technology to convey experiential product attributes that may be crucial in making purchase decisions (such as product feel or aroma). Despite the fact that most organisations are aware of the exciting opportunities that AR offers, the lack of clarity surrounding its impact has been cited as one of the main reasons why they are still hesitant to use the technology.

2.2.3. Marketing Campaign

VR is a fantastic medium for narrating visual stories. The New York Times provided Google Cardboard glasses to all of its subscribers a few years ago so they could see a virtual reality film. They then repeated the procedure with new films. These glasses acted as a reward or incentive for brand loyalty because they were only offered to their most devoted customers. (The Verge, 2016)

This outstanding experience would have increased consumers' brand loyalty for all three of the products: the glasses, the New York Times, and the highlighted movie.

2.2.4. Tourism Campaign

As was previously mentioned, people may use virtual reality to travel to places they might not otherwise be able to afford. Travel agency Thomas Cook, located in the UK, developed a "Try Before You Fly" campaign that allowed agents to try out certain excursions before promoting them to customers.

Although this particular campaign may not have been a success, it serves as a great example of how VR marketing can be used in the B2B and B2C tourism industries. This is a growing trend these days since many companies are not just promoting the tourism component, but

also the fact that hotels can provide guests a firsthand account of what it's like to stay there. (The Drum, 2016)

2.3. Potential Risks

Along with growing interest in the virtual reality (VR) market, efforts to integrate VR into other sectors including cinema, gaming, and education are also on the rise. However, it is important to look into additional technology-related risks.

2.3.1. VR Sickness

Some users may have uncomfortable symptoms that resemble motion sickness while participating in VR sessions. The term "cybersickness," commonly referred to as "VR sickness," was coined by Eunhee Chang, Hyun Taek Kim, and Byounghyun Yoo (2020). Eye fatigue, confusion, and nausea are the main signs and symptoms of VR sickness. (LaViola Jr, 2000).

Many parents would be hesitant to allow their children to use virtual reality because of these symptoms, which are only a few of the many that society suffers from. Future VR experiences may be limited since VR sickness is seen as a pressing issue that has to be resolved.

Furthermore, studies show that the prevalence of nearsightedness rose from 25% in the 1970s to over 40% in the year 2000. In America, there are 10 million people who are considered to be "severely nearsighted."

"Looking at tablets, phones and the like, there's pretty good evidence that doing near work can cause lengthening of the eye and increase the risk for myopia,". Doctors affirm that they are worried that virtual reality might make things worse. (Academy of Ophthalmology, 2016)

To acquire a sample of how people feel about such symptoms and whether or not it would discourage them from using the device, this question was included in a quantitative study.

2.3.2. Altered Perception of Reality

According to Natalie Browning (2017), who has conducted research on the psychological impacts that virtual reality (VR) might have, "VR can be retained in the brain's memory centre in ways that are remarkably comparable to real-world physical experiences."

Nevertheless, this depends on the kind of virtual content you are consuming. Virtual reality may be instructive, entertaining, and useful, as was before said. On the other hand, the content could be rather violent. Popular VR games include gunfights, death, zombies, and a "virtual tour of hell."

Google's Daydream View (2022), which sells VR headsets, warns on its website health and safety page: "If the content is frightening, violent, or anxiety-provoking, it can cause your body to react physically, including increasing your heart rate and blood pressure. It can also, in some individuals, cause psychological reactions, including anxiety, fear, or even Post Traumatic Stress Disorder."

2.3.3. Addiction

Technology makes life more manageable, but research has shown a variety of major problems with this exposure (e.g., IT addiction and stress). The many types of addictions have also been studied in studies on technology addiction. Internet junkies are particularly prone to addictions to gambling, e-gaming, and porn. The use of virtual reality games might harm students' relationships with their families, education, and social life as well as increase the risk of VAD. (Balakrishnan J. and Griffiths M.D., 2018)

2.4. Price Range and Availability

The price of VR and AR varies depending on whether the customer wants a low-cost, mid-range, or high-end device, which may lead those who are inexperienced with it to feel

that it is an unaffordable technology. The Google Cardboard (GCB), a low-cost virtual reality gadget that costs about €12, has given educators and institutions a wide range of possibilities for developing immersive learning environments for 21st-century students. Premium headsets, like the HTC VIVE, are about €800.00.

Hussein, M., & Natterdal, C. (2015) performed research that demonstrates how VR technology has advanced from being out of reach for educational institutions to become accessible. The researchers state that using VR technology will enable students to apply their classroom learning to actual business issues. Students may develop 3D models in CAD and use them in a virtual environment thanks to Autodesk Showcase software. As a result, the cost of making the real models will be lower, and the students will be inspired to use their imaginations and evaluate the worth of their ideas.

By removing wasting resources and any damaging student blunders, VR technology in this industry will also lessen the danger of employing hazardous chemicals in the teaching process and lessen its impact on the environment. This technology is being used by several educational institutions for research and instructional purposes, which makes it more accessible and efficient. Though businesses were already working on VR head-mounted displays (HMDs), they were unsure of how people would react to or accept purchasing new technology.

It will, however, cost more than €24,995.00 if a buyer wants to buy an immersive room. The user may operate the light, music, vibration, fog, smells, and movies remotely (Experia, 2022). Qualitative research will be conducted further in this paper to analyse the price sensitivity of consumers when it comes to VR and AR.

2.5. Societal Impact of VR and AR

It is crucial that we comprehend the potential implications of virtual reality (VR) technology on consumers as well as how society is reacting to this technology as it reaches mainstream markets. Lavoie, R., Main, K., King, et al. (2021) conducted a pilot survey to examine players' emotional reactions while playing virtual reality games. The

results showed that some VR situations may really cause extremely unpleasant emotional experiences. Then, using the HTC Vive or a laptop computer, participants acted out an interactive scenario designed to evoke low to moderate levels of negative feelings.

A few hours later, a follow-up questionnaire revealed that there was a significant positive relationship between negative rumination and the intensified unpleasant sentiments brought on by VR (i.e., harmful self-related thoughts related to distress). These results suggest that VR gaming has the potential to elicit strong negative emotional reactions that, if well managed, may be dangerous to users.

As a consequence, it is revealed that there is an ethical issue with the usage of VR, as opposed to 2D video games, VR games are capable of intensifying the negative emotions created during gaming and causing them to persist after the gameplay experience.

When it comes to buying, 56% of customers polled by Nielsen IQ (2019) said AR offers them more trust in a product's quality, and 61% said they prefer to purchase with stores that provide AR experiences.

Virtual reality, like everything else, has the potential to be taken too far and may be disturbing to consider since it might fundamentally alter how society functions. The likelihood of the samples adopting VR or AR will be investigated further.

Chapter III

Virtual Reality & Augmented Reality in Marketing and Society's Acceptance

3. Methodology

3.1. Introduction

This chapter describes the strategies used to gather and analyse data in order to answer project questions and correlate with author's assertions presented in the literature review.

3.2. Philosophy Employed

I have chosen to be constructivist in my ontology using an inductive approach by employing a mixed method of research since the goal of this study is to determine whether the sample is prepared to embrace and buy more from brands that provide augmented reality to purchase an item from home, for instance.

Instead of using pre-existing theoretical frameworks, I have concentrated on developing new ideas through an inductive examination of the data collected from participants.

3.3. Research Methodology

After analysing the views of many authors on AR and VR and reading the most recent news on the topic, I created my quantitative research. I provided options for the sample using closed-ended questions, such as whether they would buy something, how much they would be willing to pay, if they believe brands would have an advantage over their competitors if they used AR, and if they were concerned about the potential effects it might have on culture and health.

Despite the fact that my goal was to reach students who are familiar with virtual and augmented reality to some extent, I provided a quick description of it at the beginning of the survey. I am aware that some individuals read about virtual and augmented reality and become apprehensive because they believe it to be such a complicated topic. In light of this, I asked questions about immersive museums, which have gained popularity in recent years, as well as one on Pokemon Go, the millennial-favourite augmented reality game that debuted in 2016.

In order to gain a thorough knowledge of my sample's opinions on VR after having used it at work, I created questions for each of my subtheme topics that would be helpful for my qualitative study.

3.4. Data Collection Method

Based on my research and the literature review, I developed an online questionnaire on Google Forms with 12 close-ended questions, looking to find their familiarity with some VR tools and experience, the likelihood of using augmented reality to buy described items and customer price sensitivity. The survey was sent out to 120 people via email, LinkedIn, Facebook, and college groups, and 71 people responded.

For my qualitative research, I created a questionnaire with 5 questions and conducted an interview through Zoom with a professional who works for Meta and utilises the metaverse in her daily meetings at work in order to gain input from a person who uses VR and AR on a regular basis.

3.5. Sampling

For certain subjects, having a precise target may not be necessary, but mostly because my research concerns a relatively new technology, I specifically intended to reach people between the ages of 18 and 40. Among the 71 participants, 59.2% were aged 24 to 31; 33.8% were 32 to 39; 2.8% were 18 to 23; 2.8% were +50 and 1.4%, 40 to 49. My qualitative sample was 31 years old, although for this part of my research, the goal was not to select participants based on their age but rather on their VR and AR expertise.

Chapter IV

Virtual Reality & Augmented Reality in Marketing and Society's Acceptance

4. Findings and Discussion

4.1. Introduction

In this chapter, the primary data from the literature review and the sample data from the quantitative and qualitative studies will be compared and discussed. The purpose of the research was to discover how society felt about the use of augmented reality and virtual reality in marketing.

To learn more about their opinions on price, social impact, hazards of VR and AR, marketing applications, and possibility of utilising AR to make purchases, an online survey was distributed to individuals who are at least slightly familiar with VR and AR applications.

For qualitative research, I invited a Meta employee who communicates with coworkers in the metaverse to participate via Zoom. The first question was to describe how VR is employed in her company. The second topic concerned potential VR side effects like nausea and headaches. The third question raised was regarding VR's potential to prevent workers from interacting with one another. The purpose of the fourth inquiry was to learn her thoughts on how VR and AR are helping businesses stand out from their rivals. Fifth, if she perceives a drawback with the VR that meta is currently using.

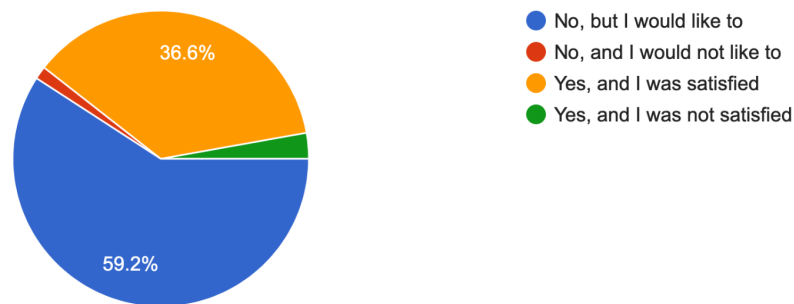
4.2. Data Analysis

Theme 1: How virtual reality and augmented reality is being used in marketing and related industries?

The purpose of the following two questions was to gauge the respondents' knowledge with VR and AR applications. The following graphs show the outcomes:

Have you ever visited immersive museums?

71 responses



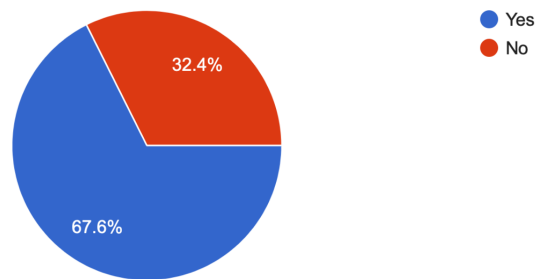
The sample was asked if they visited immersive museums, which are becoming one of the biggest trends in recent years around the world. As seen in the graph below, the majority of respondents (59.2%) have not been in an immersive museum but would like to, 36.6% have been to an immersive museum and were satisfied, 2.8% have been but were not satisfied and only 1.4% have not been and would not like to.

The similar approach was used when pondering a query concerning the ground-breaking mobile augmented reality (AR) game Pokemon Go, released in 2016. It employs GPS-enabled mobile devices to identify, catch, train, and engage in combat with virtual animals that appear to be in the player's actual location.

The first widely played augmented reality game was called Pokemon Go. Older generations who had watched the game when they were little as well as today's youth enjoyed it due to its interactivity. The fact that Pokemon was a game that requires players to leave the house to play also caught my attention. It reminded me of a bygone era when children had to play with one other instead of using technology. My goal with both of these questions was to get the respondents to remember that they might have engaged in virtual reality and augmented reality experiences without even knowing.

Have you ever played augmented reality games? Eg. Pokemon Go

71 responses



When it comes to the application of VR and AR in the workplace, According to Torro O., Jalo H. and Pirkkalainen H. (2021), due to a scarcity of study, VR has only recently grown to such an extent that it can be claimed to have considerable potential for widespread organisational usage. Since then, the use of virtual reality in the workplace has increased and I interviewed a business account support employee of Meta who uses the metaverse for meetings.

Some companies were pushed to innovate when the COVID-19 pandemic forced offices to shut down and the only way for employees to work was from home. Even though the pandemic is not as severe as it was, some companies saw the potential of keeping their activities online considering it can cut electricity and rental costs.

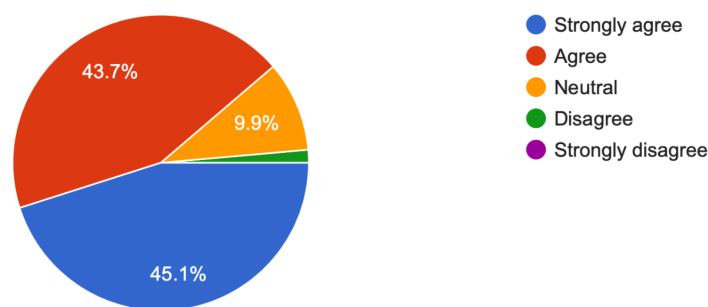
"Since the COVID-19 outbreak, Meta has been fully working from home. We have an online environment on the Metaverse which allows us to use our avatars, to collaborate and brainstorm on a whiteboard. The support is great and supervisors are always online to help. It is very interactive and I think I'm more productive this way." (Interviewee 1)

Since Meta is one of the organisations building the metaverse, they were able to keep some parts of the business operating from remote locations.

Theme 2: How can VR and AR add value to a company's marketing strategy?

When asking the sample if they thought that companies that offer more interactive experiences have an advantage over their competitors. The majority of the answers were 45.1% strongly agreeing and 43.7% agreeing that brands will have a competitive advantage when employing more interactive experiences in their sales, only 9.9% of respondents were neutral and 1.4% disagree.

Brands that offer more interactive experiences will have a competitive advantage over their peers
71 responses



In line with research by Tan, R. Chandukala, and K. Reddy (2021), who found that customers who used AR throughout the session spent more time exploring and saw more products than those who did not use AR, the overwhelming majority of respondents agreed that brands may have a competitive advantage when incorporating VR and AR into their marketing mix.

Businesses may get a competitive edge by analysing ways to increase retention rates. We questioned the respondent about how regularly Meta utilises the metaverse in order to evaluate if VR is improving workers' work-life balance.

The expert thinks that by boosting productivity and keeping people, flexible working arrangements might put the business one step ahead of its rivals.

"Meta is a step ahead of the competition. I would only move companies if they offered at least hybrid working and all the colleagues that I'm closest to would not change either. I feel like flexibility is important and having the choice of going to the office or not is key to

retaining the best talent in a company. I obviously have targets to reach, but I feel motivated because they trust that I am going to do my job regardless of where I am." (Interviewee 1)

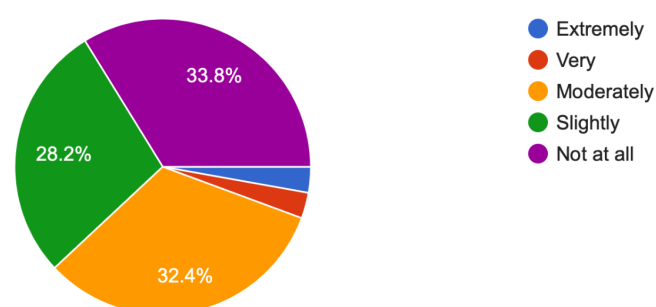
Theme 3: What are the potential risks of VR & AR when they reach mass adoption?

As pointed out by Eunhee Chang, Hyun Taek Kim & Byounghyun Yoo (2020) some users can suffer from troublesome symptoms that are similar to motion sickness. called this phenomenon cybersickness, also known as VR sickness. The major symptoms of VR sickness are eye fatigue, disorientation, and nausea (LaViola Jr, 2000). However, the majority of survey respondents are not concerned about the potential threats posed by technology.

As seen in the graph below, 33.8% of the sample are completely unconcerned with the dangers of virtual reality, including motion sickness and eye fatigue. Following closely, 32.4% of the participants are moderately concerned about the hazards, 28.2% have minor concerns, and 2.9% have very serious concerns about the potential effects of VR and AR.

Do you worry about the risks of Virtual Reality such as nausea and eye fatigue?

71 responses



According to Interviewee 1 of the qualitative study, she may get headaches when working in front of the computer but nothing out of the ordinary. "I have headaches sometimes but it is not different from working in the office because I think that this is related to being in front of

the computer for long hours. The company allows us to take several breaks during the day and I go for a walk for some fresh air so I don't have any complications." (Interviewee 1)

Theme 4: Is virtual reality and augmented reality affordable?

The Google Cardboard (GCB), a low-cost virtual reality gadget that costs about €12, has given educators and institutions a wide range of possibilities for developing immersive learning environments for 21st-century students. Premium headsets, like the HTC VIVE, are about €800.00.

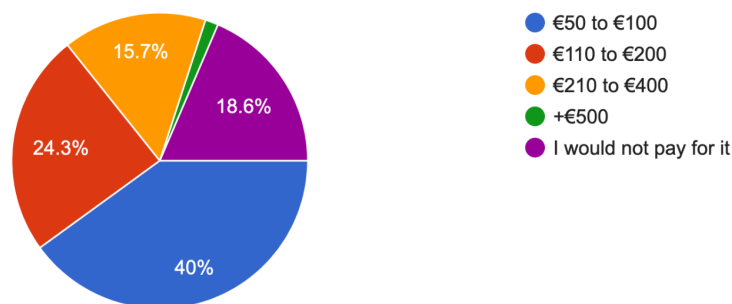
The cost varies, keeping in mind that it relies on the type of virtual reality and augmented reality experience one is experiencing. For instance, using an augmented reality game is completely free; all the user needs is a smartphone with the appropriate support. Additionally, the costs of the Van Gogh Immersive experience and the traditional Van Gogh museum in Amsterdam are equivalent.

Research conducted by Hussein, M., & Natterdal, C. (2015) show how VR technology has evolved from being unaffordable for educational institutions to be accessible and has proven to be effective.

The majority of the research sample (40%) would be willing to pay €50 to €100 for virtual reality equipment, followed by 24.3% willing to pay €110 to €200. 18.6% of the participants would not pay for VR equipment and 15.7% would be happy to pay €210 to €400 for VR headsets, while 18.8% of and 1.4% would be willing to pay +€500 for VR equipment.

How much would you be willing to pay for a Virtual Reality equipment such as VR headsets?

70 responses



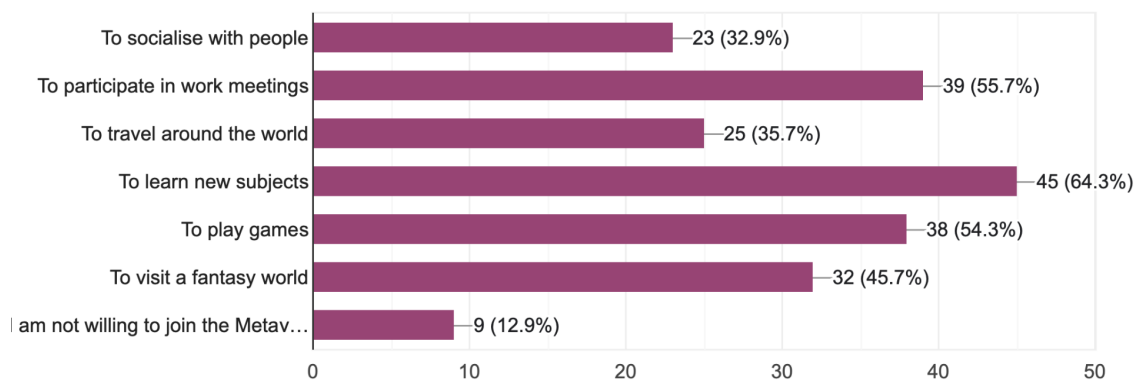
Theme 5: Is society willing to accept and use virtual reality and augmented reality?

According to Yavuz Torman's (2022) research on user adoption of virtual reality utilising the Technology Acceptance Model (TAM) and Planned Behavior Theory (PBT), users' intentions to utilise the metaverse system were favourably impacted when they learned about its advantages. In this context, it has been found that people's intentions, which are the forerunners of active system usage, are influenced by the utility of the metaverse system and the belief that they would gain from it.

Based on the study mentioned, I included some options of what the metaverse could be used for. The results below show that 32.9% of the research participants would use the metaverse to socialise with people, while 55.7% would use it to participate in work meetings, 35.7% would travel around the world, 64.3% would learn new subjects. 54.3% would use the metaverse to play games, 45.7% to visit a fantasy world and 12.9% are not willing to join the metaverse.

When it comes to the Metaverse, what would you use it for?

70 responses

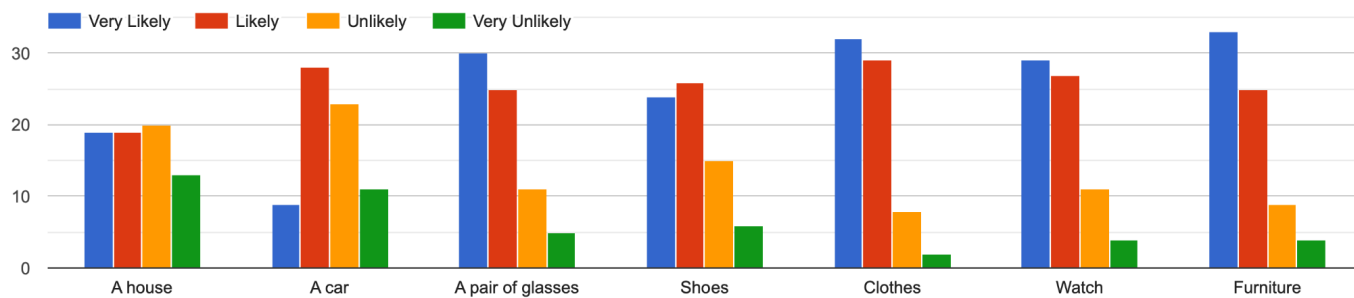


Majority of the participants are willing to use the metaverse for learning new subjects. Since an immersive environment could teach history to students who cannot afford to travel to historical sites, classes would be more interesting if students could virtually visit the location being studied.

The results also link the research by Drake-Bridges, E., Strelzoff, A. and Sulbaran, T. (2011) that have demonstrated the impact VR can have in the classroom by investigating retail applications using simulative environments like Second Life and by fostering good learning experiences through active learning techniques rather than passive ones, resulting in highly engaged students.

The likelihood that participants would use augmented reality to visit or try on the listed products was a further study-related query. As seen below, the participants answered if they were willing to visit or try the following items using an augmented reality platform before purchasing them.

What is the probability of using augmented reality to visit or try on the items listed below before purchasing them?

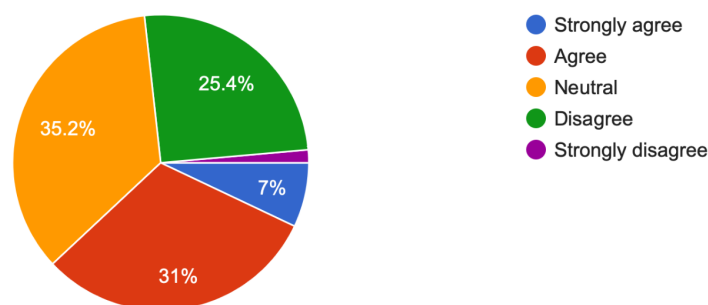


We can see from the data above that people would most likely try to visualise furniture while using an AR platform. Clothing is the product that respondents are most likely to purchase using AR. The car is the least likely, while a home is very unlikely. We may explain this by noting that the prices of the items that respondents are highly unlikely to purchase are far greater than those of the other items, and that IKEA uses augmented reality extensively in its furniture business.

The idea that VR and AR will fundamentally alter society to the point that we lose the ability to socialise as we once did is one of the main fears of the general population. I questioned the participants if they believed that technology applications are taking away from real-life experiences. Majority of the participants are neutral (35.2%), while 31% agree, 25.4% disagree, 7% strongly agree, and 1.4% strongly disagree.

Do you think Virtual and Augmented Reality take away from real life experiences?

71 responses



The same question was asked to the qualitative study participant, and as seen below, she says that "Not at all" and further details: "My division works exclusively from home because being in the office is not required for our position, and I think this lowers expenses for the business. But now that covid is not as severe, we frequently go out for coffee or drinks with the staff to create a more personal bond, so the real life experience is there." (Interviewee 1)

Chapter V

Virtual Reality & Augmented Reality in Marketing and Society's Acceptance

5. Conclusion and Limitations

5.1. Conclusion

Although virtual reality and augmented reality are being used in many different fields, the purpose of this project was to examine how they are being used in marketing and if society is ready to adopt them while taking into account the ethical issues and potential hazards involved.

Following the triangulation, it was determined that VR and AR provide value to a company's marketing strategy when they recognise that interactive tools bring more consumers, and from the customer's perspective, they are eager to use VR and AR tools when it means making their lives simpler, such as checking whether the furniture will fit in their living room, or when it brings innovation, such as immersive museums and Pokemon Go.

The qualitative research provided some insightful information on working from home with regard to virtual reality in the workplace. The participant works at Meta and attends all of her team and one-on-one meetings virtually. She does not miss working from home because it boosts her productivity and frees up her time because she no longer has to commute.

5.2. Limitations

Because some people believe they are unfamiliar with VR and AR, despite the fact that the majority of them had visited immersive museums, engaged in AR gaming, and saw retail establishments employing the try-on function, I encountered certain difficulties when doing the research. Although some individuals mistakenly believe that VR and augmented reality applications are more complex, they are now a part of our daily lives. In summary, my study showed that society is open to accepting some VR & AR technologies, and as a result, such applications have a significant positive impact on a company's marketing strategy.

5.3. Recommendations

The original study was conducted at the beginning of the year, and when a second round of research was conducted, there were many additional studies available. Technology, including virtual reality and augmented reality, is advancing at a rate that has not been seen in years. I believe there is still much to learn about this topic, and further investigation is recommended.

Bibliography

1. Milgram, P. and Kishino, F., 1994. '*A Taxonomy of Mixed Reality Visual Displays*. 1st ed. Kyoto: IEICE Transactions on Information Systems, p.1321.
2. Torro, O., Jalo, H. and Pirkkalainen, H., 2021. '*Six Reasons Why Virtual Reality Is a Game-Changing Computing and Communication Platform for Organizations*.' Communications of the ACM, 64 (10), pp. 48–55. Ebsco [Online] Available at <<https://dl.acm.org/doi/10.1145/3440868>> [Accessed 10 May 2022]
3. Toraman, Y., 2022 *User Acceptance of Metaverse: Insights from Technology Acceptance Model (TAM) and Planned Behavior Theory (PBT)*. EMAJ: Emerging Markets Journal, [S.l.], v. 12, n. 1, p. 67-75, aug. 2022. ISSN 2158-8708. Available at: <<https://emaj.pitt.edu/ojs/index.php/emaj/article/view/25>> . [Accessed: 03 November, 2022]
4. PR Newswire, 2021. *Lighthouse immersive and impact museums to host the original 'immersive Van Gogh' at their newest venue, 'Lighthouse Artspace Pittsburgh'*. Available at: <<https://www.prnewswire.com/news-releases/lighthouse-immersive-and-impact-museums-to-host-the-original-immersive-van-gogh-at-their-newest-venue-lighthouse-artspace-pittsburgh-301371032.html>> [Accessed: November 2, 2022].
5. Tan, Y., R. Chandukala, S. and K. Reddy, S., 2021. *Augmented Reality in Retail and Its Impact on Sales*. Sage. [Online] Available at:

- <<https://journals.sagepub.com/doi/10.1177/0022242921995449>> [Accessed 16 May 2022].
6. Porter, Michael E. and James E. Heppelmann, 2017 "Why Every Organization Needs an Augmented Reality Strategy." *Harvard Business Review* 95, no. 6 46–57. [Online] Available at: <<https://hbr.org/2017/11/a-managers-guide-to-augmented-reality#why-every-organization-needs-an-augmented-reality-strategy>> [Accessed 16 May 2022].
 7. Peukert C., Pfeiffer J., Meißner M., Pfeiffer T. & Weinhardt C. (2019). "Shopping in Virtual Reality Stores: The Influence of Immersion on System Adoption" *Journal of Management Information Systems*, 36:3,755-788 [Online] Available at: <<https://doi.org/10.1080/07421222.2019.1628889>>
 8. The Verge. 2016. *The New York Times is sending out a second round of Google Cardboards.* [online] Available at: <<https://www.theverge.com/2016/4/28/11504932/new-york-times-vr-google-cardboard-seeking-plutos-frigid-heart>> [Accessed 16 May 2022].
 9. The Drum. 2016. *Thomas Cook's mobile VR allows travellers to try before they fly.* [online] Available at: <<https://www.thedrum.com/news/2016/03/11/thomas-cooks-mobile-vr-allows-travellers-try-they-fly>> [Accessed 16 May 2022].
 10. Chang, E., Kim, H. T. and Yoo, B., 2020. 'Virtual Reality Sickness: A Review of Causes and Measurements', *International Journal of Human-Computer Interaction*, 36 (17), pp. 1658–1682. [Online] Available at: <<https://doi.org/10.1080/10447318.2020.1778351>> [Accessed 16 May 2022].
 11. LaViola, J., 2000. *A discussion of cybersickness in virtual environments.* *ACM SIGCHI Bulletin*, 32(1), 47–56. [Online]. Available at: <<https://doi.org/10.1145/333329.333344>> [Accessed 16 May 2022].
 12. American Academy of Ophthalmology. 2016. "Nearly 10 Million Adults Found to Be Severely Nearsighted in the United States." [online] Available at: <<https://www.aao.org/newsroom/news-releases/detail/ten-million-severely-nearsighted-united-states>> [Accessed 16 May 2022].

13. Browning, N., 2017. 'Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do', *Library Journal*, 142 (20), p. 121. [Online] Available at: <https://www.libraryjournal.com/review/experience-on-demand-what-virtual-reality-is-how-it-works-and-what-it-can-do> [Accessed 13 May 2022].
14. Google Daydream View 2022. *Daydream View Health and Safety Information - Daydream Help*. [online] Available at: https://support.google.com/daydream/answer/7185037?visit_id=1-636162973848457164-2214380425&p=safetywarrantyreq&rd=1 [Accessed 16 May 2022].
15. J. Balakrishnan and M. D. Griffiths, 2018. "Loyalty towards online games, gaming addiction, and purchase intention towards online mobile in-game features," *Computers in Human Behavior*, vol. 87, pp. 238–246, Ebsco. Available at: <https://doi.org/10.1016/j.chb.2018.06.00> > [Accessed 16 May 2022].
16. Hussein, M., & Natterdal, C., 2015. *The Benefits of Using Virtual Reality in Education A Comparison Study*. University of Gothenburg, pp. 1-15. Goteborg. Available at: https://gupea.ub.gu.se/bitstream/2077/39977/1/gupea_2077_39977_1.pdf > [Accessed 16 May 2022].
17. Lavoie, R., Main, K., King, C. et al. (2021) *Virtual experience, real consequences: the potential negative emotional consequences of virtual reality gameplay*. *Virtual Reality* 25, 69–81 [Online] Available at: <https://doi.org/10.1007/s10055-020-00440-y> > [Accessed 12 May 2022].
18. Experia. 2022. *Immersive Environments | Immersive Sensory Room*. [online] Available at: <https://www.experia.co.uk/sensory-rooms/immersive-environments/> > [Accessed 16 May 2022].
19. Nielsen IQ. 2019. *Augmented retail: The new consumer reality*. [online] Available at: <https://nielseniq.com/global/en/insights/analysis/2019/augmented-retail-the-new-consumer-reality-2/> > [Accessed 16 May 2022].
20. Drake-Bridges, E., Strelzoff, A. and Sulbaran, T., 2011. 'Virtual Retail Simulations in Second Life'. 2nd edn. Society for Marketing Advances.

Appendices

Appendix I: Informed Consent Form/Plain Language Statement

Informed Consent Form / Plain Language Statement for Business Research Project for BABS BAM /BAAF students in year 3 Independent College Dublin.

Research Study Title: Virtual Reality and Augmented Reality in Marketing and Society's Acceptance

Purpose of Research: The purpose of this research project is to investigate the current applications of virtual reality and augmented reality in marketing and the society's acceptance of this new technology on a daily basis.

This is a research project being conducted by Isabelle Ferreira Cruz Soares

Dear *****

You are being invited to take part in this research study as you have had experience in the Virtual reality applications. This research study aims to gain an understanding of the challenges and issues that Virtual reality and Augmented reality can pose to society.

This research is being carried out by Isabelle Ferreira Cruz Soares as part of a Degree in Marketing in Independent Colleges Dublin. The study is being conducted under the supervision of Prof Raza Butt and Dr. Daniel O'Sullivan (School of Business ICD).

Type of participant:

- I ***** voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves answering questions about the applications of VR in my workplace.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being audio-recorded

- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in my research project
- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original audio recordings will be retained in [specify location, security arrangements and who has access to data] until [specific relevant period – for students this will be until the exam board confirms the results of their dissertation].
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for [specific relevant period – for students this will be two years from the date of the exam board].
- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further

clarification and information.

Signature of research participant

***** 01/10/2022
Signature of participant Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study

Isabelle Ferreira Cruz Soares 04/11/2022

Appendix II: Online Survey Questions

The purpose of this research project is to analyse the impact of Virtual Reality and Augmented reality in Marketing and the likelihood of society to embrace it.

This research is being carried out by Isabelle Ferreira Cruz Soares as part of a Degree in Marketing in Independent Colleges Dublin. The study is being conducted under the supervision of Prof Raza Butt and has been granted ethical approval by Independent College Dublin.

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time.

1. What is your gender?

- ☐ Female
- ☐ Male
- ☐ Prefer not to say
- ☐ Other: _____

2. Please select your age range:

- ☐ 18-23
- ☐ 24-31
- ☐ 32-39
- ☐ 40-49
- ☐ +50

3. What's your knowledge about Virtual and Augmented Reality?

- ☐ Excellent
- ☐ Above Average
- ☐ Average
- ☐ Below Average
- ☐ Very Poor

4. Have you been to immersive museums?

- ☐ No, and I would not like to
- ☐ No, but I would like to