THE IMPACT OF AR & VR IN NEWS: A STUDY ON AUDIENCE ENGAGEMENT

DISSERTATION

Submitted by

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Under the guidance of

ANSA JOSE

In partial fulfillment of requirements for the award of

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CERTIFICATE

I hereby certify this hereby certify that this project entitled to **"THE IMPACT OF AR & VR IN NEWS: A STUDY ON AUDIENCE ENGAGEMENT" BY SAPNA LAZER** is a record of Bonafide work carried out by her under my supervision and guidance.

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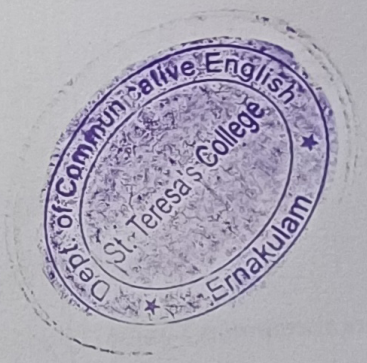

DECLARATION

I do affirm that the dissertation "The impact of AR & VR in news: a study on Audience Engagement" submitted in partial fulfilment of the requirement for the award of the **MASTER OF ARTS IN JOURNALISM AND MASS COMMUNICATION** has not previously formed the basis for the award of any degree, diploma, or any other similar title of recognition.

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ABSTRACT

As audience engagement with news becomes increasingly fragmented, immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) are redefining journalism by shifting news consumption from passive observation to interactive participation. This study investigates the influence of AR and VR on news engagement, comprehension, and emotional impact. Anchored in David Kolb's Experiential Learning Theory, the research explores how immersive storytelling enhances audience understanding of complex issues while fostering empathy. Utilizing a mixed-method approach, the study combines qualitative insights from interviews with media professionals and audiences with quantitative analysis of engagement metrics and survey data. The findings suggest that AR and VR can make journalism more dynamic, improve information retention, and strengthen emotional connections to news stories. However, challenges such as accessibility, ethical concerns, and technological limitations pose barriers to widespread implementation. By offering key insights into the integration of immersive technologies in contemporary newsrooms, this research contributes to the ongoing discussion on the evolution of journalism in the digital era.

Keywords: Augmented Reality, Virtual Reality, Journalism, Audience Engagement, Experiential Learning Theory, Immersive Storytelling.

CHAPTER 1

INTRODUCTION

Journalism is in the midst of a transformative era, driven by the emergence of immersive technologies like Augmented Reality (AR) and Virtual Reality (VR). These tools revolutionize traditional news dissemination by transitioning from passive consumption to active engagement. AR and VR offer audiences an interactive and empathetic lens to explore stories, transforming how news is experienced. This research delves into the profound impact of these technologies, examining their potential to enhance news engagement, improve understanding of complex topics, and make journalism more accessible to diverse audiences. The findings aim to provide valuable insights for integrating AR and VR into modern newsrooms, shaping the future of storytelling.

1.1 Theory

David Kolb's Experiential Learning Theory provides a valuable framework for understanding the impact of immersive technologies like AR and VR on news engagement. According to Kolb, learning is most effective when individuals can actively engage with and experience the subject matter rather than passively consume information. This theory emphasizes a four-stage cycle of learning: concrete experience, reflective observation, abstract conceptualization, and active experimentation. AR and VR align seamlessly with this model by offering users a concrete and immersive experience that allows them to "step into" the narrative, whether it be a disaster zone, historical event, or a complex socio-political issue.

Through immersive storytelling, audiences can observe and reflect on events from unique perspectives, fostering deeper emotional and intellectual connections. This reflective engagement enhances comprehension and retention of information, making abstract concepts more tangible and relatable. For instance, by virtually navigating a refugee camp or witnessing the effects of climate change in real-time simulations, viewers can connect with these issues on a personal level, driving empathy and awareness. The theory thus supports the hypothesis that AR and VR technologies do not merely present news but transform it into an interactive learning experience, redefining the way audiences engage with journalism.

This theoretical foundation underpins the research, demonstrating how experiential learning facilitated by AR and VR can revolutionize news dissemination, fostering a more informed and connected public.

1.2 Statement of the Research Problem

In an era of information overload and declining attention spans, traditional methods of news dissemination often fail to effectively engage audiences or convey the depth of complex stories. As a result, many news consumers remain passive recipients of information, struggling to connect emotionally or intellectually with the narratives presented. Immersive technologies, such as AR and VR, offer a promising solution by transforming news consumption into an interactive, engaging, and empathetic experience.

However, the integration of AR and VR in journalism is still in its nascent stages, and their potential remains underexplored. Critical questions persist about their effectiveness in enhancing audience engagement, their ability to simplify complex topics, and the practical challenges of implementing these technologies in newsrooms. Additionally, concerns about accessibility, ethical considerations, and the high costs associated with AR and VR adoption pose significant barriers to widespread use.

This research seeks to address these gaps by examining the impact of AR and VR on news engagement and comprehension. It aims to explore how these technologies can revolutionize storytelling, identify the most effective strategies for their integration, and provide solutions to the challenges faced by journalists and media organizations in adopting immersive technologies.

1.3 Objectives of the Research

Primary Objective:

To explore the potential of AR and VR in improving audience understanding and engagement in journalism.

Specific Objectives:

Assess the current use of AR and VR in journalism

Investigate how immersive technologies enhance comprehension of complex news topics

Analyze successful case studies of AR and VR integration in newsrooms

Identify challenges, including technological, ethical, and accessibility issues, in adopting AR and VR for news production.

1.4 Need for the Research

Research into the use of AR and VR in news dissemination is essential to enhance audience engagement and understanding. These technologies offer immersive, interactive experiences that can make complex stories more accessible and memorable. By exploring how AR and VR can foster empathy, improve information retention, and expand storytelling capabilities, this research can help shape the future of journalism. It also addresses challenges such as technical limitations, ethical concerns, and practical implementation, providing insights for news organizations looking to integrate these innovations into their work.

1.5 Scope of the Research

This research aims to explore how audiences perceive and engage with news presented through AR and VR. It focuses on understanding whether these immersive technologies enhance comprehension of complex news topics, such as scientific, environmental, and socio-political issues, by making them more interactive and relatable. Additionally, the study investigates whether AR and VR foster empathy or sympathy toward the individuals or communities featured in news stories, creating a deeper emotional connection between the audience and the content.

The scope includes analyzing audience experiences with AR/VR news formats, identifying factors that influence their understanding and emotional engagement, and evaluating the potential of these technologies to transform traditional news consumption. It also examines challenges such as accessibility, cost, and technical limitations that may affect the adoption of AR and VR in journalism.Ultimately, the study aims to determine whether AR and VR have the potential to not only improve news comprehension but also evoke empathy, making news more impactful and meaningful for diverse audiences.

1.6 Limitations of the Research

Sample Size and Diversity: The study may be limited by the size and diversity of the participant pool

Time Constraints: The study may be limited by the time available for data collection and analysis, which could restrict the depth of exploration into certain aspects of AR and VR news experiences

Difficulty in gathering feedback due to the limited availability of AR/VR news content.

Self-Reported Data Biases: The study relies partially on self-reported data, such as survey responses and interviews. Participants may unintentionally provide biased or socially desirable answers, which could influence the accuracy of the findings.

Learning Curve with AR/VR: Some participants, especially those unfamiliar with AR and VR, might require additional time or guidance to navigate these technologies. This learning curve could impact their overall engagement and experience.

Contextual Differences: Audience engagement with AR and VR may vary depending on cultural, geographical, or individual preferences, which might not be fully captured within the scope of this study.

CHAPTER 2

REVIEW OF LITERATURE

"If you are building complex, expensive VR today for the limited number of people, who get VR headsets, and [are] willing to scratch up on their heads to have the experience, experimentation is great, nice, but […] I think augmented reality is actually more interesting and has more potential for news". (Uskali, T. (2025, April 10). Augmented reality as news. University of Jyväskylä.)

During the Global Editors Network (GEN) summit held in Vienna in June 2016, a senior-level employee from a major tech company shared the above statement. While speaking on the condition of anonymity, the person expressed skepticism about the hype surrounding virtual reality (VR). He suggested that augmented reality (AR) could ultimately prove more beneficial for journalism than VR.

Turo Uskali, a Professor of Journalism Studies at the University of Jyväskylä in Finland, specializes in journalism innovations, such as data journalism, drone journalism, immersive journalism, and global journalism. His research also explores the intersection of social media and journalism, journalism education, science communication, and the future of media industries. In his April 2020 paper, "Augmented Reality as News," he discussed these themes in detail.

AR and VR are transformative technologies that are redefining how information is shared and experienced. AR seamlessly blends virtual elements with the real world, while VR immerses users in entirely virtual environments. Together, they are revolutionizing journalism by transforming news dissemination from a passive activity into an interactive and immersive experience. These technologies not only enhance audience engagement but also foster empathy, enabling audiences to understand complex stories in unprecedented ways. As the field of journalism evolves, understanding the potential, applications, and challenges of AR and VR is crucial for leveraging their transformative power.

2.1 Adaptation and Technological Advancements

The rapid adoption of AR and VR has been fueled by advancements in graphics, interaction controllers, and computational power. Tech giants such as Google, Microsoft, and Meta have made significant investments in these technologies, recognizing their potential to reshape industries, including journalism.

2.2 Market Growth

Reports project that the AR and VR market will grow to $80 billion by 2025, indicating their increasing relevance in media and communication. This growth is accompanied by technological advancements such as improved headsets, lighter devices, and more affordable hardware, which are paving the way for broader adoption.

2.3 Newsroom Innovation

AR and VR made their initial forays into journalism with 360-degree videos, providing a “magic window” experience for mobile users. Pioneering efforts by major news organizations such as The New York Times, BBC, and CNN have demonstrated the potential of these technologies:

The New York Times VR: By creating immersive content that transports viewers to conflict zones and cultural events, the Times has fostered a heightened sense of presence among its audience. (New York Times. (2015, November 8). NYT VR: How to experience a new form of storytelling from The Times. The New York Times.)

BBC VR Projects: The BBC has leveraged VR to bring global issues, such as climate change and refugee crises, closer to home, making complex problems more relatable through experiential storytelling. (We Wait VR. (2016, June 9). We Wait VR. BBC Taster.)

By May 2017, VR and 360-degree video were beginning to take their place in the production processes of news organizations. (Sedeño, A., Prades, A., & Villegas, A. (2020). Use of virtual reality and 360° video as narrative resources in the documentary genre: Towards a new immersive social documentary? ResearchGate). For those at the forefront of VR innovation, success required a solid foundation. By March of that year, many had established essential components, such as a content strategy, production methods, distribution plans, and marketing strategies to introduce audiences to VR, alongside early business plans for sustainability.

For 360-degree video, the emerging model was to build a central team of two to ten people. These teams provided editorial leadership, managed the creation and publishing of content, and trained journalists across the organization to film in 360. At USA Today, for example, significant investments were made to train journalists, set guidelines, and provide the necessary equipment. However, the more advanced techniques—like stereoscopic production or spatial audio—were often reserved for specialist teams, as noted by Niko Chauls. Still, there’s hope that as tools improve, these techniques could become more accessible.

Most organizations preferred to produce VR content in-house. Neil Graham at Sky explained that doing so not only allowed them to control costs and maintain editorial oversight but also helped build expertise. This in-house approach was particularly valuable because budgeting for VR projects—especially those pushing creative boundaries—remained unpredictable. Even so, independent production companies still played a role by offering specialized skills for high-end projects.

A key feature of VR production was the rise of multidisciplinary teams. These teams broke traditional newsroom silos, bringing together journalists, software developers, designers, and even business specialists to collaborate in new ways. Francesca Panetta from The Guardian described her team as a mix of talents: a production manager, a journalist who had transitioned to filmmaking, an app developer, and someone focused on partnerships and revenue. At Sky, Neil Graham shared how the growth of VR inspired their VR and interactive teams to work in shared creative spaces, fostering collaboration. This blending of journalism and software development was also reflected in the adoption of processes like user testing to improve content—an approach used by outlets like Dagens Nyheter.

In Digital News Project 2017, Zillah Watson, an Emmy-nominated immersive consultant and former Virtual Reality Commissioning Editor at the BBC, shared key insights on the impact of virtual reality (Watson, Z., 2017). Having led notable VR projects such as 'We Wait and Doctor Who: The Runaway,' Watson argued that even if VR does not become the "next big thing," its contribution remains significant. She emphasized that VR has introduced creativity and innovation to newsrooms, helping teams prepare for future challenges. This shift in journalism is about more than technology—it's about collaboration, creativity, and being ready for what's next.

Chauhan and Jose (2024), in their study titled "Virtual Reality in News Production" published in the International Journal of Creative Research Thoughts, conducted at the Amity School of Communication, Amity University, Noida, utilized a comprehensive literature review and secondary source analysis methodology. Their research provides significant insights into the impact of VR technology on journalism and news production. The findings highlight the transformative role of VR in storytelling, audience engagement, and immersive experiences, offering valuable perspectives for both researchers and media professionals. By exploring how VR enhances audience interaction and changes the way stories are told, the study sheds light on the potential of VR to shape the future of news production and redefine industry practices.

2.4 Application in Journalism

Recent studies on immersive VR news have highlighted the potential and challenges of this evolving medium. Wu, Cai, Liu, Luo, and Zhang (2020) examined the design and development of VR news applications, focusing on themes like social issues, historical events, and scientific exploration. Unlike traditional news formats, VR news offers flexible narrative structures, allowing users to experience stories from different perspectives, including omniscient, bystander, or protagonist roles. This shift in storytelling can create more engaging and immersive experiences for viewers.

Immersion is a key aspect of VR news, as it enhances the user's sense of presence and engagement. Slater et al. (2009) argued that interactive VR environments significantly increase immersion, improving user satisfaction and trust in the content. Furthermore, VR news fosters empathy, with users connecting emotionally to the events depicted, as found by Laws and Luisa (2016). This emotional connection is essential in fostering deeper understanding and engagement with news content.

Credibility and accuracy are significant concerns in VR news. Peña et al. (2016) suggested that VR journalism's strength lies not in presenting facts but in offering immersive experiences. However, concerns about accuracy persist, with users sometimes distracted from the content (Tse et al., 2020). Despite this, studies have shown that VR can boost trust and credibility when the technology enhances telepresence and user engagement (Nielsen & Sheets, 2016).

AR and VR have transformed news dissemination by enabling immersive storytelling, offering three primary benefits:

Empathy and Engagement: VR has been called an "empathy machine" due to its ability to evoke powerful emotional responses. By placing audiences in first-person perspectives—such as walking through refugee camps or witnessing the aftermath of natural disasters—VR fosters a sense of presence and understanding.

Interactive Storytelling: Both AR and VR facilitate interactive narratives:

VR: Allows users to explore immersive environments and engage directly with digital elements, transforming audiences from passive consumers into active participants.

AR: Enhances contextual storytelling by overlaying relevant data and visuals onto real-world scenes, making complex topics more accessible and engaging.

Educational Value: AR and VR enable innovative ways to present data. By visualizing abstract concepts and historical events, these technologies make news stories more informative and memorable.

2.5 Implementation Issues

AR and VR technologies face several challenges that hinder their widespread adoption. One major issue is the need for dedicated hardware, often requiring special rooms and environments for VR setups. Additionally, the high cost of AR and VR products makes them inaccessible to many consumers, highlighting the need for affordable and efficient solutions. Another challenge is the lack of diverse and practical use cases, as current developments focus mainly on gaming and entertainment, limiting their appeal in areas like education, healthcare, and business. Mobility and miniaturization are also significant concerns, with bulky, corded devices restricting user movement. Lastly, cybersecurity poses a serious threat, as virtual environments can be hacked, modified, or destroyed, emphasizing the need for robust security measures. Addressing these issues is essential for AR and VR to achieve broader market reach and usability.

2.6 Theoretical Framework: Experimental Learning

David Kolb's Experiential Learning Theory underscores the importance of immersive technologies in enhancing understanding through direct experience. AR and VR align with this framework by enabling audiences to "experience" stories, fostering deeper comprehension and emotional engagement.

The following are the insights from the research:

Viewer Engagement: Studies indicate that immersive news formats significantly enhance audience relatability and emotional connection to stories. For example, audiences exposed to VR-based content report feeling more engaged and empathetic compared to traditional formats.

Topic Relevance: Complex topics—such as humanitarian crises, climate change, and natural disasters—benefit the most from immersive formats. These technologies allow journalists to present nuanced narratives that resonate deeply with viewers.

2.7 Design Guidelines for Effective AR and VR Journalism (Von Aulock, I. (2024, March 7). AR and VR in media: The 2024 guide for media industry professionals)

To maximize the impact of AR and VR in journalism, specific design principles have been identified:

Interactive Elements: Tasks such as object manipulation and decision-making enhance audience engagement.

Guided Exploration: Visual cues and constraints focus user attention on critical aspects of the story.

Relevant Topics: Stories with human interest and long-term relevance justify the investment in immersive content.

2.8 Role of Partnership in Advancing AR and VR (Del Castillo, M. (2015, October 20). Google partnership gives New York Times 'disposable' revenue stream. New York Business Journal.)

Collaborations with technology companies have been instrumental in advancing AR and VR journalism. For instance, The New York Times partnered with Google to distribute over a million VR viewers, enabling audiences to experience immersive content at scale. However, such partnerships raise concerns about editorial independence. Transparency and sustainable business models are critical to maintaining audience trust while advancing technological adoption.

2.9 Application in Related Fields and Lessons for Journalism (Moradi, J. (2024, July 17). How future technologies like VR, AR, and AI can make TV more inclusive: My insights [Audio podcast]. Queens of Tech Podcast.)

The success of AR and VR in other fields provides valuable insights for journalism:

Education: AR enhances interactive classroom tools, while VR offers simulations of historical events and scientific phenomena, demonstrating the technologies' potential for engaging storytelling.

Gaming and Entertainment: The success of AR-based games like Pokémon Go highlights the public's appetite for immersive experiences, which can be leveraged to attract news audiences.

Healthcare and Military: VR's use in training medical professionals and soldiers in high-risk scenarios showcases its capacity for experiential learning, a model that can be adapted to immersive journalism.

2.10 Future Prospects and Recommendations (TvN Tech. (2024, July 11). Local TV stations widen their embrace of virtual sets, AR & VR. TvN Tech.)

The future of AR and VR in news dissemination lies in addressing current challenges and exploring new opportunities:

Invest in Scalable Solutions: Develop affordable hardware and reduce production costs to make immersive technologies accessible to smaller news organizations.

Expand Use Cases: Diversify content to include investigative journalism, cultural reporting, and real-time event coverage.

Integrate Emerging Technologies: Combining AR and VR with AI, IoT, and 5G networks can enhance storytelling capabilities.

Strengthen Ethical Guidelines: Establish clear protocols to ensure responsible use of immersive technologies, safeguarding audience trust and journalistic integrity.

AR and VR are revolutionizing news dissemination by enabling immersive and interactive storytelling that fosters empathy and engagement. While challenges such as cost, accessibility, and content development persist, ongoing technological advancements and strategic innovations hold the promise of redefining journalism. As these technologies evolve, they will transform how stories are told and experienced, bridging the gap between audiences and the issues that matter. By addressing existing barriers and embracing diverse applications, AR and VR can secure their place as indispensable tools in the future of journalism.

CHAPTER 3

RESEARCH METHODOLOGY

Understanding how augmented reality (AR) and virtual reality (VR) shape audience engagement in news is a crucial area of study in today's evolving media landscape. To explore this, David Kolb's Experiential Learning Theory (ELT) is used as the guiding framework. ELT focuses on how individuals learn and engage through experiences, making it a suitable lens for analyzing the immersive and interactive nature of AR and VR in news content. This research employs a mixed-method approach, combining qualitative and quantitative methods to capture the depth and complexity of audience engagement. By adopting this approach, the study aims to provide a well-rounded understanding of how these technologies influence the way audiences interact with and learn from news narratives.

3.1 Research Design

This study employs a sequential exploratory mixed-method design, ensuring a comprehensive understanding of how AR and VR influence audience engagement with news content. The research is conducted in two distinct phases:

Qualitative Phase: This phase focuses on exploring the experiential and emotional aspects of audience engagement with AR and VR news formats. Through this, the study aims to uncover deeper insights into how these technologies impact user experiences.

Quantitative Phase: Building on the findings from the qualitative phase, this phase seeks to measure and validate audience engagement levels. It provides a structured and measurable analysis of the influence of AR and VR on news consumption.

This two-phase approach allows for a detailed exploration followed by evidence-based validation, ensuring both depth and reliability in the findings.

3.2 Theoretical Framework

This study is grounded in David Kolb's Experiential Learning Theory (ELT), which provides a structured lens to understand how audiences engage with and learn from AR and VR news content. ELT emphasizes the cyclical nature of learning through experiences, making it highly relevant for analyzing the immersive and interactive qualities of AR and VR.

The theory outlines four key stages of the learning process:

Concrete Experience (CE): The audience interacts directly with AR/VR news content, engaging with its immersive features.

Reflective Observation (RO): Following their interaction, audiences reflect on their experiences, evaluating the impact and emotional engagement with the content.

Abstract Conceptualization (AC): Through reflection, audiences interpret the news narratives and develop informed perspectives or insights based on their engagement.

Active Experimentation (AE): Finally, audiences apply what they have learned, which could include forming opinions, making decisions, or taking actions inspired by the content.

Using ELT, the study aims to uncover the dynamic ways AR and VR influence audience learning, emotional connection, and overall engagement with news.

3.3 Data Collection Method

This study employs both qualitative and quantitative data collection methods to comprehensively analyze the impact of AR and VR on audience engagement. This dual approach ensures a balanced and in-depth exploration of the research topic.

3.3.1 Qualitative Data

In-depth Interviews: Interviews are conducted with individuals to gain insights into how audiences experience and interact with AR and VR-based news content. These interviews delve into personal experiences and examine connections to Kolb's Experiential Learning Theory stages.

Media Professionals and Journalists: Discussions with media professionals and journalists involved in AR and VR production are included to understand the creative and technical processes behind producing such content and its perceived impact on audience engagement.

3.3.2 Quantitative Data

Engagement Metrics: Audience interaction data is analyzed to evaluate measurable engagement factors, such as time spent on content, user actions, and completion rates on AR/VR news platforms.

Surveys: Structured questionnaires are distributed to gather audience opinions and feedback. These surveys are tailored to reflect Kolb's four learning stages, enabling an assessment of how AR and VR content influences engagement and learning outcomes.

By integrating these methods, the study captures both qualitative experiences and quantitative metrics, providing a holistic view of how AR and VR technologies shape audience interactions with news content.

3.4 Variables

AR and VR act as an independent variable in this study, which indicates the immersive technologies studied on the influence of news participation. AR imposes digital elements in the real world, while VR creates a completely modeled environment. Both are trying to change the way the audience interacts with the news. The dependent variable provides interaction with the news, the frequency of interaction with the user, the collection and recall, emotional participation and behavioral intention. This indicator provides ideas for the potential of immersive technology for the revolution of news consumption by evaluating whether AR and VR improves potential customers compared to the traditional news format.

3.5 Sampling

This study employs random sampling to ensure a fair and unbiased selection of participants, promoting a diverse representation of experiences and perspectives. Participants are randomly chosen from a population aged 18–50, ensuring the inclusion of individuals with varying degrees of familiarity and engagement with AR and VR technologies.

By utilizing random sampling, the study aims to minimize selection bias and capture a wide range of opinions, behaviors, and experiences. This method provides equal opportunity for all individuals in the target population to be selected, enhancing the reliability and generalizability of the findings.

Additionally, the chosen age range represents a demographic that is both active in news consumption and more likely to have access to digital and immersive technologies. The inclusion of participants with different levels of exposure to AR and VR ensures that the research considers both novice users and those with advanced familiarity, offering a comprehensive analysis of how these technologies impact audience engagement in news contexts.

3.6 Ethical Considerations

Ensuring ethical integrity is a key priority in this research. Before commencing the study, ethical approval was obtained from the relevant authority to ensure all procedures aligned with established research guidelines.

Participants were fully informed about the nature and purpose of the study through a clear and detailed explanation, allowing them to make an informed decision about their participation. Informed consent was obtained from all participants, emphasizing that their involvement was voluntary and that they could withdraw at any stage without any repercussions.

To safeguard privacy, all personal information and responses are kept strictly confidential and used solely for research purposes. Data is anonymized during analysis and reporting to protect participants' identities. Additionally, secure storage methods are implemented to prevent unauthorized access to the collected data.

Throughout the research process, the well-being and rights of participants are prioritized, ensuring a respectful and supportive environment. By adhering to these ethical standards, the study upholds transparency, trust, and respect for all individuals involved.

3.7 Limitations

While this study provides valuable insights into the impact of AR and VR on audience engagement, it is important to acknowledge certain limitations that may influence the findings.

Technological Access Constraints: Not all participants may have equal access to AR and VR technologies, which could affect their ability to fully engage with the content. Variations in the quality of devices and internet connectivity may also impact the overall experience.

Sample Size: Although efforts were made to ensure a representative sample, the size of the participant pool may limit the generalizability of the results to broader populations. A larger sample might yield more comprehensive insights.

Self-Reported Data Biases: The study relies partially on self-reported data, such as survey responses and interviews. Participants may unintentionally provide biased or socially desirable answers, which could influence the accuracy of the findings.

Learning Curve with AR/VR: Some participants, especially those unfamiliar with AR and VR, might require additional time or guidance to navigate these technologies. This learning curve could impact their overall engagement and experience.

Contextual Differences: Audience engagement with AR and VR may vary depending on cultural, geographical, or individual preferences, which might not be fully captured within the scope of this study.

Despite these limitations, the study strives to present a balanced and insightful analysis while encouraging further research to address these challenges and deepen understanding in this emerging field.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

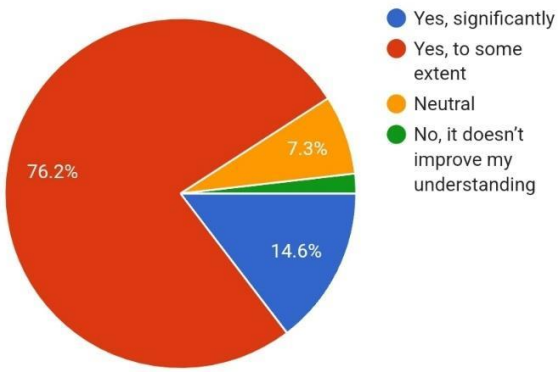
4.1 Introduction of Data Analysis

The rapid evolution of digital journalism presented immersive technologies such as augmented reality (AR) and VR (Virtual Reality), and the audience mainly changed the way interacts with the news. This study aims to analyze how this technology affects the user's interaction and understanding compared to the existing news format. To achieve this, data analysis includes both quantitative and qualitative approaches. Quantitative data, such as the time and interaction indicators required for interaction metrics, AR/VR news, are collected using surveys, analysis tools and experimental studies. Meanwhile, qualitative data can be used to use interviews and analysis of the contents to deepen understanding of user's experience, awareness and emotional answers. By studying these data sets, the study tries to determine major trends, user preferences and potential problems associated with AR/VR of journalism. The results will contribute to the extensive understanding of how exciting stories affect news consumption and whether this technology improves or prevents the participation of the audience in the digital age.

4.1.1 Quantitative Analysis

Primary Objective

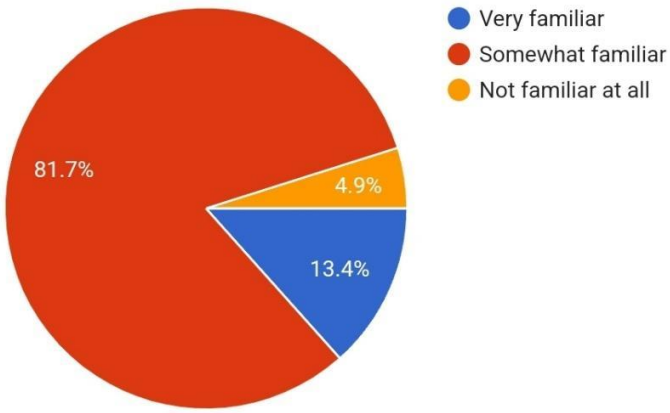
4.1.1.1 To Explore the Potential of AR and VR in Improving Audience Understanding and Engagement in Journalism



Augmented Reality (AR) and Virtual Reality (VR) show a significant potential to improve the understanding of the audience and engagement in journalism as proven by data. Most respondents (76.2%) have improved their understanding of the news, and 14.6% have significantly improved their understanding of complex topics such as science, environment, and historical stories. AR/VR also promotes emotional interactions; 73.8% of respondents feel more sensitive to the story, and 81.1% experience a strong emotional response.

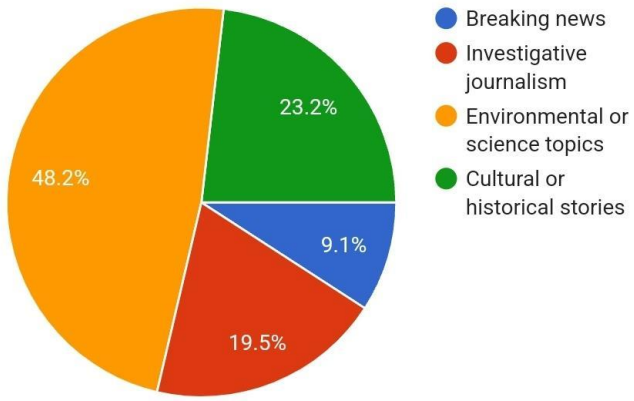
The youngest, technical audience (ages 18-35) and highly educated people are major adoption audience with curiosity and digital literacy. Nevertheless, barriers such as costs, availability, and technical restrictions prevent wider adoption. 28.7% of the respondents indicate the need for a lower device, and 10.4% emphasize the importance of vision and audio quality improvement. Despite this problem, if 54.3% of the respondents provide a unique and valuable experience, they are ready to pay for the contents of the premium AR/VR, which represents the potential of income. To maximize the influence of AR/VR, news organizations must create immersive content on complex topics, aim for young and educated audiences, and focus on reducing barriers and increasing technical quality through available solutions. AR/VR can return to this area and innovate the presentation of the story more, contributing to the field of journalism.

4.1.1.2 Assess the Current Use of AR and VR in Journalism



The data reveals that AR and VR technology are gaining traction in journalism, especially among more youthful, tech-savvy, and relatively educated audiences, with 81.7% of respondents being truly acquainted with AR/VR information content and a simple 13.4% being very acquainted, indicating its niche status. However, there is potential for broader adoption. Younger respondents (18-35 years old) and those who completed their higher education (bachelor's diploma or higher) display higher engagement with AR/VR news codecs, driven by curiosity and digital literacy. However, accessibility and lack of know-how continue to be large barriers, as many respondents cite the need for specialised devices and extra publicity to AR/VR content material as stipulations for wider adoption. In conclusion, AR/VR is currently used as a modern tool in journalism, generally targeting more youthful, educated audiences. Its adoption is confined by technological and accessibility demanding situations.

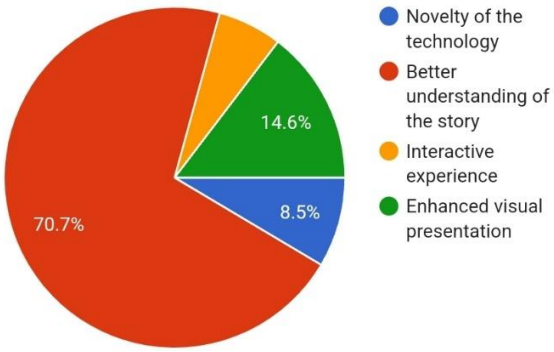
4.1.1.3 Investigate How Immersive Technologies Enhance Comprehension of Complex News Topics



The chart highlights the ability of AR/VR to enhance expertise of complex information subjects, with 76.2% of respondents believing it complements their comprehension and 14.6% reporting sizeable improvements, suggesting that immersive storytelling makes complicated topics more handy. According to the data, AR/VR is particularly powerful for visualizing scientific and environmental problems (48.2%), cultural/ancient tales (23.2%), and investigative journalism (19.5%), excelling in regions requiring targeted visualization. Additionally, 73.8% of respondents experience greater empathy toward AR/VR information, with 12.8% reporting a far more potent emotional connection, indicating that emotional engagement also enhances comprehension by

making stories extra relatable. In the end, AR/VR enhances understanding through immersive, visible, and emotionally engaging storytelling, mainly for complex topics like science, environment, and history.

4.1.1.4 Analyze Successful Case Studies of AR/VR Integration in Newsrooms



24 News, a Malayalam information channel, has efficaciously incorporated AR and VR into its reporting, especially for problems associated with the environment, way of life, and records, efficiently taking pictures to target market attention. To reflect this fulfillment, newsrooms must recognize younger audiences (18-35 years old) and notably educated people, as they may be more likely to have interaction with AR/VR content. Content preferences among the respondents suggest that AR/VR is the simplest technology for topics requiring visualization, including medical principles, environmental troubles, and ancient narratives, making these regions a concern for immersive storytelling. Additionally, 70.7% of respondents engage with AR/VR information to gain a higher know-how of tales, while 14.6% are influenced via stepped forward visual illustration, highlighting the significance of emphasizing instructional and visible fee in AR/VR integration. In conclusion, successful AR/VR integration in newsrooms relies on targeting the proper audience, specializing in visually intensive subjects, and handing over instructional and visually compelling content.

4.1.1.5 Identify Challenges, Including Technological, Ethical, and Accessibility Issues, in Adopting AR and VR for News Production

The data identifies several challenges in adopting AR/VR in the field of journalism, which includes technological boundaries, with 28.7% of respondents citing the want for cheaper entry to AR/VR gadgets and 10.4% emphasizing the importance of enhancing visual and audio first-rate. Accessibility troubles also pose a big hurdle, as many respondents record limited interaction with AR/VR due to the dearth of available devices and the lack of awareness of the technology. Additionally, even as no longer explicitly addressed inside the facts, the immersive nature of AR/VR poses ethical issues, such as emotional manipulation or biased storytelling. Furthermore, 5.5% of respondents demand a greater diversity of topics in AR/VR information, suggesting that cutting-edge content would be an area of interest. In conclusion, the adoption of AR/VR in journalism faces challenges associated with value, accessibility, technical expertise, and content diversity, and addressing these issues is essential for broader implementation.

The data underscores the significant potential of AR and VR technologies to revolutionize journalism by enhancing audience understanding and engagement. A majority of respondents (76.2%) report that AR/VR slightly improves their comprehension of news stories, with 14.6% noting significant improvements, particularly for complex topics like science, environmental issues, and historical narratives. These immersive technologies also foster emotional engagement, with 73.8% of respondents feeling more empathetic toward stories and 81.1% experiencing intensified emotional responses, making news content more relatable and impactful. Younger, tech-savvy audiences (18-35 years old) and highly educated individuals are the primary adopters, driven by curiosity and digital literacy. However, barriers such as cost, accessibility, and technical limitations hinder wider adoption, as 28.7% of respondents cite the need for cheaper devices and 10.4% emphasize the importance of improving visual and audio quality. Despite these challenges, 54.3% of respondents are willing to pay for premium AR/VR content if it offers unique and valuable experiences, indicating potential for revenue generation. Successful case studies, such as 24 News in Malayalam, demonstrate the effectiveness of AR/VR in capturing audience attention, particularly for topics requiring visualization like environmental, cultural, and historical stories.

Reporter TV additionally makes use of AR and VR era to decorate target audience engagement via immersive storytelling, making complex subjects like landslides more understandable and relatable for visitors.

To maximize the impact of AR/VR, news organizations should focus on creating immersive content for complex topics, target younger and educated audiences, reduce barriers through affordable solutions, and enhance technical quality. By addressing these challenges and leveraging the strengths of AR/VR, journalism can harness these technologies to transform storytelling, deepen audience engagement, and expand its reach in innovative ways.

4.1.2 Qualitative Analysis

The integration of AR and VR has been changed to media according to the way the audience consumes information and how journalists talk about it. This analysis explores the influence of AR and VR, focusing on news participation, media expertise, interactions with the audience, and journalism prospects.

4.1.2.1 How Are AR and VR Changing the Way News Is Consumed?

AR and VR allow journalists to create interesting experiences beyond traditional text, images, or videos. For example, AR and VR can move the audience to the center of news events such as conflict zones or natural disasters,which can better comprehend the situation.

This exciting approach contributes to a deeper understanding and emotional connection with the news. With increased live reports and the application of digital elements such as data visualization or 3D models to the real world, AR and VR are attracting more attention than the existing format. Studies have shown that viewers spend much more time interacting with AR/VR content because they have a dialogue and are visually convincing. AR and VR allow the audience to study the story at their own speed. For example, AR infographics can disclose more information by pressing the elements, while the VR documentary allows the audience to check and focus on the audience. Also, AR and VR documentaries on the crisis of refugees can cause compassion and understanding in a way that traditional reports cannot. AR is more suitable as it adds context and depth to the story.

4.1.2.2 What Unique Opportunities Do AR and VR Provide for Journalists Compared to Traditional Media Formats?

AR and VR present journalists with distinct possibilities that conventional media formats can't provide. These technologies facilitate engaging storytelling, allowing audiences to "witness" news events through 360-degree footage or AR enhancements, cultivating stronger emotional ties and comprehension, including reconstructions of crime scenes. By incorporating AR and VR, journalists can craft more captivating, interactive, and significant news experiences, expanding the limits.

4.1.2.3 How Do AR and VR Impact the Speed and Accuracy of News Reporting?

AR and VR affect the speed and accuracy of news on news in various ways. AR speeds up and ensures duplicate or real-time graphs during live broadcasts, such as election results or weather updates, so that reporters can quickly and clearly deliver the news. Nevertheless, VR content, which often requires a wide range of production, can slow down the report from the time necessary to make an exciting impression. AR and VR use tools such as 3D models and interactive data visualization in terms of accuracy, but they are risky if they are not carefully checked. This study helps to increase the reliability of the news and to maintain innovative balance that journalists support public trust in ethical reporting balance.

4.1.2.4 In What Ways Does AR/VR News Consumption Influence Emotional Connections to a Story?

AR and VR deepen the news and emotional relationships to create an interesting and interactive experience. AR and VR take the audience directly to history and contribute to compassion and understanding by "testing" events such as natural disasters or cultural festivals. AR and VR apply digital elements such as 3D models or real-time data to add contexts and depths to make the story more attractive. They create more memorable and emotionally effective new reports. Audiences will emotionally connect with the incidents portrayed in the news, fostering feelings of sympathy and empathy toward those affected, which can inspire them to take meaningful action in response.

4.1.2.5 How Can AR/VR Be Used to Promote Media Literacy and Factual Storytelling?

AR and VR greatly increase media literacy and factual storytelling, creating news more transparent, interactive, and educational. AR allows the creation of interactive infographics that describe news creation processes, such as virtual news tours or detailed guidelines for fact

verification, and help the audience understand journalism and strengthen trust in media. VR immerses the audience in experience and emphasizes the difference between factual reporting and disinformation dissemination. In addition, AR/VR makes use of data visualization or three-dimensional models to simplify complex topics so that they can access more than just factual information. AR and VR, which encourage critical thinking and provide tools for information confirmation, allow the audience to get trustworthy information.

The Integration of AR and VR into Malayalam news channels like 24 News Channel, Reporter TV, and Malayala Manorama has transformed how news is consumed and produced in Kerala. These technologies offer unique opportunities for immersive storytelling, data visualization, and audience engagement, revolutionizing the way stories are told and experienced. While challenges such as high costs, accessibility, and ethical concerns remain, the potential for innovation is immense. By embracing AR and VR, Malayalam news channels can create more engaging, informative, and trustworthy journalism for the future.

CHAPTER 5

CONCLUSION

We integrated augmented reality (AR) and virtual reality (VR) into the news industry to greatly change the way the audience interacts with news content. This technique, which provides exciting and Learning experiences, can deepen understanding and emotional reactions and contribute to more powerful connections between the audience and the story. AR and VR allow users to find manual consumption of traditional media formats and study news events with more participation. This change not only improves the user's participation but also opens up a new opportunity to convey the story, allowing reporters to show complex problems in a cheaper and more convincing way. The adoption of AR and VR in the news becomes a problem due to the necessity of high production costs, technical barriers, and professional technologies. These can limit extensive implementation. In addition, to ensure the responsible use of these technologies, it is necessary to take into account the ethical considerations and the potential of information in an immersive environment. Despite these problems, the potential of AR and VR can accelerate the participation of the audience in news consumption. Since these technologies continue to develop, news organizations must maintain the balance between innovation and ethical responsibilities to fully use their potential. This way, they can create more effective experiences for the audience and ultimately draw the future of news consumption.

BIBLIOGRAPHY

1. How using virtual and augmented reality helps local journalists cover Syria. (n.d.). https://gijn.org/stories/how-using-virtual-and-augmented-reality-helps-local-journalists-cover-syria/

2. Podcast, J. M.-. Q. O. T. (2024, November 20). How future technologies like VR, AR, and AI can make TV more inclusive: My insights. Medium. https://medium.com/@jasminemoradi/how-tv-can-become-more-inclusive-using-future-technologies-like-vr-ar-and-ai-current-trends-and-021c6e0ca659

3. Admin. (2018, November 23). How VR and AR can redefine the future of Media and News industry? GoodWorkLabs: Big Data | AI | Outsourced Product Development Company. https://www.goodworklabs.com/ar-vr-in-media-news-industry/

4. Elareshi, M., Ziani, A., Mesbah, H., & Alwahaishi, S. (2024). Determinants of journalists' acceptance of using virtual reality (VR) in news production in the Middle East and North Africa (MENA). Communications. https://doi.org/10.1515/commun-2024-0065

5. Godulla, A., Planer, R., Wolf, C., Lück, A., & Vaaßen, F. (2021). An Immersive Journey through Flawed Technology: Users' Perceptions of VR in Journalism. Journalism and Media, 2(3), 454–468. https://doi.org/10.3390/journalmedia2030027

6. Uskali, T. (2025, April 10). Augmented reality as news. University of Jyväskylä.

7. Chauhan, M., & Jose, J. (n.d.). Virtual reality in news production. Amity School of Communication, Amity University, Noida, India.

8. Kumari, S., & Polke, N. (2019, January). Implementation issues of augmented reality and virtual reality: A survey.

9. Wu, H., Cai, T., Liu, Y., Luo, D., & Zhang, Z. (2020, September 17). Design and development of an immersive virtual reality news application: A case study of the SARS event.

10. Watson, Z. (2017). VR for news: The new reality?Reuters Institute for the Study of Journalism.

11. Medium. (n.d.). Medium. https://medium.com/@jasminemoradi/how-tv-can-become-more-inclusive-using-future-technologies-like-vr-ar-and-ai-current-trends-and-021c6e0ca659%20How%20Future%20Technologies%20Like%20VR,%20AR,%20and%20AI%20Can%20Make%20TV%20More%20Inclusive:%20My%20Insights%20Jasmine%20Moradi%20-%20Queens%20of%20Tech%20Podcast,Jul%2017,%202024

12. Von Aulock, I. (2024, March 7). AR and VR in media: The 2024 guide for media industry professionals.

13. Del Castillo, M. (2015, October 20). Google partnership gives New York Times 'disposable' revenue stream. New York Business Journal. https://www.bizjournals.com/newyork/news/2015/10/20/google-partnership-gives-new-york-times-disposable.html

14. Godulla, A., Planer, R., Wolf, C., Lück, A., & Vaaßen, F. (n.d.). An immersive journey through flawed technology: Users' perceptions of VR in journalism.

15. Dickson, G. (2024, July 11). Local TV stations widen their embrace of virtual sets, AR & VR.

16. REPORTER LIVE. (2024b, August 31). ചൂരല് മലയില് സംഭവിച്ചത് | AR VR | Mundakkai- Chooralmala Landslide | Wayanad [Video]. YouTube. https://www.youtube.com/watch?v=CyaDXeVMk28

17. REPORTER LIVE. (2025b, March 11) തുരങ്കത്തിലേക്ക് കടക്കാനിരിക്കെ വെടി ഒച്ച, ലോക്കോപൈലറ്റ് ട്രെയിൻ നിർത്തി | Jaffar Express |Pakistan [Video]. YouTube. https://www.youtube.com/watch?v=CzmSdI8B7PA

18. REPORTER LIVE. (2024b, July 26). ദുരന്തഭൂമിയിലേക്ക് മണ്ണ് പതിച്ചതെങ്ങനെ? | Special AR VR Show | Arjun's Rescue | Shirur landslide [Video]. YouTube. https://www.youtube.com/watch?v=i7Gt2AcB5YI

19. 24 News. (2019, January 7). KSRTC യും ഹർത്താലും | Augmented Reality | 24 News [Video]. YouTube. https://www.youtube.com/watch?v=evBFns7Ad88

20. 24 News. (2024, December 8). സുനിതയും ബുച്ചും എന്ന് തിരിച്ചെത്തും ? കാത്തിരിക്കുന്ന വെല്ലുവിളികളേൾ | Augmented Reality | Starliner [Video]. YouTube. https://www.youtube.com/watch?v=lnxH1j9mf4M

21. Pixotope. (2020, June 4). 🌪 Mixed reality tornado destroys a TV studio [Video]. YouTube. https://www.youtube.com/watch?v=eptdhD4GqdQ

22. Pixotope. (2021, February 24). Prime-show Una Hora Menos goes #AR [Video]. YouTube. https://www.youtube.com/watch?v=QCvR6_oYojo.

23. Future Business Tech. (2022, November 19). The future of augmented reality (2030) [Video]. YouTube. https://www.youtube.com/watch?v=D8V2nxeWHmI.

24. REPORTER LIVE. (2023, July 26). അന്ന് കാർഗിലിൽ സംഭവിച്ചത് | Reporter TV AR – VR Special programme – Kargil victory [Video]. YouTube. https://www.youtube.com/watch?v=yP7dUnLXDd8

25. New York Times. (2015, November 8). NYT VR: How to experience a new form of storytelling from The Times. The New York Times. https://www.nytimes.com/2015/11/08/magazine/nyt-vr-how-to-experience-a-new-form-of-storytelling-from-the-times.html.

26. We wait VR. (2016, June 9). BBC Taster. https://www.bbc.co.uk/taster/pilots/we-wait.

27. Sedeño, A., Prades, A., & Villegas, A. (2020). Use of virtual reality and 360° video as narrative resources in the documentary genre: Towards a new immersive social documentary? Research Gate. https://www.researchgate.net/publication/346625965_Use_of_virtual_reality_and_360_video_as_narrative_resources_in_the_documentary_genre_Towards_a_new_immersive_social_documentary.

APPENDIX

1. What is your age group?
2. What is your gender?
3. What is the highest level of education you have completed?
4. How do you typically access news content?
5. How do you find the level of engagement provided by AR/VR news compared to traditional formats?
6. How familiar are you with Augmented Reality (AR) and Virtual Reality (VR)?
7. Have you ever interacted with AR/VR-enhanced news content?
8. How do you perceive the use of AR/VR in news storytelling?
9. Do you feel AR/VR enhances your understanding of news stories?
10. Does experiencing news through AR/VR make you feel more connected to the people or events in the story?
11. Do you feel more empathetic toward news stories presented in AR/VR formats compared to traditional news formats?
12. How does AR/VR news content impact your emotional response to significant events or personal stories?
13. When experiencing news content in AR/VR, do you feel personally involved in the events or situations presented?
14. How likely are you to feel sympathy for individuals or events portrayed in AR/VR news?
15. Do you think AR/VR news content provides a deeper emotional understanding of global issues (e.g., humanitarian crises, natural disasters)?
16. Do you think AR/VR technology has the potential to increase empathy for marginalized communities or social issues?
17. Do you believe that AR/VR news content motivates you to take action on social or humanitarian issues?
18. After viewing AR/VR news, do you tend to discuss the emotional aspects of the story more than you would after consuming traditional news?
19. What motivates you to engage with AR/VR news? (Select all that apply.)
20. Have you ever gone out of your way to find news stories that incorporate AR or VR?
21. What type of news do you think benefits most from AR/VR formats?

22. How likely are you to recommend AR/VR news experiences to others?
23. Do you believe AR/VR makes news reporting more credible?
24. Would you pay for premium AR/VR news content?
25. What improvements would you like to see in AR/VR news content?