

Extra Extra: How Emerging Technologies Can Be Used to Combat Problems in Today's Digital News Environment

Robert Sutton

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Abstract

This research paper investigates how emerging digital media technologies, specifically on-demand audio Podcasts and immersive Virtual Reality experiences can be used to combat problems associated in the digital news landscape of today.

To understand this I first explored how news and journalism are constantly changing in form and medium to adapt to changes in technology and consumer behaviour. I began by charting the path from traditional print media to how digital news operates primarily in a post Web 2.0 internet space. I then analysed the digital news landscape of today and how the problems associated with fake news, low quality journalism and desensitisation tragic events came to exist in society.

Fortunately there is hope for the digital news industry with the public, especially young people, becoming increasingly digitally literate and engaged in how they are accessing their news. This has opened the door to new emerging technologies to enter the tapestry of news storytelling and address the issues I mentioned above with particular focus on the potential of Podcasts and Virtual Reality for journalistic purposes.

The research has been conducted through the analysis of various existing literature in the form of books, journals, articles and reports relating to the topics in question with examples and case studies of those who are using these technologies in a way that is innovative journalistically. These pioneers are acting to propel the industry forward in the modern media environment and are forging a path into the future of digital news.

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Abbreviations Key

VR: Virtual Reality

Introduction

The central crux of journalism should be to focus on the issues that are important to society with emphasis on truth, dignity and adequately informing the public. Since the advent of internet technologies, news is more widely available than ever through ever increasing channels of communication in the form of print, radio, television, and the digital news space which has come to be the most prominent today. Each medium with a distinct voice of their own. The internet has allowed for news to reach further than ever before, compacting our world and exposing us to stories and events that people rely on to be adequately informed as to what is happening across our highly connected society.

Digital news has vastly changed the journalistic process and continues to do so with rapid pace. Journalism has been disrupted time and again and has been forced to adapt quickly to a changing landscape. In this chaos however, a number of problems in relation to misinformation, noise and desensitisation to news material have unfortunately chiselled away at the public trust in news media. Much of this in response to high profile events such as the Trump and Brexit votes in 2016 which called into question the way the media were operating online and whether journalistic integrity can be maintained in a digital environment.

According to digital news reports surveying both reader and publication behaviour, there are signs of life for an industry that appeared to have lost its way. Readers are becoming increasingly aware of the issues relating to digital news and more people than ever before have begun to take affirmative action in sourcing quality news media that will have them adequately informed.

My research aims to investigate how this increase in digital literacy, especially amongst young people who have very often been wrongfully accused of having low attention spans and a general lack of interest in news, is opening the door to new technologies being adopted for journalistic purposes. I look at the reasons why these technologies are suitable for news media, their pathway to establishment in the industry, what it takes for publications to thrive in these new frontiers and how they can be monetarily viable for outlets to invest in. I argue for the merits of these new technologies over the current state

of digital news and identify how they can combat the problems brought up in relation to online journalism in recent years.

The first chapter of the paper is intended to chart the path news journalism took from existing solely in print format to making steps into online journalism and eventually coming to move the majority of their operations to the internet up to the present day. I explore the digital revolution from the perspective of a number of news outlets who took the first major steps into sharing news online, the path to capitalising monetarily on this new paradigm. I look at how web 2.0 made it possible for new forms of media to step into news reporting and the impact social media made how news was distributed.

The second chapter is an analysis of the current news landscape, how the access to information on a scale never seen before has impacted society and how the newly lowered carries to entry into news has brought a slew of new entrants existing solely in new media into the news industry to rival traditional publications for the attention of readers. This increased competition in a new dimension for journalism allows for a lot of positive potential for news to reach larger audiences than ever before but consequently also lead to a number of issues in relation to fake news, low quality journalism, misinformation, partisan environments and desensitisation. I examine reports on publication and reader behaviour to uncover trends towards a more active and engaged readership that is aware of these problems.

The final two chapters identify two emerging technologies in the form of Podcasts and Virtual Reality which I argue have the potential for addressing the problems associated with news today. I analyse the capabilities of these new channels of communication, what they could be used for and their path to establishment thanks to a number of factors that seem to make be making it possible for these technologies to become adopted in news media for the betterment of the industry and society as a whole. I focus on a number of examples and case studies of how these technologies are being used for journalism at the moment, the strategies involved in making these work effectively and how these practices can be viewed as the correct approach in translating quality journalistic integrity to a digital environment.

Chapter One: The Changing World of News

In order to contextualize digital news as it exists today, the problems within it and the technologies involved, we must first understand how the world of news and journalism is constantly changing and how it came to exist primarily in an online sphere today.

In a paper entitled 'The Press', Overholser and Jamieson claim that 'a healthy society is built on the basis of an informed citizenship' (Sperry, 2006). For generations the press has functioned to inform the public, using journalism as the means to investigate and analyse society and build empathy in a public forum. From this perspective, news is a crucial and fundamental aspect of civil life. It provides the public with fair and complete information on which they can base their own decisions. It investigates governmental activity and other sources of power, analyses complicated topics and presents them in a legible and understandable framework as well as allowing the public to learn about the points of view and lives of other people, especially those perhaps lacking a voice in society or generally less advantaged (Schudson, 2008). This is what news should set itself out to do, regardless of what format or medium it exists in.

In the past two to three decades, news publications have sought to capitalize on digital developments and move some, or all, of their practice online. The internet has currently succeeded in changing the practice of news reporting to the extent that according to the Reuters Institute Digital News Report 2018, in Ireland alone, the majority of readers get their news from online sources rather than from print (Newman, Levy and Nielsen, 2018).

In his book 'Designing News', Francesco Franchi explores the development of the digital news revolution. In the 1990's, certain publications such as CNN and The Chicago Tribune took the initiative to invest in their own web sites in order to publish some of their print articles on the internet (Franchi, 2013). The intention of these first mover publications is likely to have been mostly related to brand awareness and capitalizing on a new paradigm rather than a focus on profitability as there were few, if any, monetary channels in place online at this time. Many other legacy media platforms began to establish an online presence as the web continued to grow over the course of the following years. New user focused tools began to be developed, such as news aggregators in the late 1990's. An example of this is the early internet browser Netscape's RSS feed allowing for a

consolidation of news articles in one place, reducing the labour needed by readers to visit many different publications' websites for updates (Doree, 2007). The RSS model was later appropriated by Yahoo homepages and Google News with greater consideration given to a more user-friendly experience. Internet technologies also afforded new opportunities for sharing knowledge presented in visual and multimedia formats, unrestricted by the confines of the printed press and making use of data visualization, moving image and sound. Early examples of this method of reporting can be seen on the website of The Houston Chronicle who premiered a multimedia magazine section of their site involving the combination of text, images, moving image and animations (Boczkowski, 2004). It was becoming quickly apparent that digital technology was providing the news industry with a new medium for circulation and storytelling which required newsrooms to quickly develop brand new skills and strategies in order to compete.

The development of digital news could be described as being quite 'stop and go' for many years as the digital revolution was getting off the ground. Many publication editors who were firmly accustomed to the print medium had little computer or technological skills during the growth of the internet and most newsrooms were already using obsolete publishing systems (Franchi, 2013). An anecdote relating to how newsrooms operated at this time recalls; "Printing out an article on a reassuring piece of paper before saving it on your video terminal and seeing it disappear perhaps forever was the norm for reporters. The web was seen as something for kids, a video game that would soon go out of fashion. At meetings, the words 'I read it on the internet' automatically implied poor information from unreliable sources and made-up news." (Sabadin, 2007). These attitudes were typical of the time and, in order for digital news to be taken seriously by both the public and journalists, a number of things were required to change, starting with increased internet penetration and adoption.

As with any industry, the rate of adoption depends on a number of factors. One such factor is the quality of the content being shared which matters just as much, if not more so, than how innovative the technology in question is. In the case of digital news, in the minds of editors there was trade-off to be made as to whether, or not, to focus their efforts on the digital face of their brand. With the lack of strong monetization strategies in place at this time, many chose to save their best writers and stories for their print versions which predictably stagnated the growth of digital news, due to the general quality of the articles being shared not matching up to the levels readers were accustomed to in print. A special

report in 'The Economist' speaks of websites hiring younger, cheaper staff to satiate the digital angle of their operations and encouraged print journalists to 'defend their turf' (The Economist, 2006). Even newspapers who were happy to reproduce their print editions online in the 1990's and early 2000s were merely doing just that, reproducing what they were already providing in print form and not taking advantage of the new specialized forms of information visualization offered to them by the internet,

The obvious starting point for any monetization strategy in media is to sell space to advertisers. However, at this point there were too few computer users for newsrooms to attract advertiser interest and the cost-to-benefit ratio was unclear from a business perspective. In other words, the cost of investing in a website was clear and quantifiable but the potential return on investment was too difficult to discern. This trepidation was not shared by Wall Street's stockbrokers who were pouring millions of dollars into new companies, many of which were without any of their own capital. Some of this money made its way to the newspapers who were able to hire many new reporters and developers to focus on online activity. However, when the 'dot-com' bubble suddenly burst and this wealth disappeared, the news sites were still unsure about how they were going to get a return on their money (Franchi, 2013).

Despite this setback the web continued to develop rapidly with regular internet usage growing to over a billion people worldwide in the mid-2000s (Internetworldstats.com, 2019). At this stage the original trepidation of publishers not having enough online readers to sell to advertisers had begun to dissipate. With this, the issue of revenue generation for publications was somewhat solved for the time being, along with numerous experimental strategies such as paywalls ongoing. At this point digital news had become a viable industry and one that readers had adopted in large numbers with many now relying on it for their primary source of news. The printed press has now largely been overtaken by online news and a new model for journalism had begun.

The internet, around the time of the 'dot-com' crash in the early 2000s, is commonly referred to in hindsight as Web 1.0, a period characterized by static web pages. There was much conversation amongst technology professionals following the crash as to the future and viability of the internet. A series of conferences, most notably the O'Reilly Media Web 2.0 Conference in 2004 marked a major turning point for the web. It highlighted the movement away from the passive web towards a digital culture of public participation,

harnessing collective intelligence and providing a shift in thinking towards software services rather than digitized products which sought to lock users into using them (Grabowicz, 2014).

For news organizations specifically, Web 2.0 means moving away from trying to draw an audience to your online content and towards communication, interaction and user generated content. This was practically done through embracing online blogs and forums as well as the newly emerging social media platforms. On a high level, social media allows users to set up a personal page allowing them to post updates on what they're doing or feeling while following the activity of friends, family, colleagues and the wider public. Users can become involved in group discussion and display feeds of information and content. For news outlets, prominent social media sites such as Facebook and Twitter provide journalists the opportunity to connect with people and distribute news stories. Perhaps the most groundbreaking aspect of these new mediums was the ability for readers and journalist to engage in discussion directly through comment sections, meaning that stories did not end once they became published. Rather, it became a launch point for discussions and commentary with the public. The impact social media has on user engagement with news is striking from the start and newsrooms were happy to open themselves up to it. A survey by The Bivings Group in 2008, into the online activity of the United States' hundred largest newspapers, discovered that 58% of publications accepted user-generated photos, 75% allowed for comments on their articles and 76% were responding to user activity by compiling a variation of "most popular" stories (Bivings Group, 2008).

The explosion in social media usage during the late 2000s and early 2010s dovetailed appropriately with the gradual ubiquity of smartphone usage in developed countries. Facebook reached one billion users in October 2012 (Statista, 2018), while smartphone usage in the US passed the 50% milestone the same year (Ritchie and Roser, 2019). New devices and new formats meant further changes in the world of digital news, affording new opportunities to engage users. The web had become a network that surrounded users all day long through their smartphones. However, the nature of user interactions with their phones meant that news articles generally made their way to the screens of their readership for much shorter periods than if they had sat down to open a newspaper for themselves, often merely for a couple minutes at a time. This required a change in strategy from publications to reflect the changing reader. Generally this took the form of shorter articles for the online audience, constantly updating 'breaking news', live blogs for

certain public interest events, event calendars and a focus on searchable services taking the form of, for example, 'All you need to know about X', often seen in relation to sporting events where the article will answer quick fire questions based on the most commonly searched questions relating to a match: what TV channel it will be broadcast on, kick-off time, team news etc. This type of content by nature becomes irrelevant quickly and therefore does not translate well to print. The same outlet may concurrently publish a print version on the very same day which includes none of these articles, opting instead for longer feature stories and editorial pieces meant to be perused in a 'sit-down' environment (Grabowicz, 2014).

The transition to digital news involved many other strategies, mediums and structures. However, the few I have highlighted typify the change in attitudes and thinking surrounding the digitization of news. Where newsrooms had struggled to keep up with the rapid acceleration of the web, they gradually became more competent. Those publications, such as The Guardian, who embraced the variety in internet content to suit a contemporary audience, as well as service based thinking, succeeded in capitalizing on digital development, as all quality media design is based on the architecture of the media in question as well as its relationship with users. The digital sphere has not stopped developing, however, and in the next chapter I will explore the current state of digital news at the time of writing.

Chapter Two: The Current News Landscape

The digitization of news has provided access to information on a scale which has never been seen before in society, allowing for a more freely informed and knowledgeable populace. However, digital news has not necessarily been without its drawbacks from a journalistic point of view. The newly lowered barriers to entry for potential new media publications existing solely online allowed sites such as BuzzFeed, Vice and Mashable to join the fray and compete against more established legacy media, relying heavily on social media to access readers. These new outlets, offering a fresh voice and, critically, an understanding of technology, allowed them to figure out how to make ad-funded journalism work financially and making the experience essentially free for the reader. They often thought not of their content as merely words on a page, rather a product that could be fine-tuned and optimized for a tech-savvy reader (Lambert, 2014).

The success of these new media sites was remarkable with BuzzFeed surpassing The New York Times' website in reader traffic in 2013 (Lepore, 2019). Predictably this led to a slew of new entrants into the digital news market which created a huge amount of competition online with unprecedented numbers of outlets, new media and legacy alike, vying to drive reader traffic to their own sites from social media timelines. This culminated in a race amongst outlets to be the quickest to report developing stories, often compromising on research and completeness in the process and therefore prioritizing clicks ahead of traditional journalistic values. Rupert Murdoch went on record in 2006 saying "The world is changing very fast. Big will not beat small anymore. It will be the fast beating the slow." These words were echoed by press outlets across the world (Franchi, 2013). The increasing pace of news journalism manifested itself in many ways, one frequently criticized aspect being the curtailment of the news cycle for many seemingly major events that were often widely talked about for a few days and then disappeared from circulation almost entirely. This led to a sense of desensitization on behalf of consumers due to the sheer number of constantly developing stories which could potentially be a terrible tragedy or a piece of important relevant news, neither of which were afforded the gravitas they deserved in the reporting of such events.

Sensational headlines are nothing new to newspapers, having been seen in print tabloids for many years. As could be expected this practice became more commonplace online in

the form of 'click bait' headlines, becoming a common tactic to spark a reader's interest and, hopefully, get them to click into the article. A major consequence of this activity, however, was the somewhat diminished value of the news story being written about, placing sensationalism over journalistic integrity. The near ubiquity of click-bait headlines and articles contributed in no small part to the trust in the content of digital news continuing to slip in the minds of readers (Ball, 2018).

The trouble with sourcing news primarily from a social media feed is that an unassuming user, particularly somebody with a low literacy level and contextual awareness when it comes to news and journalism, is highly susceptible to deception as articles are generally treated by the aggregator in question (for example, Facebook) in a similar manner, whether they're from a fully fact checked reliable news source or an agenda driven blog site. This was heavily exploited in the mid 2010's during the rise of what came to be commonly referred to as 'Fake News', a term that cropped up during the 2016 US Presidential Election. Since then, it has been blamed by some for electing Donald Trump and by the president himself for undermining his policies in office. In consequence, fake news is tricky to define but, in general, it can be understood as "any story or article meant to deliberately misinform the reader: to make them believe things that the author knows not to be true." (Eustace, 2017). This does not include satirical sites such as The Onion or Waterford Whispers News as they are aiming to entertain rather than inform the reader.

Fake news came to exist partly to draw in readers, leading to increased website traffic and, therefore, ad revenues. These sites are generally clever with their social media marketing and target specific groups of people based on their demographic and with stories that are likely to be of particular interest to them. The other angle of fake news can be seen in the context of propaganda for governments and other powerful organizations who wish to influence public opinion and may dislike what is being published about them in mainstream news channels. The Trump campaign was proven to be complicit in these practices following the Cambridge Analytica scandal which detailed the practices of the analytics company and its attempts to persuade vulnerable voting bases by taking advantage of social media practices regardless of truth and journalistic integrity (Lewis, 2018).

The nature of social media and virality means that oftentimes it can be incredibly difficult to pull back and correct misinformation once it has gone viral. No amount of debunking can eliminate the impact of a fabricated story, erroneous report or propaganda masquerading

as news that has been shared and consumed across the internet (UNESCO, 2018). A hallmark of social media platforms is that users are curating their own content streams, including content from news outlets and information sources they choose to hear from without any mediation. This can increase the traction inaccurate information can spread, as research suggests that emotive content which makes its way into a user's trusted news feed, or shared by people they are close to such as friends and family, is more likely to be believed and shared accordingly (Bakir and McStay, 2017). Similarly, if a user is choosing which sources they hear from and who they don't, echo chambers can develop whereby an individual's lack of exposure to alternative points of view and verified information can amplify the risks of information disorder (UNESCO, 2018).

With the concept of fake news firmly in the public consciousness to the extent of being named Collin's English Dictionary Word of the Year in 2017 (Hunt, 2017), there was a marked erosion of trust in the industry of digital news, according to the Reuters Institute Digital News Report 2016, especially news accessed through social media with only a quarter of the public surveyed thinking that social media does a good job of separating fact from fiction (Newman et al., 2016). The public have seen first-hand the dangers and effectiveness of fake and low-quality journalism and the situation for digital news looked quite bleak around the time of Donald Trump's election and the Brexit vote in 2016. However, just as journalists and newsrooms were forced to adapt their skillsets in response to the growth of the internet, the public now had an opportunity to take a more active and informed role in how they were accessing news and take steps towards a greater standard of digital literacy. Although fake news appeared to have reached its peak in 2016, it is still prominent today with a recent report by Politico suggesting that half of voters in the May 2019 European Parliament Elections may have been exposed to fake news distributed by Russian actors through social media platforms that continue to not do enough to thwart false reports to European voters, aiming to manipulate their views on subjects like immigration and the European Union (Scott, 2019).

The most recent Reuters Digital News report shows signs of hope for the media and explores how discussions over misinformation and fake news has reignited interest in news literacy amongst the public, making us more aware of the spread of false information and leaving us better equipped to navigate through partisan media environments. The general understanding of fake news is also expanding to cover low quality news in the

form of poor journalism, click bait and agenda driven news (Newman et al., 2018). From this point on in this paper I will use the term 'fake news' in the expanded sense.

Following many years of these poor practices being commonplace, there is, thankfully, plenty of data to suggest a positive movement in the digital news industry. The public seems to be starting to realize the danger in relying on freely available articles from social media to tell them a reliable story and are realizing that quality journalism costs. Online news subscriptions are growing substantially, most notably in the US with numbers donating or paying to access worthwhile news sites having massively spiked - more than doubling in the years since Trump's election in a phenomenon referred to as the "Trump Bump" (Molla, 2018). Aside from America, there has been notable growth in numbers paying for news across the globe. The amount of people taking a more active role in where they look for news has had a dramatic effect in the level of trust people claim to have in what they are reading. Over half of readers say that they trust 'their' sources, compared to only 23% who trust the news they read on social media. What is also interesting to note is that a disproportionately large percentage of those making the decision to invest in their news is coming from young people, a powerful corrective from the idea that young people are not interested in journalism, let alone prepared to pay for it (Newman et al., 2018).

An audience who are actively seeking news means outlets have less pressure on them to win clicks in the battlefield of a Facebook or Twitter timeline which, by extension, reduces, but not negates, the need for click bait headlines and the race to be the first to break a story. Instead many publications are thankfully making the decision to move models towards producing higher quality content which will aim to inform, satisfy and visually appeal to readers to make their decision to pay for their news feel justified. A growth in news application downloads, email newsletters and push notifications to the phones of users from sources they have sought verses a decline in traffic coming from social media platforms is symptomatic of this changing of attitudes (Newman et al., 2018). Increasingly researched stories and longer articles, bolstered by a growing appreciation for the power of quality design and visual journalism shows that digital news is reaching a point of maturity and has not died out after these new technologies, which were thought to threaten the survival of the newspaper, have become well established in society (Franchi, 2013). The age of transition we now live in seems to be circling back to the core values of the press and showing the truth behind the prediction Philip Meyer made all the way back in 2004 about a bright wave of young journalists being the ones to figure out how to capture,

package and sell the trust in a digital medium that the media was beginning to let go of through their harvesting strategies (Meyer, 2004).

In the midst of all this digitization, print media and newspapers continue to operate today, most effectively as part of a print and screen tandem that I touched on in the previous chapter. Print has retained its value in the modern day as a more pleasurable reading experience compared to digital. Although studies show that cognitive recall remains largely similar whether an article is consumed digitally or in print, generally, people read printed text on paper about 20% faster than the digital equivalent (d'Haenens, Jankowski and Heuvelman, 2004). In an interesting development, the concept of the physical incarnation of paper and print is having particular resonance among new generations who grew up in the digital age (Franchi, 2013). The tangibility and longevity of print means that although it is not relied upon to be the bearer of the world's news, instead its message is perceived to have increased weight and longevity. In fact, communications executives are seeing the print version of newspapers and magazines as an increasingly target specific medium: for example, senior citizens who are much more likely to be engaged with the print format (Forbes, 2018). Print appears to be finding room for itself to tell specific types of stories effectively, such as longer, visual-driven stories which offer an immersive focused quality that digital finds difficult to match, at the moment. Even Google, the company accused of attempting to kill print with its news aggregation products, now publishes its own limited-edition printing magazine called 'Think Quarterly', citing the magazine as a compelling way of engaging people through a niche publication. This makes sense when we consider that Google's primary market are heavy digital consumers, a piece of print media is going to stick in their minds longer, due to the perceived novelty of the experience (Franchi, 2013).

Reuters Digital News Report in 2018 points to some very interesting developments in social media usage. As I previously discussed, the growth in users on platforms such as Facebook and Twitter has flattened out and there has been a consequent dip in the percentage of users accessing their news through social media new feeds each week. A quote from a female, aged 30-45, in the United Kingdom, taken from Reuters' survey speaks for many when she claims that: "I've actually pulled back from using Facebook a lot since the whole political landscape changed". Similar responses cite 'toxic debates' and 'unreliable sources' for reasons why they don't engage with these platforms to the extent they may have in previous years. Again, this points towards a general surge in digital literacy skills across the board (Newman et al., 2018).

Changes to Facebook's algorithm has recently made it very difficult for business accounts to reach their audience, even for users who already 'like' their page, without increasing their ad spend for each post they share. This only adds to the mounting user frustration with the platform born out of not seeing content from pages they have chosen to want to hear from. From a business perspective though, it has had a catastrophic effect on the operations of many outlets who may have been overly reliant on Facebook specifically to reach their audience (Wagner, 2018). A statement on Twitter from Irish comedy duo The Rubberbandits shows just how detrimental this change has been to those wanting to share content to reach an audience through Facebook. They claim that without 'boosting' a post with ad spend they will only reach the timelines of a tiny fraction of their fans. They also disclosed that in order to reach the timelines of the 450,000 people who have chosen to follow them they would have to pay Facebook close to \$10,000 per post. If this is the level of investment required of many publications and small businesses who operate on tight margins to reach their audience, it is completely unsustainable. Unfortunately, many of these outlets were overly reliant on Facebook to get their word out and are suffering greatly as a result. On the other side of operations, the cost of boosting posts means that many users of the platform aren't being exposed to the sources of news they have chosen to hear from, in favour of whichever viral content, malicious content or large publication that can afford the large advertising costs. This is frustrating for users and contributes to the reason for many are pulling back from Facebook usage.

It is understandable then that the most growth amongst social media platforms is in more direct and private apps without an open forum for public discussion such as WhatsApp and Instagram. Many users feel that their Facebook networks have gotten too big and they feel uncomfortable communicating and sharing openly there. These applications offer a more direct form of communication and users appreciate how they are allowing them to talk to their 'real friends', according to Reuters' survey respondents (Newman et al., 2018). This is an intriguing transition in the way users are accessing information. In the context of news, users are more likely now to take a story from a news application and discuss it, if they choose to, by sharing it in a WhatsApp group chat with people they are close to and are happy to chat freely to. In this way we see a public more in tune with sourcing their own news rather than having it come to them through a Facebook feed. If we pair that with increased public digital literacy, it opens the door to new opportunities for storytelling, in the digital news environment, to a freshly enabled, young and literate audience. In the

following chapters I will explore the potential for new forms of digital storytelling that aim to capitalize on this young and engaged group of consumers and provide solutions to the problems relating to fake news and low-quality journalism experienced in digital news today.

Chapter Three: Embracing Technology and the Rebirth of Audio

As discussed in the previous chapter there are many challenges facing digital news today, but there are signs of life in the form of emerging technologies becoming available to an increasing informed and digitally literate public. The first emerging technology I am going to explore that is having an impact on the digital news landscape in the short term is Podcasts. Before I delve into detail, I will first examine how new forms of technology, such as video, can grow past the emerging phase and establish themselves in the industry.

Online video was one of the first multimedia technologies to truly take off within digital news once home broadband connections grew to become capable of streaming larger file sizes than merely images and static text. Aside from its use in news, the success of online video is typified by the popularity of YouTube with over 1.9 billion logged in users accessing the site each month, combining to watch over a billion hours of content everyday (YouTube Press, 2019). From this, we can deem that online video is very much in the public consciousness.

The explosion in video's popularity pushed many news outlets to invest in videographers and pushing staff towards video content as far back as the mid-2000s as news outlets aimed to take full advantage of the medium. Their attempts seemed to be successful as news outlets passed broadcasters for total minutes of video streamed online in 2010. Although shortly after this peak the buzz surrounding video began to die off and video began reaching a levelling-off point of establishment in the industry beyond its initial hype. Many publications were aiming to push the majority of their news through video. However, analysis of viewer behaviour began to suggest that video production doesn't always translate to big viewership numbers and potentially some of the types of stories being told could be better suited to a scaled down, text-based article that is also cheaper to produce (Grabowicz, 2014). The over reliance on video, even for stories that did not necessarily require any sort of visual aid, led to a dip in production quality and standards, bringing down the perceived value of video in the minds of consumers. Publications responded by scaling back their production of video.

The approach news organizations took to video content required some restructuring to fit an online profile. The traditional style of video most would have been accustomed to would have been television and film, both of which generally have quite high production values. Trying to replicate this style of video does not translate well online. A prominent reason for this is that user attention span is greatly diminished in an online environment when it comes to video. User viewing habits also mean that they are less likely to follow a set of videos episodically as they might on television, in favour of more standalone videos online (Chi, 2018). This is something the Washington Post figured out quickly in 2013 when they launched PostTV as a series of online video news shows. Within the same year, the publication altered the format away from a TV-Style news format with a news anchor telling the story towards individual video segments focusing on a specific topical story or feature (Grabowicz, 2014).

Consumption of online video has continued to rise in recent years, largely through the adoption of native video formats by social media platforms such as Facebook and Periscope as well as YouTube's continuing dominance in the space. It appears that despite user trends towards visiting news apps themselves for articles, the majority of video is still consumed on these third-party sites so news outlets must be aware of sharing video content on these channels as well as on their own sites. Despite the rising consumption, it appears that video is finding a home for itself as a supplement to text articles, which still have preference in the minds of consumers. In the UK, 77% of people would prefer to read an article than watch a video on the same topic (Newman et al., 2018). This number seems high. However, it asks respondents which medium they receive their primary source of news through. For some it appears the amount of time it takes to watch a full video compared to skimming through an article represents a loss in control.

This is not to say that video is not an effective tool for telling stories relating to news. Features and documentaries are a staple of new media news cycles and video's maturity in the industry means that publications have a better understanding as to which types of stories work best for the format as well as the optimal lengths. Video has been proven is very compelling for character-based stories and animations and matters of public crisis, such as natural disasters, where a visual aid is helpful for an audience to fully grasp the story. For example, during the time of the Paris Attacks, the BBC reported that the number of users accessing video content on their site doubled from 11% to 22%. Online video is a

As I have described in Chapter 2, the furore surrounding fake news and the bringing to light of issues relating to the sourcing of news from social media aggregators lead to many in the public coming to the realization that their lean-back approach to consuming news did not leave them as informed as they would like and that quality journalism requires investment in the form of time and, potentially, a subscription. In the digital landscape, however, it appears that consumers, especially young and technologically savvy consumers, are willing to invest their own time and money in acquiring their news from outlets that prioritize quality journalism while also maintaining a strong digital strategy that adapts to changes in the digital landscape and emerging technologies. One such technology that has become hugely relevant in the digital news space in recent years is the podcast.

Podcasts can be described as episodic digital audio files that can be downloaded through a mobile application or streamed online. Podcasts seem to have been around for such a long time that it might be peculiar to refer to them as an emerging technology. However, if we look at podcasting in the context of the hype cycle it is certainly making its way along the Slope of Enlightenment and will before long find itself fully established in the news industry with plenty to offer listeners and publications.

During the emerging years of digital news, it was common to see podcasts and video mentioned in the same breath when it came to emerging multimedia avenues for storytelling such as cited in the 2007 Bivings Report. Apple introduced Podcasts to its iTunes store way back in 2005 with Steve Jobs describing it as ‘the next generation of radio’ (Apple, 2005). Even at this point news outlets like ABC News, BBC and Newsweek were getting involved with podcasting. However, as video began to truly take off, as I have discussed above, podcasts became somewhat stuck in the mud in comparison. Less tech literate members of the public were confused by how podcasts operated and furthermore the nature of the technology requires users to generally take an active role in firstly figuring out what the platform is and then deciding which shows they want to listen to. Video, on the other hand, was much more readily consumable and accessible to the public, hence it’s huge rise in popularity.

Podcasts, in contrast to the explosion of video’s popularity, instead grew steadily with more and more outlets getting on board, producing ever-improving content. Listeners, too,

began to warm to the podcast with listenership growth coinciding with the general increase in digital media consumption through mobile devices (Richter, 2019). Previously, to listen to a podcast would often require staying at your computer while listening to a show. It was somewhat restrictive to users and did not work into their lifestyle as seamlessly as it might on a mobile device. Today, where mobile devices, connectivity and on-demand technology are ubiquitous, the podcast has its chance to shine and audio is enjoying renewed interest from publishers. On-demand technology and much improved connectivity in cars have become a major reason why the podcast is disrupting radio listenership, particularly in car centric cities and countries like the United States. Previously, it was very difficult to connect a mobile device to a car stereo and radio reigned supreme. This is not the case anymore and listeners are choosing podcasts much more readily, as well as the numbers listening on public transport commutes. The unpredicted growth in voice-activated speakers like the Amazon Echo and Google Home have, too, created new opportunities for audio and podcast distribution.

News related content is the most popular type of podcast amongst listeners with over a third of respondents to Reuters' survey claiming to have consumed at least one piece of news podcast, at least monthly. Countries with high mobile internet penetration as well as high social sharing like South Korea see much higher interest in podcasts at around 58%. By comparison, interestingly, European countries like Germany at 22% and the UK at 18%, see much lower levels of podcast adoption, possibly due to the popularity of public broadcasting in these regions. These public broadcasters have little incentive to promote and produce podcasts as they could undermine their profitable radio listenership. Despite this though, podcast listenership does continue to rise, regardless, in these countries, just at a lower rate for the moment (Newman et al., 2018).

The power of the Podcast is in its openness as a platform. Low barriers to entry allow anyone to create and share a podcast through iTunes or other services such as Acast or Soundcloud. The cost of producing a professional sounding podcast has also dropped dramatically with the availability of consumer-focused recording equipment becoming increasingly widespread and a large number of online resources being available. This democratic spirit is a far cry from the traditional radio audio model and many interesting case studies can be brought up as a testament to podcasting and journalistic innovation. The format is much more flexible than traditional linear radio in terms of production, time

length and content. Just as print and video are taking advantage of the types of story they are best suited to, podcasts are finding a niche of their own too.

Firstly, the episodic nature of subscribing to a podcast feed means episodic factual or fiction stories like *Serial* can be consumed on demand, rather than having to tune into the radio at a regular slot to catch a radio drama. Also, long format, conversational podcasts are very popular with listeners despite durations frequently pushing past the three hour mark. Length does not seem to be much of an issue for podcast audiences as they generally choose to listen in while on the move – driving or commuting on public transport - and they can pick up where they left the episode off through the application. This could be attributed to the nature of audio demanding less sensory focus to absorb in comparison to visual or audiovisual content. In a world where we are constantly in motion, and many of us are facing longer and longer commuting times, well produced podcasts can seamlessly fit into our lifestyle and tell effective stories to large audiences.

A large part of the reason I chose to isolate podcasts as a technology that is likely to be relevant for quite some time is down to the extent to which young people have embraced the medium. In a striking demographic trend, half of under 35s consume news content through podcasts. This number is much higher than the numbers in that age bracket listening to traditional radio news and despite their generally longer duration, most podcasts are listened to for 90% of their runtime (Newman et al., 2018). This statistic not only calls into question the line of thought that young people have minimal attention spans but also provides a significant commercial opportunity to publications and advertisers to reach a millennial audience which has proved difficult to grasp.

Sport journalism has always been a mainstay underneath the digital news banner, and we do not have to look far for a case study which shows just how effective podcasting can be in reaching an audience and particularly in how the public are becoming increasingly willing to pay for quality. Ireland's 'Second Captains' are the gold standard when it comes to sport coverage in the digital audio space and have leveraged podcast technology to provide truly independent, member-led journalism to their listeners. What is most interesting to me is how the group began as a regular slot on the radio station NewsTalk. However, in 2013 they spotted the potential in moving their show away from the restrictions of a traditional broadcaster and into podcasting. This move, although risky and unprecedented in Ireland, proved ultimately fruitful as the group were able to bring their

audience and regular contributors with them to a space which allowed for more frequent programming and the freedom to cover whichever stories they wished to cover in as much detail as desired and test out experimental production techniques in the process (Hanratty, 2018).

Although often regarded as a light-hearted look at the world of sport where listeners can be treated to episodes chronicling the underage rugby careers of popular comedians, their range is commendable, as the group are just as capable of putting together some very important and cutting-edge journalistic pieces. Their discussion in response to the verdict of the Belfast rape trial in 2018 is often held aloft as possibly the most reasoned, well measured and powerful breakdowns of what was an incredibly high-profile and sensitive story in the history of Ireland, not to mention the sporting world, and is a testament to effective journalism's potential for positive change. This juxtaposition of styles is something traditional media outlets would generally not be comfortable with on account of potentially alienating the audience. However, the Second Captains' listeners clearly appreciate this approach and have gladly followed them to the digital space in their hundreds of thousands.

After establishing themselves, producing regular content free of charge for four years, the Second Captains decided to take another risk and make the move to paywalled content. This was very uncommon in the digital news audio space. The new monetization strategy involved the use of the Patreon service which allowed listeners to pledge €5 a month to access daily podcasts, in addition to the two free episodes a week still open to everyone to listen to. This was a carefully considered move which again paid off for the group with over 11,000 members contributing each month at the time of writing. Considering the number of sport podcasts available completely free of charge, the success of the jump to paywalled content for a show like Second Captains is impressive. It signifies the importance of listener-lead journalism, combining strong character and journalistic integrity with many contributors writing for major newspapers and publications being featured. It is not only a testament to the public's ability to recognize and reward quality but also embodies what the modern media landscape should be striving towards. They have succeeded in bringing the journalistic value and trust associated with legacy media into digital media in both a technical and monetary sense.

Strong journalism alone is not enough to succeed in podcasts though and a strong digital strategy is required. Traditional radio is very different in form to what succeeds in a digital podcast space. Some terrestrial stations have released their radio shows in podcast form, but this is more meant as a 'listen back' option rather than repackaging their programming for a digital audience. Listening to these shows in podcast form does not feel natural as the majority of terrestrial radio programming is geared towards engaging a live listenership through the use of text message competitions, encouraging listeners to 'call in' to the show to contribute and other tropes of radio programming that do not translate well into a digital podcast format. An example of this is the popular sporting radio show in Ireland on terrestrial radio, 'Off The Ball', who broadcast daily on NewsTalk and also release their shows as podcasts. However, it is clear that the listening experience is not optimized at all for digital consumption. For instance, if there was a football match being covered live as it happened, the later listener must listen through a running analysis of a game that they already know the result of which can make for a tedious experience. Second Captains, in contrast, record their podcasts after the events have taken place and as a result can provide thought-out analysis of the games and stories in question with the benefit of hindsight in a way that feels far more instinctive to the listener. Fast turnaround times means that Second Captains episodes can be pushed out to listeners shortly after they are recorded, making the content timely and relevant while simultaneously offering strong journalistic integrity. Repackaging the show with the needs of the digital on-demand audio market in mind makes for a much more appealing listen in comparison to Off The Ball despite both being available in podcast format.

Part of the reason a digital first strategy works so well for a show of this nature is the freedom you have in terms of structuring a programme. Second Captains operate on a subscription model and therefore do not have any breaks in their recordings for advertisements, so the show is not disrupted and conversations are allowed to flow freely regardless of time constraints. Similarly, having left terrestrial radio broadcasting, where they were required to work within a particular time-slot, Second Captains can make their own decisions as to the duration and frequency of their podcasts. Generally, they range in length between 35 and 80 minutes and this fluctuation allows for both the ability to extend discussion to do a story justice and likewise to trim any superfluous content.

Leaving terrestrial radio allowed Second Captains to access a younger, more engaged audience who are accustomed to paying for on-demand services in relation to video such

as Netflix, in comparison to a generally older radio listening demographic who are less exposed to paywalled digital content. Understanding the trends which I explored previously, relating to under 35s engagement in podcasts and their willingness to both seek out quality journalism and, also, pay for it, Second Captains were able to transpose a model from subscription video services into digital audio. Attempts to paywall content have not always been successful for many publications and even in cases where there is strong initial buy-in from consumers at the beginning, the fact the content isn't freely sharable online limits the potential growth of the outlet in question. Second Captains have come up with an innovative strategy in relation to this where they publish two free podcasts on a Monday, covering the weekend's sporting stories. This being the bulk of a standard week's action means the majority of casual listeners will be most interested in these shows, so listenership is high. During these broadcasts they offer listeners the opportunity to sign up to the paywalled content through Patreon to access the more in-depth discussions and extra content that is published daily for the rest of the week. There is also a short 'highlights' of the paywalled episodes each week released to further drive listeners to sign up to the full service. This strategy works to the extent that what are generally the biggest shows of the week are freely available and openly sharable so consumers can become familiar with the podcast while, simultaneously, the majority of the published content is paywalled meaning that casual listeners have an incentive to sign up to the full service and feel as if they are getting a return on their investment. In contrast, many podcasts using the Patreon service appeal to listeners to donate out of a sense of loyalty and kindness with little extra content being offered in return. This is effective in some cases. However, the Second Captains model is much more robust.

Second Captains is a great example of how traditional news values can work, can adapt and capitalize on digital media through innovative journalism and an understanding of the medium. It speaks to the ability of a focused and invested audience to seek out reliable sources of news, not just in sport but in wider journalism, without having to rely on widely shared social media aggregated sources. This in turn helps to diminish the impact, spread and overall effectiveness of fake news and low-quality journalism in wider society.

Chapter Four: Virtual Reality - “The Ultimate Empathy Machine”

In Chapter Two I alluded to shortening news cycles as having the effect of a general emotional desensitization in the minds of the public in relation to tragedies as one of the issues relating to digital news. The rapid stream of breaking news from all over the world often means that stories leave the public conversation very quickly after entering it and as a result they cannot be explored to the extent they deserve. This is frequently seen in news relating to terrorism attacks in the Middle East or various natural disasters. Imparting empathy for others is one of the pillars of journalism and it is often lost in the digital news world. Video and text-based reports alone are struggling to convey the emotional depth of these stories and this is where Virtual Reality can play a role in the future to a technologically savvy news consumer.

Virtual Reality (VR) has the potential to take engagement in storytelling and increase it considerably through intense sensory immersion in virtual worlds. VR, in recent years, has begun to emerge from preliminary experiments and has achieved some degree of integration in journalism as well as becoming a consumer facing product used for various activities, most prominently gaming. VR, as we know it today, takes many forms with varying degrees of sophistication, from viewing 360 degree video through the screen of a smart phone with no headset and therefore limited immersion, through basic VR viewers such as Google Cardboard, to full VR headsets such as the HTC Vive and Oculus Rift which allow for a full range of interactions with 360 video and graphically rendered virtual environments as much as is possible to be developed today. There is great hype surrounding VR at the moment, exemplified by Facebook’s purchase of Oculus Rift in 2014 for \$2 billion (Watson, 2017). The challenge for VR becoming fully established in society in the long-term will be in finding appropriate use cases that can take advantage of the technology’s potential.

The power of Virtual Reality is in how our brains perceive what is being shown compared to the standard digital screen we are used to on a computer or mobile device. Highly sophisticated headsets, such as the HTC Vive, will display a stereoscopic image to the user’s eyes and, as their head moves, it tracks where you’re looking and displays a different image appropriately. This sensation of being ‘in’ the world you’re looking at is powerfully immersive and your brain begins to subconsciously react to the spatial stimuli it

is being presented with, even though your conscious mind may constantly be reminding itself that what it's experiencing is not our physical world. It has been shown also that what we are being shown does not have to be captured in 360 film in order to provoke a response; that the brain is able to suspend its disbelief even in a slightly crude graphical rendering of a virtual world. (UCLA, 2014)

It's at this subconscious and emotional level where VR is very effective, to the extent where the technology has proved practical for various therapeutic purposes. Studies have been carried out with those suffering with Post Traumatic Stress Disorder (PTSD) after returning home from military combat where VR can allow them to recreate what they went through in a safe and controlled lab environment. Re-experiencing these moments of trauma allows their brains to come to terms with the experience and, through repetition, has allowed patients to avoid producing such radical emotional responses to triggers. These developments are allowing people to better control their condition and live more normal lives as a result (Rizzo and Shilling, 2017). Due to how our brains respond to VR, as well as the increased availability and affordability of quality headsets, we are starting to see VR projects being developed for all sorts of industries, from teaching surgeons how to perform and practice various procedures to training sales teams. FBD Insurance Ireland have put together a VR programme which allows trainee staff to see through the eyes of an experienced sales agent in how they operate at work. This has been shown to increase the confidence levels in newly trained staff as they claim to have felt like they had 'done it before' (Adaptas, 2018).

Considering the intense and authentic reactions users are having to VR experiences it feels like a natural fit for journalists to answer the call to innovate their storytelling with a technology that echoes the core values of the press in its unparalleled potential for spreading empathy and transporting users virtually 'into' a story. VR news pioneers such as Nonni De La Peña have, with limited funding and resources, been experimenting with immersive journalism pieces such as 'Across the Line' which positions the viewer as a women attempting to access abortion services in often toxic environments that some patients and healthcare staff have to endure to access care every day. The piece utilized digitally rendered models alongside audio captured at real protests as well as documentary footage and was showcased at Sundance in 2016 (Goldman, 2018). De La Peña's aim, with this piece, centres around utilizing the technology to instill a sense of empathy, in the viewer, for these women and allow them to bring this experience back into

their own lives with the hope that will lead to greater understanding and spark positive change. Many users reported being shocked at the level of hateful vitriol that some women have to go through. Although it is difficult to measure the extent to which the experience might change one's stance on abortion, it certainly has opened many people's eyes to the issue and has created a meaningful sense of understanding that is difficult to acquire through a standard article or even video. Other projects of De La Peña's have focused on a similar line of thought, including allowing viewers to experience solitary confinement from the perspective of a prisoner and the realities of life for many homeless LGBTQ people in the United States.

Digital journalists suggest that the news industry should explore a variety of VR content beyond highly produced documentaries due to the increased availability of low cost 360-degree cameras that allow for straightforward post product that is vital for fast responses to breaking stories. For example, the BBC were able to deploy a 360-degree short feature on the Paris terror attacks in 2015 the same evening the events happened, aimed towards mobile devices. This acted as a supplement to their regular text based and television broadcast coverage of the attack and is an intriguing case for how VR can integrate as part of a breaking news story. These 360 videos on mobile could be a gateway to full VR but it is too early to tell for sure. At present, outlets appear to be at a trade-off between producing a quality of experience through high end VR systems or going for maximum reach through low-immersion mobile experiences. When it comes to the news stories that work well in a VR environment, the BBC are of the mind that anything that can be shot better in standard film should not be concerned with adding a 360 element as that will take from the experience rather than add to it (Watson, 2017). This has been the case for some VR projects that have involved, essentially, just reading news articles while in a VR headset which, similar to The Guardian's journalist who worked in VR for the day (Hern, 2017), adds nothing to the experience only needless distraction and disorientation.

There is no rulebook at present but where strong pieces of VR content seem to shine is in visceral storytelling that can also take advantage of VR's position as the 'Ultimate Empathy Machine' as Nonny De La Peña did. Allowing users to 'be themselves' in a specific environment, guided by real events using high fidelity captured audio, seems to me to be an effective formula for journalists venturing into VR. High fidelity stereo audio is just as, if not more important than, video quality when it comes to creating a sense of immersion (Duncan, 2017). Where podcasts turned away from the production techniques and

restrictions of terrestrial radio broadcasting it began to thrive in its own lane of content. Likewise, VR shines when it turns away from being used merely for 360-degree video and projects that do not require VR immersion and focuses on a visceral, interactive experience.

A quality example of VR's effectiveness for immersive journalism can be seen in Ali Eslami's award-winning simulation, 'DeathTolls'. Due to the sheer amount of news we are exposed to on a near daily basis surrounding loss of life from war, drone strikes and terrorism, it is easy for us to become somewhat desensitized to these objectively meaningless data sets. 'DeathTolls' seeks to teach us that these terrible things are happening to not just people, but persons. It places the user in a number of rendered environments, each representing a mass death from Europe to the Middle East. In each location the user is surrounded by body-bags to evocatively visualize each person who lost their life there. There are no numbers being displayed as that would distract from the perceived natural reality of the scene. Users have reported being strongly impacted by the mere presence of the body-bags, claiming that they could 'feel' them. The eight-minute long simulation has been described as an horrific, visceral experience, provoking an emotional response from many users (Lannin, 2017). Although grim, it is a testament to how powerful the technology when used well can be. It is instinctive that intense and dramatic stories may resonate with users more strikingly than more lighthearted content. However, in my opinion, it would be a wise content strategy in this early phase of VR rollout to aim to not only place harrowing experiences in the VR spotlight but make equal room for producing content with a sense of fun involved for audiences that is a joy too. These positive interactions with the technology can minimize the risk that users may subconsciously hold on to the sentiment that Virtual Reality equals stressful experiences in the future.

At this stage of VR's development, aside from great content, increased general adoption of the technology is required for the medium to move forward towards full establishment. VR projects being produced at present, not only have to deal with telling users a compelling story but also have the responsibility to educate users in how to operate VR and what it is capable of. The New York Times have made some interesting attempts to expose their readers to VR and tackle this learning curve, partially through the release of their VR app in 2015 which houses an ever-growing number of VR documentaries as well as a daily 360-degree report. The release of the app coincided with mass distribution of over a million

Google Cardboard headsets to readers, free with the print copy of the newspaper. Although these headsets do not offer the same high fidelity rendition of an experience as the more sophisticated headsets, The New York Times are conscious that investing in these entry-level products is necessary in exposing as many users as possible to VR in the hopes that they see the value in it and, potentially, personally invest in the technology in future (Hopkins, 2018). As well as greater levels of adoption, substantial financial investment is required, not only in the news industry, to bring VR forward as most of the VR funding available at present is coming from technology companies partnering with news organizations. The situation is currently precarious as seed money is unsustainable and it seems uncertain at the moment, where the investment will come from. News companies, as private outlets, are under pressure to stay profitable so are careful when it comes to investing in potentially risky new technologies, Public broadcasters, as is the case with RTS in Switzerland, answer to the public's demands for content and with such a small VR audience in the country it is difficult to justify moving beyond the experimental phase with VR until adoption rates increase in the population (Watson, 2017).

VR news remains, for the moment, very much in its infancy. What VR content is being produced by news organizations is mostly mobile directed 360 video which offers low levels of interaction. Based on the financial binds many news organizations find themselves in, the future developments in VR will likely rely on a number of advances, mostly outside of digital news, and journalists will react to these developments with content creation as they arrive. VR appears to be finding its feet in business facing markets (e.g. for training purposes) but it is still a long-term proposition for consumer home usage which is where it is relevant for news purposes. Mark Zuckerberg, CEO of Facebook and, therefore, Oculus, has set a goal on reaching one billion VR users. He identifies the ergonomics of the headsets and a self-sustaining software ecosystem as the two fronts on which VR must improve in order to achieve even a percentage of this target (Goode and Rubin, 2019). The content challenge I have discussed above, the importance of the appearance and ergonomics of the headsets and how they fit into people's lives cannot be understated. Sophisticated VR devices still require a lot of wires, room sensors and a powerful computer in order to operate effectively and they are quite clunky in appearance. In the same way that podcasts have made the move towards mainstream adoption, by being better able to naturally fit in with the user's life through advancements in a number technological and societal factors, VR must take a similar route. Also, in a comparable vein to podcasts, new monetization strategies for VR must be experimented with and

developed, aside from relying on advertisers and branded content. I would like to add the capacity for sharing and audience analytics as other important channels for VR developers to consider in order to grow amongst consumers. Facebook's position as a social network means sharing is likely to be incorporated into Oculus in the future, but is a vital part of the spread of content and technology today, even when social media is making the move towards more private interactions. The capacity to share content around and experience content co-operatively with friends will do a lot to combat the isolated nature of many VR programmes today and the social aspect will only exponentially grow the numbers of users investing in VR.

Our consciousness in relation to experiences is what defines us as humans so it is not surprising that an intense cognitive experience in VR will make a much stronger impact on a person compared to simply piecing together a fragmentation of an event in their mind through a video or news article. Utilizing this powerful tool of empathy means that VR has been shown to be capable of achieving what all good technology should set out to do and bring people together in a way that makes a positive impact on society especially. Even in this relatively early phase of experimentation, it affords the potential for immersive human and visceral connection, despite being as far into the digital world as we can possibly go at the moment. In an increasingly partisan news environment, where empathy for others is sorely lacking, VR journalists have the opportunity to provide content that allows users to step into other people's lives and show us the common humanity in our universal existence.

Conclusion

This research paper was aimed at investigating the potential for emerging media technologies to provide solutions to the issues involved in the current digital news environment. I initially summarised how the world of news is constantly changing and explored the process news journalism took from print newspaper and magazine format to existing for the most part online.

My research shows that in recent years have have seen large scale changes in the way information is dispersed online and has hugely altered the traditional media practices into a constantly evolving dance with new technologies to tell stories to the public. Journalism to it's credit has adapted quite well to digital disruption and these are still the early days of online innovation. Experimental techniques, business models and content strategies will be found through trial and error to make the most of technology that well benefit the public and publication alike. The key to the success in these emerging environments is in the maintenance of journalistic integrity and translating them to a digital space with a strong strategy to bolster quality content. Make sense of what is happening in the world, report on life as it develops and hold people and institutions accountable for their actions in creative fashion.

Reader behaviour changed substantially in response to the pervasion of digital news post web 2.0, in the way news content was accessed and the amount of time people were able to dedicate to the media when smartphone connectivity became ubiquitous. This change in operations with the addition of numerous new media outlets entering the industry due to increasingly lowering barriers to entry multiplied the numbers of participants vying for reader's attention. Fake news, low quality journalism and click baiting became commonplace tactics to drive traffic to websites in the hopes of spreading an agenda ridden message or support advertising revenue and the entire digital news environment suffered gravely as a result. The state of disinformation, short news cycles and increasingly partisan rhetoric caused societal disrupt on a scale never before seen and the public began to see the dangers in relying to heavily on freely available social media news outlets for comprehensive and dependable news coverage.

This generally raised level of digital literacy, especially amongst young people - many of whom grew up with access to technology and the internet, allowed us to identify the problems facing digital news as it stands and opened the door for emerging technologies to provide solutions. Active engaged consumers became happy to go and source their own news through subscribing to reliable outlets and embracing new forms of media such as podcasts. Podcasts offer an on-demand audio news experience to listeners that fits within their lifestyle and allows for long form, engaging discussion on stories with journalistic integrity. The popularity of shows like this contributes greatly to an informed public that is accessing fully researched stories rather than the social media based news content that was engineered for speed over substance. Podcasts also brought with them new monetisation and content strategies for news storytelling that did not exist in industry previously.

Seeing the success of digital technologies like online video and podcasting, the next generation of news content appears to be coming from Virtual Reality, bringing with it a power to impart empathy to the consumer in a much more effective way than the tools available to journalists in the past. VR is a multifaceted technology with a wide range of potential use cases. In a news context, when used in the correct sense, early experimentation in VR experiences have been extremely successful in placing users into various stories including immersing themselves into the lives of others to gain new perspectives on how fellow humans operate and challenges we are facing. This visceral and emotional connection through the use of technology is exactly what is required for remedying the highly tense and partisan journalists and political landscape we find ourselves in today.

The core values of journalism and news are not simply to inform the public of breaking stories, it is also important to raise awareness to particular problems, critique power structures, instil empathy for others' lives and give a voice to those in society who deserve to be listened to. At it's best this is what technology should allow for, acting as the vessel for news to be leveraged to tell stories in the best way possible.

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