

# *The Impact of Digital Technology on the Storytelling of Contemporary Journalism*

**Jianing Cong**

*Journalism Department, The University of Sheffield, Sheffield, S10 2TN, UK*

**Keywords:** Journalism; Digital technology; Social media; Big data; Virtual reality

**Abstract:** As technology continues to evolve, the impact of digital technology on journalism becomes increasingly apparent. Though much research has been done on digital technology, there is very limited research on how it affects news storytelling. This article will use qualitative research to analyse which aspects of contemporary journalism have been affected by digital technology, and the impact on humanity. The article first discusses the interactivity that the advent of social media has brought to the narrative of journalism, followed by the immersive report that the source of digital technologies such as artificial intelligence and virtual reality has brought. Finally, it discusses the popularity of digital journalism brought about by the widespread adoption of big data and cloud computing in the field of journalism. The results show that changes in science and technology have gradually influenced the way of news narratives, making them progressively more diverse. Although digital technology is still in the developmental stage and vetting and publishing continues to rely on human beings, the impact on news narratives is already evident.

## **1. Introduction**

As society and technology continue to evolve, digital technology, big data, open data and the many technological changes around life are affecting change in journalism, and the way journalism tells its stories has changed in some ways (Weber, Engebretsen and Kennedy, 2018)<sup>[1]</sup>. Storytelling was the primary form of social communication from the beginning, and storytelling has gained popularity in many fields such as advertising, public relations, marketing and education. Nowadays, it is increasingly affecting journalism (Markova and Sukhoviya 2020)<sup>[2]</sup>. The development of digital technology has permeated people's daily lives, including the Internet, artificial intelligence and social media, all of which are accessible to people daily.

There is a number of research on digital technology, but there is limited research on how it affects the journalism narrative and there are different views on the impact of digital technology. When people look at contemporary journalism's way of storytelling, they see that it is quite different from traditional narratives. Markova et al. (2020) found that storytelling in journalism has evolved in two stages as society has changed. The first stage was the development of traditional storytelling in journalism, which was mainly spread through paper, television and radio. The second stage was the development of digital storytelling, mainly using information technology to communicate in a more efficient, faster and more objective way.

## 2. Social media adds interactivity to journalism's storytelling

The advent of social media has transformed journalism's storytelling, allowing it to increase interaction with readers when disseminating news. Social media provides many videos and photos of events that enhance the visual and auditory aspects when spreading the word. For example, images become part of the news narrative on Twitter by being presented in hashtags and users' online tweets. Generally, Facebook is used to interact with events before and after they happen, and videos are created afterward and distributed through YouTube. Therefore, events are generally presented on social media for a relatively long period (Neumayer and Rossi 2018)<sup>[3]</sup>. Social media has fundamentally changed the traditional narrative of journalism, moving away from the one-way communication of the newspaper and television broadcasting industries, increasing interaction, increasing the length of news stories, and allowing readers to deepen their understanding of events. The appearance of a large number of tweets from a variety of users on social media has increased the angle of the news, and those who are part of the events can upload photos and videos directly.

Nowadays, there are already many official media outlets and celebrities using social media to spread the news through online storytelling. For example, there are various news posts on Facebook pages and many media outlets and celebrities have official Facebook pages. They use Facebook to post carefully written posts such as photos and videos. Facebook followers interact with the company by liking, commenting on and sharing the posts, increasing their connection. For example, Humans of New York (HONY) began as a photo blog, posting photos of everyday people in New York City with some text descriptions. Each post on HONY's Facebook page is an example of an online narrative that exemplifies how social media connects with its audience (Wang, Kim, Xiao and Jung 2017)<sup>[4]</sup>. The growth of social media has brought about a fundamental change in the way journalism tells stories, increasing interaction with readers and enhancing their experience of news, both visually and aurally. Even though social media has changed the news narrative, adding to its interactivity, the authority of the traditional report cannot be ignored. Eriksson and Olsson (2016)<sup>[5]</sup> found that social media news sources are becoming increasingly wealthy. People are skeptical of news generated by social media, such as Facebook, and citizens need to find information about current events that they can trust. Traditional communication is more carefully vetted and the news produced is more reliable and authoritative.

## 3. Artificial intelligence and virtual reality provide automation and immersive technology for storytelling in journalism

Automated journalism and immersive technologies are evolving with the development of digital technology, including augmented reality (AR) and virtual reality (VR). Not only are they being developed in all walks of life, but they are also making waves in journalism, with artificial intelligence bots increasing the speed of news storytelling. For example, the Washington Post attempt to have a robot journalist who published 850 stories in a year. Not only does the Washington Post value AI for journalism development, but large media organizations such as the Associated Press have spent a lot of money to hire AI professionals to create and maintain such bots (Tatalovic, 2018)<sup>[6]</sup>. This type of journalism is being reported much faster rate than human journalists. With AI playing an essential role in many aspects of society, AI is gradually becoming a skill that journalists need to learn, and mastering this AI in order to grasp what is happening in the world quickly is having an impact on the speed of the narrative in journalism.

The impact of artificial intelligence on the narrative of news is not only reflected in writing, but also in news broadcasting. For example, Xinhua News Agency had launched an AI anchor for news broadcasting, and in 2018, Sogou and Xinhua News Agency jointly launched the world's first AI synthetic male anchor, "Xin Xiaohao"; the following year, the world's first AI synthetic female anchor,

"Xin Xiaomeng" was launched. In 2020, the world's first 3D AI synthetic anchor "New Xiaowei" was launched (Wang, 2021)<sup>[7]</sup>. The emergence of artificially intelligent news anchors has brought about a fundamental change in television news storytelling, which is not limited to human broadcasters, but can work at high intensity and carry out 24-hour continuous broadcasting to allow viewers to access information more quickly.

The development of Virtual Reality (VR) technology has increased audience engagement and brought an immersive experience to viewers. VR is overgrowing in the film, television and gaming industries and is also emerging in the news industry, providing viewers with the illusion of being in the place where the event is taking place and changing the traditional narrative of news to some extent. For example, Tow News Centre has produced a live virtual reality (VR) news report on the Ebola outbreak in West Africa. It is believed that AI is changing how journalists narrate (Harris and Taylor, 2021). The advent of VR makes for a much more powerful experience for the viewer, more likely to evoke emotion and puts the viewer in the first place, giving a more objective view of things. The main difference between virtual reality (VR) and traditional journalism is in its structure. Immersive VR journalism not only allows the viewer to have a holistic view of the entire news event, but also to participate as a spectator in the news report, or even become the protagonist and experience the feelings of the people involved in the event (Wu, Cai, Liu, Luo, and Zhang, 2021)<sup>[8]</sup>. Virtual reality technology provides readers with an immersive viewing experience, allowing audience groups to have a more objective view of things as they happen. VR offers an immersive approach to journalism, and digital technology offers many ways to make news more engaging for viewers in a narrative form.

With the development of AI and VR in science and technology there are implications for many aspects of storytelling in journalism, but Broussard, Diakopoulos, Guzman, Abebe, Dupagne and Chuan (2019)<sup>[9]</sup> found that storytelling in journalism is not possible without humans and that journalism is an enterprise that revolves around humans. Whether it is the study of how humans use machines in journalism or the use of machines for research and storytelling, the key is to report and discover insights about humans. There is no substitute for the role of humans in journalism. Wang et al. (2018) found that the virtual reality (VR) approach can give viewers a sense of vertigo, VR in news narrative in addition to bringing people a sense of realistic experience in addition to some negative effects from the technology itself that can affect people's reading experience. VR enhances the sense of participation while also bringing physiological discomfort to the reader, digital technology is a technological tool, when technology appears in people's daily lives will produce a certain negative physiological reaction, for some readers can cause a certain negative impact.

#### **4. Algorithms and big data provide digital journalism for journalism storytelling**

Big data is used in many industries, and in journalism it has changed the way news is storytelling because of the rise of big data. Big data provides journalists with a different source of information, providing a wealth of data that can help them produce better quality news. Writing news and gathering news sources is gradually becoming automated through big data and cloud computing. Big data and algorithms help journalists collect data and analyse it, making it more accurate when writing breaking news or event updates. For instance, there are two well-known algorithmic writing software programs in the United States, "Quill" (produced by Narrative Science) and "Wordsmith" (developed by Automated Insights). Since 2014, Automated Insights' Wordsmith has been part of the Associated Press (AP), which has been using writing algorithms to automate the narrative in an approach that has resulted in significant rapid reporting (Hammond, 2017)<sup>[10]</sup>. Nowadays, big data and algorithms are faster and more accurate than traditional news writing and can work non-stop. And the quality that readers care most about is improving as big data and algorithms are constantly being updated.

The content produced by Big Data is voluminous and is pushed out according to the preferences

of the reader. For example, Automated Insights generated 300 million pieces of content in 2013 alone and has the ability to produce 2,000 articles per second, which puts the company ahead of the total number of articles published by other media when it comes to the amount of content. This ability to produce a large number of articles is due to the use of big data, which makes the content produced easily specific, with different articles tailored to different readers' preferences and individual readers, changing the traditional way of narrating news (Hammond, 2017). The application of Big Data has led to a dramatic increase in the production of news, providing readers with personalised articles. Big data comes from the internet, social media, email and many other types of digital data. Big data has the property of providing a large amount of data for applications, but big data alone is just a mere pile of data, and the advent of cloud computing allows for the analysis of this data into useful information (Yang , Huang, Li, Liu, and Hu 2017)<sup>[11]</sup>. Whereas once there was a single narrative style of news, with the development of digital technology today, the use of big digital and cloud computing has led to a greater diversity of narrative styles.

Although big data and cloud computing have had many positive impacts on how journalism is narrated, Zelizer (2019)<sup>[12]</sup> found that some of the harmful effects that the combination of journalism and digital technology can have are often ignored. Digital journalism generally relies on specific audience metrics such as clicks, likes, shares, retweets and followers, meaning that it is unclear how digital technologies can be identified and measured. At the heart of journalism is the idea that individuals belonging to companies with a certain level of visibility and credibility are entrusted with the collection and dissemination of information in the public interest. Developments in digital technology will to some extent affect the way journalism narratives are told. Still, journalism is human-centered and this characteristic will be difficult to change in the short term. Digital technology is somehow not 'smart' enough to distinguish between the content's authenticity and the content's accuracy. Digital technology has had a significant positive impact on the development of storytelling in journalism, but the role of human journalists in journalism remains essential.

## 5. Conclusion

In conclusion, digital technology has gradually influenced how journalism narratives are told through technological change, allowing for a gradual diversification of the narrative. With the advent of social media, news storytelling has become interactive rather than the one-way communication it once was. With the advent of VR and AI, news storytelling is no longer entirely dependent on people. Moreover, it can increase audience participation and improve people's immersive experience. With the emergence of automated journalism, news storytelling is gradually personalised and can be pushed according to user preferences, enhancing the emergence of digital journalism. The development of digital technology is an inevitable trend, and the technology will gradually mature, influencing changes in the way news is narrated. Although digital technology is still not very mature in many aspects, such as the news distribution and vetting process, which still relies on people. However, the impact of digital technology on news reporting is already very evident. Under the influence of digital technology, the way of news narrative is gradually changing.

## References

- [1] Weber, W., Engebretsen, M. and Kennedy, H., 2018. *Data stories: Rethinking journalistic storytelling in the context of data journalism. Studies in Communication Sciences*, 2018(1), pp. 191-206.
- [2] Markova, V. and Sukhovi, O., 2020. *Storytelling as a communication tool in journalism: Main stages of development. Journal of History Culture and Art Research*, 9(2), pp. 355-366.
- [3] Neumayer, C. and Rossi, L., 2018. *Images of protest in social media: Struggle over visibility and visual narratives. New Media & Society*, 20(11), pp. 4293-4310.

- [4] Wang, R., Kim, J., Xiao, A. and Jung, Y. J., 2017. *Networked narratives on Humans of New York: A content analysis of social media engagement on Facebook*. *Computers in human behavior*, 66, pp. 149-153.
- [5] Eriksson, M. and Olsson, E. K., 2016. *Facebook and Twitter in crisis communication: A comparative study of crisis communication professionals and citizens*. *Journal of contingencies and crisis management*, 24(4), pp. 198-208.
- [6] Tatalovic, M., 2018. *AI writing bots are about to revolutionise science journalism: we must shape how this is done*. *Journal of Science Communication*, 17(1), p. E.
- [7] Wang, Y., 2021, May. *The Application of Artificial Intelligence in Chinese News Media*. In *2021 2nd International Conference on Artificial Intelligence and Information Systems* (pp. 1-4).
- [8] Wu, H., Cai, T., Liu, Y., Luo, D. and Zhang, Z., 2021. *Design and development of an immersive virtual reality news application: a case study of the SARS event*. *Multimedia Tools and Applications*, 80(2), pp. 2773-2796.
- [9] Broussard, M., Diakopoulos, N., Guzman, A. L., Abebe, R., Dupagne, M. and Chuan, C. H., 2019. *Artificial intelligence and journalism*. *Journalism & mass communication quarterly*, 96(3), pp. 673-695.
- [10] Hammond, P., 2017. *From computer-assisted to data-driven: Journalism and Big Data*. *Journalism*, 18(4), pp. 408-424.
- [11] Yang, C., Huang, Q., Li, Z., Liu, K. and Hu, F., 2017. *Big Data and cloud computing: innovation opportunities and challenges*. *International Journal of Digital Earth*, 10(1), pp. 13-53.
- [12] Zelizer, B., 2019. *Why journalism is about more than digital technology*. *Digital journalism*, 7(3), pp. 343-350.