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Critical Analysis of Data Visualization in "How the Virus Won"

Project Overview

On June 24, 2020, *The New York Times,* published the data journalism piece "How the Virus Won" written by Derek Watkins, Josh Holder, James Glanz, Weiyi Cai, Benedict Carey, and Jeremy White. Acts as a notable source, observed for its extensive and impactful coverage. This article, published at the height of the COVID-19 epidemic, attempts to demonstrate the virus's rapid and relentless spread throughout the United States. The page utilises interactive visualisations, maps, and animated features to illustrate an account of how the virus entered communities and overwhelmed public health institutions.

Data Visualization Techniques

The user is confronted with a large, potent title that reads "How The Virus Won" promptly as they enter on the "How the Virus Won" webpage. The initial letter of each word is presented in all caps and is centred on the right side of the page. This powerful visual statement is accompanied with a map of the United States that graphically depicts the severity of the virus's spread across the various states with blue pencil-drawn lines and animated viral bubbles. The article's opening graphic establishes the tone and draws readers in by highlighting the pandemic's widespread effects.
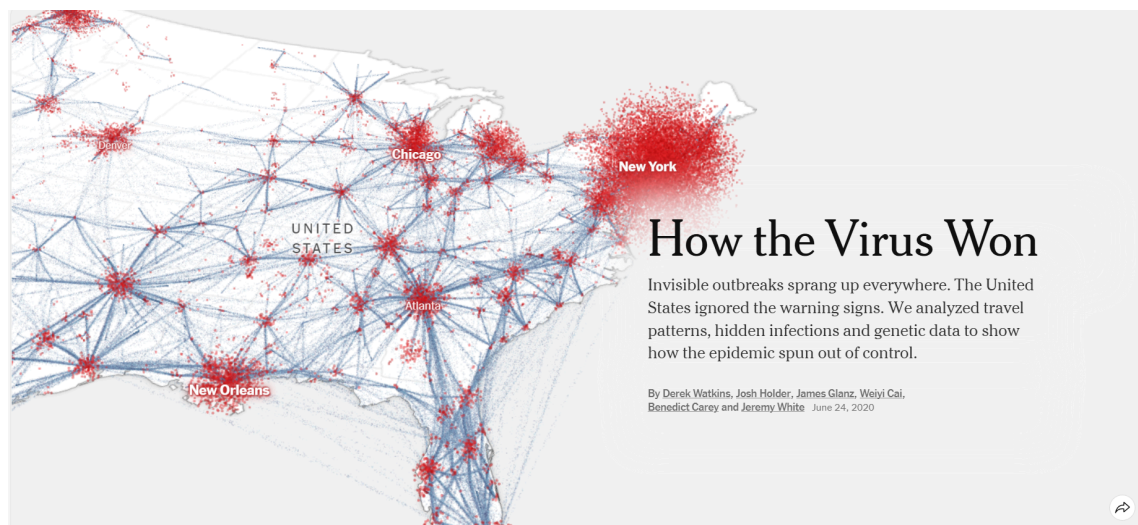

Figure 1.1 showing the initial page

Users will come across a succession of elegantly transitioning interactive animations that go along with the accompanying text boxes as they scroll across the website. For instance, two red beacons are displayed on the map to indicate the locations of the "first two cases of the virus [that] were in Seattle and Chicago," as mentioned in the text. The reader is given a more immediate and palpable sense of the virus's progress because of the efficient reinforcement of the information provided by the text and animation synchronisation. Effective data storytelling, according to Riche et al. (2018), employs visual elements to

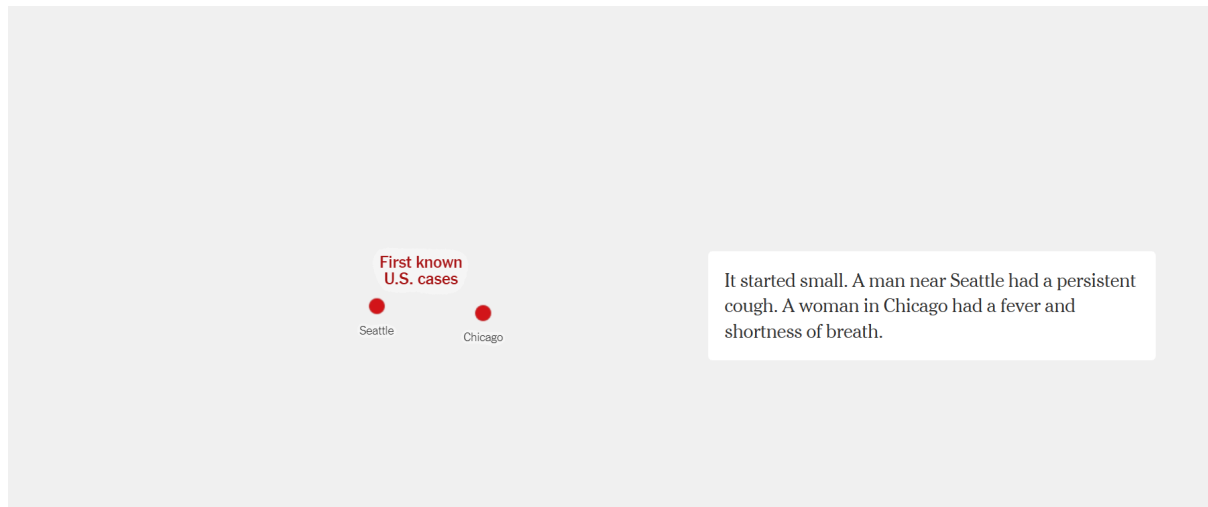provide abstract data a narrative context that engages the audience on an emotional and cognitive level.

Figure 1.2 showing the first known cases in the US

It's noteworthy that the article uses more dynamic and contextually integrated visualisations instead of standard bar graphs and line charts. The visual components include an intricate map of the United States, moving animations of humans as dots, death bubbles, variant virus bubbles, and dynamic virus bubbles that propagate. Together, these components produce a seamless and engrossing visual story. Additionally, the article highlights particular regions on the map by utilising various zoom levels and network animations to highlight population shifts, COVID occurrences, and other pertinent information. Animations can efficiently communicate complicated information over time, as Tversky et al. (2002) discussed, as long as they retain their clarity and narrative significance.

Interactivity and User Engagement

In order to engage users and comprehend data, "How the Virus Won" contains interactive elements. The article's dynamic transitions between text and graphic elements provide users a sense of continuity and immersion as they scroll through it. Users may interact with the data at their own pace and explore various facets of the pandemic's progress in a way that feels natural and educational due to this interaction. According to Hassenzahl and Tractinsky (2006), interactivity that is tailored to users' cognitive and emotional states improves user experience (UX) and makes the interaction more pleasurable and meaningful.

Although the interaction increases user engagement, it also necessitates a certain amount of focus and attention from the user. To properly understand the narrative that is being presented, users must actively scroll and engage with the visualisations, which may be difficult for people who are unfamiliar with digital interfaces or who would prefer a more passive reading experience. This is consistent with studies that show how sophisticated visualisations can increase cognitive burden, which, if not handled appropriately, can cause user exhaustion or disengagement (Sweller, 1988).

User Demographics

An analysis of "How the Virus Won"'s effectiveness requires an understanding of its heterogeneous audience. User demographics can have a big impact on how they interact with data visualisations, including age, education level, and digital skills. While older users may prefer more straightforward, static presentations, younger users, who are more acclimated to digital and interactive media, may find the animations interesting and intuitive (Prensky, 2001). Incorporating engagement measures could yield insightful data. For example, a 2019 Pew Research Center survey revealed that 63% of younger consumers and 45% of older adults favour interactive material.

Different levels of depth or interaction would be included in the article to appeal to different groups. Accessibility might be improved by creating simplified versions of the visualisations for people who are not as familiar with complex data. This would guarantee that the information is inclusive and reaches a wider audience.

UI/UX Design Principles and Evolution

"How the Virus Won" features an elegant and user-focused UI/UX design. The visualisations are the main emphasis of the narrative due to the minimalist design, which emphasises clear typography, lots of white space, and clean lines. The colour scheme, which consists mostly of red, white, and black, has utilitarian significance in addition to being aesthetically pleasing. Black is used to depict the death toll animations and for most of the text, while blue represents the larger context of the pandemic's spread and networks between states. Red is strategically used to highlight important information, such as infection rates, outbreaks, and locations affected.
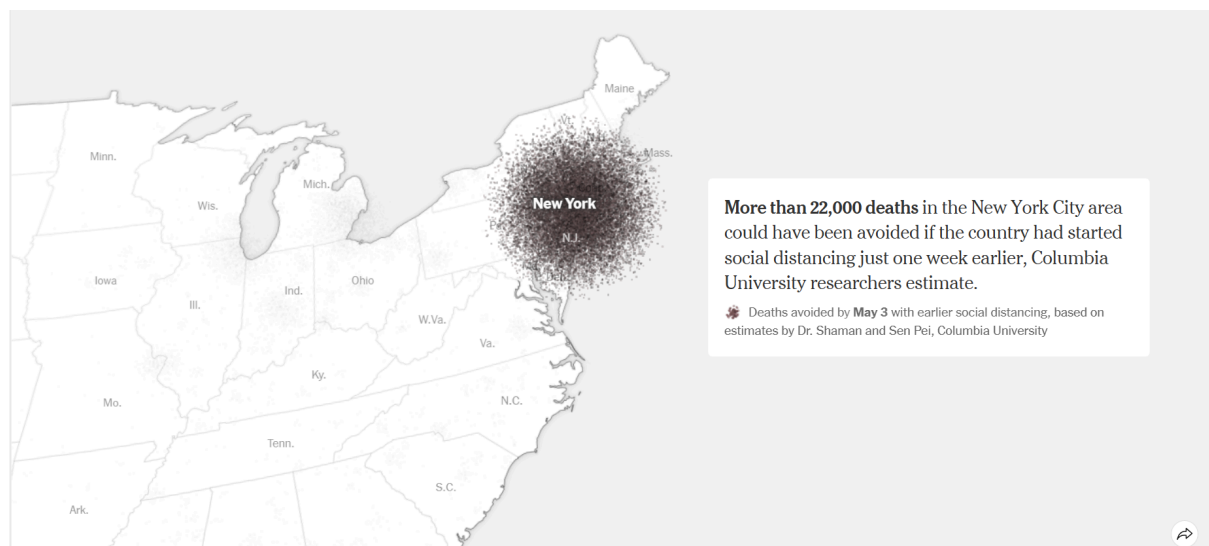

More than 22,000 deaths in the New York City area could have been avoided if the country had started social distancing just one week earlier, Columbia University researchers estimate.

Deaths avoided by **May 3** with earlier social distancing, based on estimates by Dr. Shaman and Sen Pei, Columbia University

Figure 1.3 showing the Death Tolls represented as a cluster of black dots

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And they did. **Millions moved across the country**, cellphone data shows. Some unknowingly carried the virus with them.

Figure 1.4 showing the map of the US with blue lines creating networks between multiple locations and specified areas.

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The user can effortlessly navigate this content by using the responsive animations and seamless scrolling which guides the user through the narrative. Important UX concepts are followed in the design, including consistency, accessibility, and visual indicators for feedback. These components help create a seamless user experience in which the design enhances the information rather than detracts from it.

Digital journalism's design has changed dramatically over the years, especially in response to consumer demands during the epidemic. While modern standards provide an emphasis on interactivity, engagement, and real-time data, previous designs frequently depended on static graphics and text. This change is a reflection of a growing awareness of the role that user experience (UX) plays in educating and engaging readers (Garcia, 2020).

Visual Hierarchy

The visual hierarchy of the article efficiently directs the reader's gaze while highlighting important details and the narrative's progression. A clear visual hierarchy is established through the strategic use of color and size. Red draws attention to important information, such as infection rates, and elements like maps, locations, afflicted individuals, and text boxes are sized to reflect their value. The hierarchy makes sure that readers can quickly and easily discover what they're looking for without feeling overwhelmed. Readability and comprehension are improved by the use of contrast, with high contrast parts for important information and lower contrast for supporting features (Lidwell et al., 2010).

Narrative Techniques and Psychological Effects

The storytelling strategies employed in "How the Virus Won" are intended to increase suspense and keep readers captivated. The way the epidemic progresses is portrayed to create tension through the use of cliffhanger and foreshadowing. In the beginning, the map,

for example, shows 15 red beacons, each of which represents a COVID-19 case in a different location, such as Madison, Chicago, or San Antonio. "The 15 within a couple of days is going to be down to close to zero," President Trump remarked, according to the accompanying text box. "The patients were kept apart. Their communications were watched. China was off limits to travel." However as you scroll down again, the map becomes closer to uncovering secret infections, and the animation of the virus bubbles grows larger in these areas. Subsequently the text box changes to read, "None of that was successful. There was very little of the picture visible. Major cities were already experiencing a spread of almost 2,000 concealed diseases." This change emphasises the virus's rapid spread despite early containment measures and gives the impression of urgency and inevitable outcome. This strategy is in line with psychological theories of narrative engagement, which contend that reader interest is sustained primarily through emotional appeal and suspense (Green & Brock, 2000).
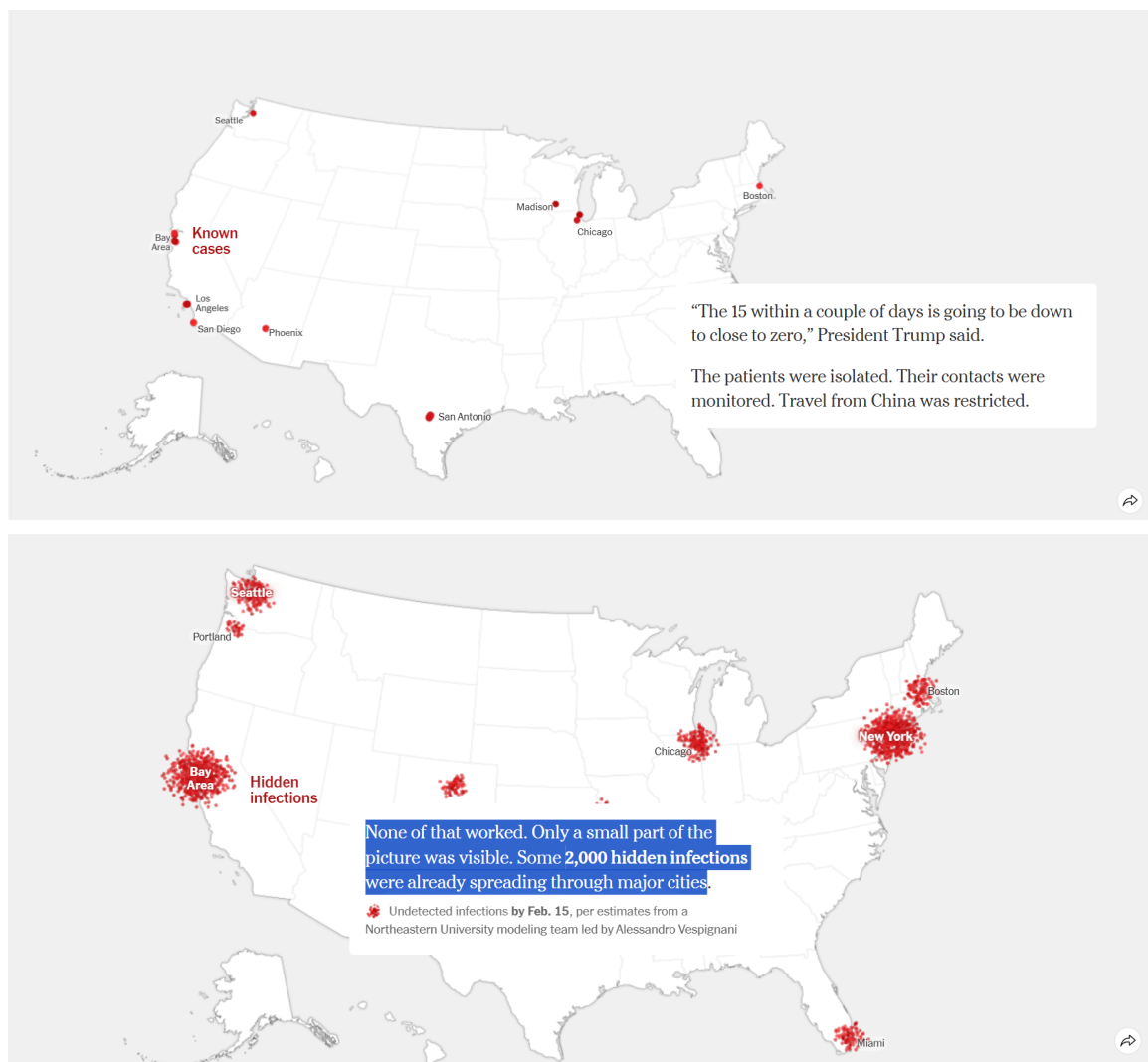
Figures 1.5 and 1.6 showing the reported 15 cases and the aftermath of President Trump report on the situation

Through adding testimonies and personal experiences, the piece humanises the data and strengthens its emotional bond with the reader. This method helps readers sympathise with those impacted by the pandemic by making the data more approachable. The combination of colour, movement, and interactivity heightens the emotional effect and can elicit feelings like dread, urgency, or empathy, which may influence the audience's perspective of the epidemic (Cialdini, 2009).
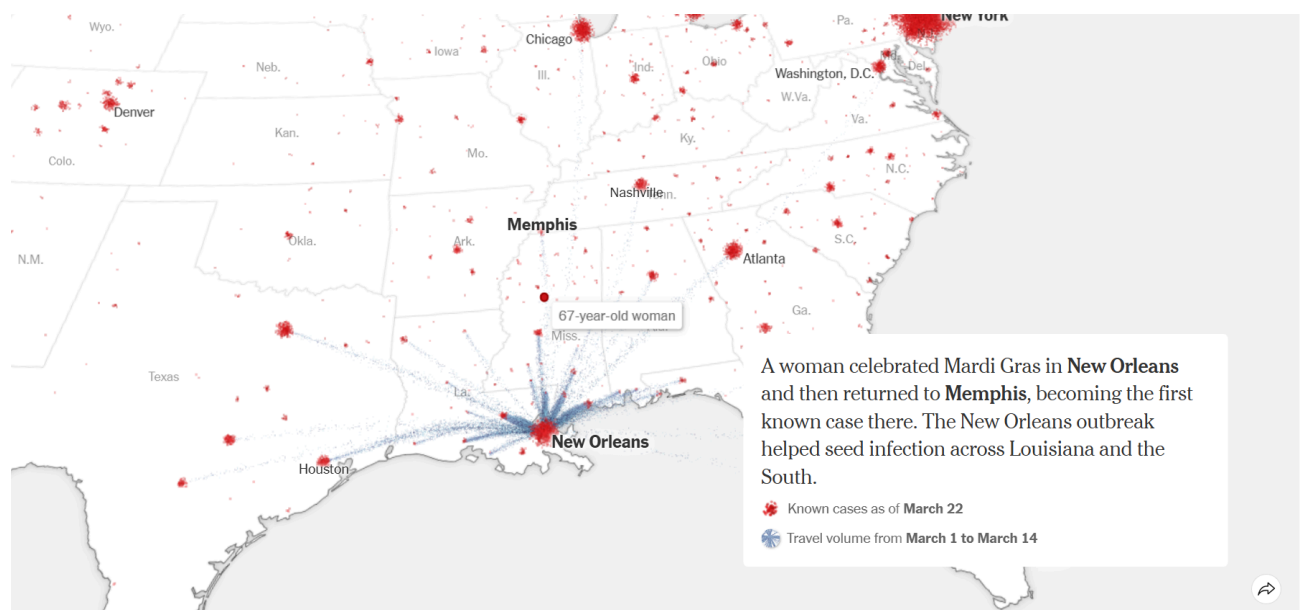

Figure 1.7 showing the a testimony of a Woman becoming the first to be infected om Memphis

Potential Drawbacks

Although the interactive design of "How the Virus Won" has many positive aspects, there may also be downsides to take into account. There is the possibility of information overload, particularly for those who are not used to swiftly processing vast volumes of data. According to the cognitive load theory, people who are overloaded with information may become disengaged or misunderstand what is being said (Sweller, 1988). Furthermore, individuals with disabilities may experience accessibility problems. The article's reach and effectiveness may be limited by interactive aspects that are not entirely accessible to individuals with motor impairments or those who rely on screen readers (W3C, 2018).

Future Directions and Conclusion

Future developments in data visualisation and storytelling could see a rise in the application of artificial intelligence (AI) and machine learning technologies, which can improve user engagement and personalise content. With the use of augmented reality (AR), users may be able to study data in fresh and creative ways and enjoy immersive experiences. These developments have the potential to further change the practice of data journalism, rendering it more interactive and user-focused (Hamilton, 2021).

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In conclusion, "How the Virus Won" demonstrates how powerfully well-designed data visualisations can convey difficult information. The article delivers an immersive and captivating experience that improves user knowledge and engagement through the integration of interactive features, narrative storytelling, and intelligent UI/UX design. Prioritising inclusion and accessibility is crucial as data journalism evolves to make sure that all audiences can take use of these innovative techniques. Readers can grasp the consequences of information presentation and make more informed decisions regarding public policy and health communication by critically interacting with data journalism.

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