

Narrative Visualization Assignment, Summer 2023 by Manaswi Kashyap

GitHub Page Link: <https://mkashy3.github.io/index.html>

Messaging. What is the message you are trying to communicate with the narrative visualization?

The message I was trying to communicate with this narrative visualization is the impact of COVID-19 worldwide through an examination of the latest data collected by the “Our World In Data” team from 2021 to 2023 regarding vaccination rates. Specifically, I wanted to delve deeper into the vaccination trends amongst countries and also how countries that rank lower on the socioeconomic scale might display different vaccination rates compared to countries that rank higher.

Narrative Structure. Which structure was your narrative visualization designed to follow (martini glass, interactive slide show or drop-down story)? How does your narrative visualization follow that structure? (All of these structures can include the opportunity to "drill-down" and explore. The difference is where that opportunity happens in the structure.)

The structure of this narrative visualization was designed to follow the interactive slide-show, however it also contains elements of a martini glass structure, as we only observe true interactive exploration of the data at the very end of the slideshow, on **Slide 4** “Total vaccinations per hundred vs. People vaccinated per hundred in the United States”. The user interaction comes in the form of a dropdown menu containing a list of states from the United States of America, and the viewer can select from this dropdown to see a drilled down POV of vaccination distribution rates for that particular state.

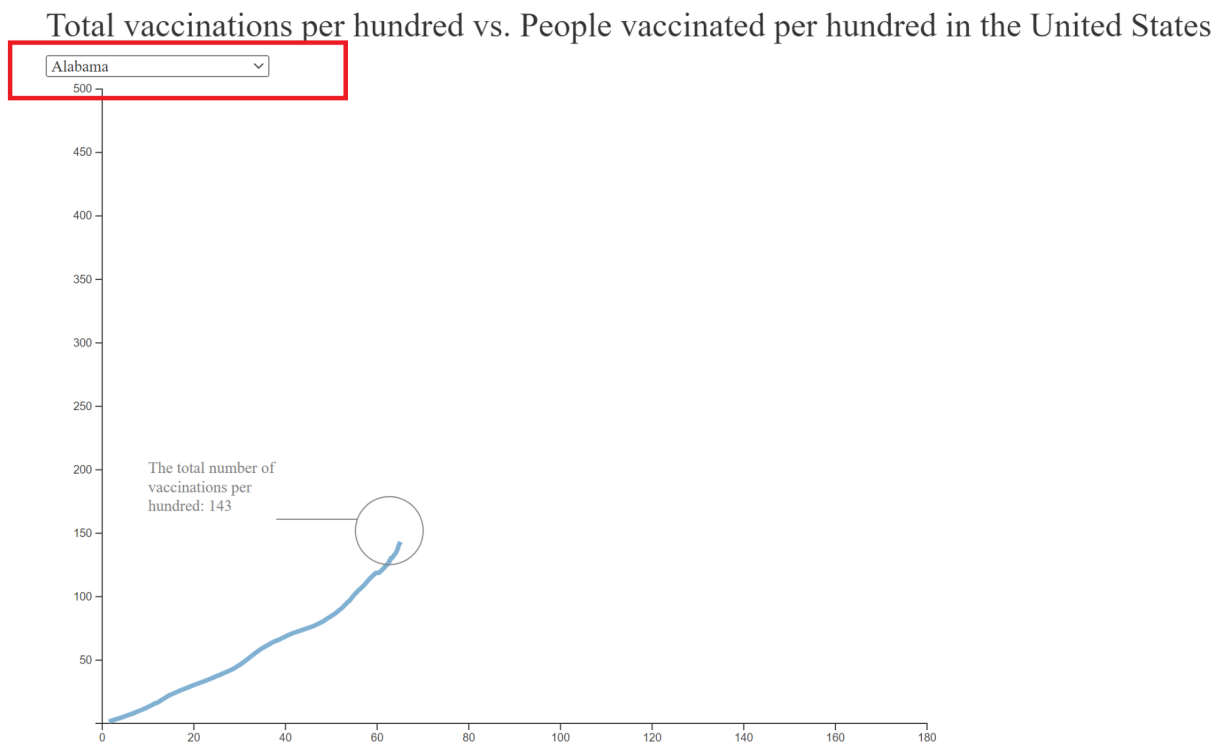
My structure was more reader-driven and hybrid, as the viewer has the option to control the pace at which they progress between scenes. Alternatively, of course, they can drill down on a particular scene if they choose to do so.

The viewer can choose to progress between scenes using the buttons at the top of the page to either advance to a different scene or to return to the ‘Home Page’, or the introductory slide, hence the slideshow structure.

Of course, each slide also offers the viewer the opportunity to drill-down and explore further on the particular dataset that is being displayed before them. In particular, **Slide 1** shows a global overview of the total vaccinations per hundred, along with the total covid cases per million, while **Slide 2** drills down on the same dataset and shows a subset of the data, focusing in on the

countries that had a much smaller number of covid cases given their vaccination rates. This way, the viewer can focus on a particular piece of the data distribution from **Slide 1**, which may offer a new perspective.

Finally, as mentioned above, the final slide allows the user interaction with the dataset, which concludes the final piece of the martini glass structure. *Therefore, while the scenes are arranged in a slideshow format, the true narrative structure in this project was martini glass.* The interaction can be observed as follows:



Visual Structure. What visual structure is used for each scene? How does it ensure the viewer can understand the data and navigate the scene? How does it highlight to urge the viewer to focus on the important parts of the data in each scene? How does it help the viewer transition to other scenes, to understand how the data connects to the data in other scenes?

The visual ordering genre for this visualization was a slideshow, and the viewer could progress between each scene to the next using the buttons located at the top of each page to either advance to the next scene, to switch to a different scene entirely, or to return to the introductory 'Home' page.

A key part of ensuring that the data was easy to understand and also simple to navigate was making sure to use the same template across scenes. Particularly between **Scene 1** and **Scene 2** I used exactly the same template and the same dataset, but I simply drilled-down to view a subset of the data in **Slide 2**.

Additionally, I maintain the exact same color scheme across each and every scene in the visualization, another factor that contributes towards maintaining visual consistency and ease for the viewer as they navigate through the scenes. Finally, the legend between **Scenes 1** and **2** are also the same, so as to highlight to the viewer that both scenes are sources from the same dataset, but one is simply a drilled down version of the former.

I utilize annotated charts throughout the visualization in order to draw the viewer's attention to particular data points of significance. For example, in **Scene 1** I annotate data points that reflect the more extreme ranges of vaccination rates or coronavirus cases reported.

The slideshow format keeps each scene on a separate page, and this allows the user to focus and drill-down on a particular data representation, e.g. global trends of coronavirus, and then they are able to draw particular conclusions specific to this representation. When they switch to the next scene, they are offered a fresh perspective on the data as it is presented in a new format, and they can begin to draw a whole new set of conclusions.

Additionally, by following the slideshow visual ordering, each scene is kept on a separate page and the user has the freedom to either follow the order delineated by the menu of slides located at the top of each page, or they can also choose to switch to another scene entirely. The aim is to spark interest and the joy of discovery as they proceed from one scene to the next. While visual ordering is maintained using the slideshow menu at the top, there is also no harm in allowing the viewer the freedom to switch between slides as they see fit.

Scenes. What are the scenes of your narrative visualization? How are the scenes ordered, and why?

I have four total scenes in my narrative visualization, preceded by an introductory 'Home' page, and they are created as four separate slides / pages that the user can navigate through using the content menu located at the top of the web page. The first scene is titled "Total vaccinations per hundred vs. total covid cases per million" and when the user hovers over the chart they should see the total covid vaccinations per hundred, along with the total covid cases per million. The second scene is titled "A closer look: how poorer economies rank on total vaccinations vs. covid cases" and, similarly to the first scene, when the user hovers over the chart they should see the total covid vaccinations per hundred, along with the total covid cases per million. Unlike the previous scene, however, this scene offers a more drilled down perspective on the same dataset,

showing only a subset of the original data scene in the previous slide. The third scene is titled “A global impact” and when the user hovers over specific countries found in the world map, they should see the country's name, along with their total number of covid cases per million people. The fourth and final scene is titled “Total vaccinations per hundred vs. People vaccinated per hundred in the United States”. When the user selects some American state from the dropdown filter they will be able to see how that state’s vaccination rates (total and by people) changed from December 2020 to August 2021.

The scenes are ordered so as to follow the martini glass structure of visualization, allowing for true user interaction with the data only on the fourth and final scene. The first slide begins by offering a higher-level perspective on covid-19 vaccination trends globally, but then the following scene, **Slide 2**, offers a new and fresh drilled-down perspective on the same dataset, showing only a subset of the original data. The third scene once more offers a higher level perspective on the impact of coronavirus globally, but then transitions to **Scene four/ Slide 4**, where we once more drill down and take a closer look at one country in particular, the United States, and this time the user has some freedom to interact with the data and to draw their own conclusions regarding vaccination trends for the coronavirus.

Annotations. What template was followed for the annotations, and why that template? How are the annotations used to support the messaging? Do the annotations change within a single scene, and if so, how and why

I followed the text classification template for my annotations, as this allowed me to provide visual consistency and additional detailed information regarding particular data points for the viewer. Choosing to put an annotation for a particular data point serves to highlight it when the viewer first happens upon the scene. This highlighting can help the viewer build to the conclusion.

In **Scenes 1-3** the annotations maintain a consistent template to promote visual consistency to the user. Additionally, the annotations serve to highlight key points in the dataset being displayed to the viewer. For example, in **Scene 1**, the annotations are only present for the values that either show the highest or the lowest values on each axis, so as to highlight the extremes from the vast number of datapoints currently displayed in the UI.

For **Scenes 1-3** the annotations do not change within a single scene, but rather remain static on the page. However, in the fourth and final scene the annotations dynamically update depending on which state the user has selected from the dropdown menu of states within the United States of America. The reason for maintaining static annotations for the first three scenes was in order to highlight the key data points that the user’s attention should be drawn to when first viewing the graphic for that dataset. However, the dynamic annotations on **Scene 4** were a necessity as

this was the sole scene that allows for user interactivity with the data, and therefore as the user updates what data is displayed to them, the annotations must update as well accordingly.

Parameters. What are the parameters of the narrative visualization? What are the states of the narrative visualization? How are the parameters used to define the state and each scene?

The slide number is a key parameter of the narrative visualization, as well as the chart identification number, as both of these parameters were utilized in the javascript functionality written for querying the datasets for particular scenes.

I kept track of state in **Scene 4** of the visualization, as it was required to maintain a variable to keep track of what U.S. state was currently selected from the dropdown menu, and this value would then cause an update to the line chart on what values would be displayed accordingly.

The slide numbers as well as the chart identification numbers were used to determine what content, what graphics, and what data might be displayed on a particular slide, creating some semblance of order for the user as they navigate through the visualization.

Triggers. What are the triggers that connect user actions to changes of state in the narrative visualization? What affordances are provided to the user to communicate to them what options are available to them in the narrative visualization?

The fourth and final scene utilizes triggers in order to maintain a connection between the users actions and state changes to the narrative visualization. More specifically, what value the user selected from the dropdown menu had to be kept track of, as any changes to this value would trigger a subsequent update to the values displayed in the chart below it. For example, if the state 'Alabama' is selected by the user, then the vaccination data associated with Alabama will be displayed in the table. If the user changes to a different state, the data displayed will change as well.

There are several affordances provided to the user to communicate to them what options are available to them in the narrative visualization. This included subscripts noting what values are currently being displayed on which axis for a particular graphic display in a scene. Also, each scene has a bulleted list below it which provides additional insight about the data displayed, and is meant to trigger further exploration and interest on the part of the viewer. A key affordance is the large and brightly colored menu of buttons at the top of each page, which indicates to the user how they may either navigate between scenes or, if they so choose, how they might return to the Home/introductory page.