Bridging the Generational Gap in American Politics

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Figure 1: Overview of the Final Visualization

Abstract

Polarization in U.S politics has been growing in recent years. The "generation gap" between youth and older adults in American society reflects these widening divisions in political viewpoints and media consumption. Even within a family, these gaps between parents and children have the opportunity to cause conflicts and create communication siloes. With our scrollytelly visualization "Bridging the Generational Gap", we attempt to find common ground in both the news different generations have lived through and the news sources they consume. Using media trend data from Pew Research and headlines from AllSides.com, we also highlight the various media biases and political leanings of many news sources. Our final visualization encourages people to learn from others by allowing users to choose from various demographics to build a real reader, step into their perspective, and explore their newsfeed. Though division has become a defining feature of American Politics, our goal is to create a story with interactive visualizations to help each side talk with and understand one another.

1 Introduction

Generational differences have long been a factor in U.S. Politics. The growing "generational gap" between young people and older adults in American society reflects the widening divisions in our political parties, policy viewpoints, and media consumption. Within families, these differences have the opportunity to cause conflicts and create communication siloes. Politics and the news have always been topics to avoid at the dinner table to prevent family arguments. Some families just avoid conversations about these topics all together.

But in 2020, Covid-19 caused many of us to move back into our childhood rooms. Like many other college students and even working adults, we've spent more time at home with our parents in 2020 than ever before. Quarantine forced us to have the difficult conversations with our parents on identity, race, and politics that we avoided before. Though the media seems to constantly focus on the political fissures between the younger and older generations, having these conversations with our parents made us realize there was more common ground than we had initially thought. In addition to more conversations with our parents, we experienced how trading news articles and reading the news our parents consume helped us to understand them better.

We created a scrolly telly visualization called "Bridging the Generational Gap" to continue finding common ground between our generation and our parents' generation in the news we consume and have lived through. We've chosen Generation Z to represent us and the Baby Boomers to represent our parents.

At the beginning of our visualization, we created an interactive timeline that summarizes the first few decades of each generation and highlighted some of the events during our most formative years. Though it may seem like our lives now are incomparable to the lives our parents led, we've been shaped by many similar key events. Our interactive visualization also tries to highlight the various media biases and political leanings of different news sources using data from Pew Research and AllSides.com. Like the events that have shaped us, the news media that different generations consume might be more similar than we think.

Our final visualization encourages people to learn from others by allowing users to choose from various ages and other demographics to build a real reader, step into their perspective, and explore

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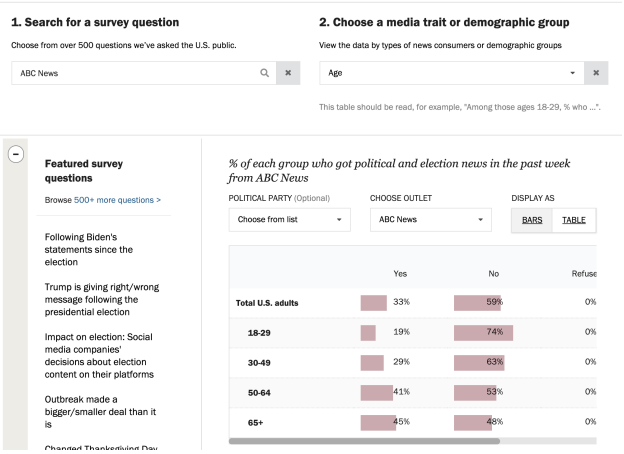

Figure 2: A visualization of the Pew Research Center's American News Pathway Project.

their newsfeed. Though division has become a defining feature of American Politics, our goal is to create a story with interactive visualizations to help each side understand the other and bridge the gap.

2 Related Work

2.1 Pew Research

Pew Research Center has done research on the increasing Media polarization. It has released a number of survey results in the American News Pathway Project, along with an interactive tool for users to explore the data [1]. The interactive tool allows users to choose survey questions from a dropdown menu of over 500 questions, and allows users to group the responses by different demographics like age, race, and education levels. The data was displayed in a table format with bars [Figure 2].

We decided to focus on one survey from November 2019 in the American News Pathway dataset, the American Trends Panel Wave 57. Pew Research created a report which focused on the large differences in media consumption across party lines, and showed a growing distrust in the media.

2.2 Media Bias

AllSides has done extensive analysis of news media sites to determine media bias including editorial reviews, blind bias surveys, and third party analysis. We used this dataset to find headlines from different news sources with a variety of media biases.

3 Methods

3.1 Data Analysis

To use the Pew Research dataset, we needed to do some data wrangling, including creating a mapping column names, and handling missing values. We used pandas to perform initial exploratory visual analysis of users' media behaviors and preferred news sources based on demographics. In addition, to avoid loading large datasets in the interactive scrollytelling portion of the visualization, we sorted and filtered the data in pandas.

3.2 Web Scraping

3.2.1 Web Scraping AllSides

In order to eventually build a newsfeed from a person's new sources, we first needed to obtain a dataset of news articles from each of the almost 30 news sources that was included in the Pew Research American News Pathway dataset. We wanted this dataset to include articles that were relevant to the current political climate in terms of when the articles were written and the topics they talked about. To create such a timely dataset, we decided to scrape the AllSides website for articles covering the pertinent topics of Covid-19, climate change, the economy, guns, and black lives matter. AllSides sources news articles from all sides of the political spectrum and methodically determines their own media bias ratings for hundreds of news sources and categorizes each outlet as Left, Lean Left, Center, Lean Right, or Right. For our dataset, we searched for each of the 5 chosen topics on the AllSides Balanced Search Engine and web scraped the first 50 pages of results on May 17 2021, looking only for articles from the new sources included in the Pew Research dataset. We were able to scrape the headline, subtitle, date, source, media bias according to AllSides, and URL for each article. The 3 news sources that did not appear on the Allsides Website (Rush Limbaugh, Sean Hannity, Univision) manually scraped for articles. Then, in order to equally represent each news source, we limited the dataset to only include 5 articles from each source for a given topic. Finally, to populate the dataset with suggested articles from different sources on the same topic, for each article in our dataset we randomly selected a right leaning, center, and left leaning article of the same topic.

3.3 Generating Newsfeeds

3.3.1 Generating Newsfeed

Each newsfeed is generated by combining data from the two datasets. We use JavaScript's Data-Driven Documents Library (D3.js) to load and work with the data. From the people dataset, we have a function that returns the news sources the person reads. The news articles from the Allsides dataset are then filtered to display only the sources the person reads. Within these articles, a sort algorithm is applied to move all the articles with the same news sources as what the user inputted in the previous section up to the top of the unit visualization. Finally, some people had more articles than fit what was easily visible on the screen, so we incorporated a capping algorithm to randomly sample a few articles from each topic. The random sampling is preprocessed within the dataset. The randomization is significant because we wanted to represent each person's newsfeed as accurately as possible and not introduce bias of media sources in the capping process.

3.3.2 Highlighting Filters

Once all the data is sorted and filtered in accordance to each person, we applied a highlighting function to visually display the selected filters in Media Bias and Topics. Each data element is mapped to its corresponding highlight color and rendered based on the current selected filters. Similarly, articles of the same news sources as the user input are mapped to its corresponding outlined state (outlined if same, not outlined if different) in another algorithm.

3.3.3 Determining Filter Updates

To determine when users select a different demographic, filter, or click a button, we have event listeners to check for those updates. Upon detecting an update, corresponding update functions are called to change the state variables to match the current person card demographic, index in next person, and media bias and topic filter selections. Then, the unit visualization is re-rendered to adjust for the update.

3.3.4 Unit Visualization Display

We use a D3 svg to generate the unit visualization. Each newspaper article is a g element consisting of a background icon, text, and overlay rectangle for highlights and tooltip hover. The g elements are rendered with the sorted data.

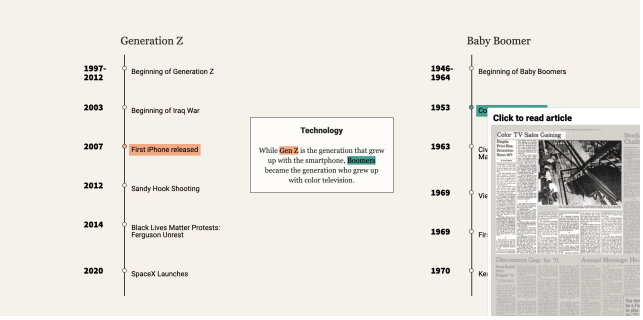

Figure 3: Timeline with Tooltip

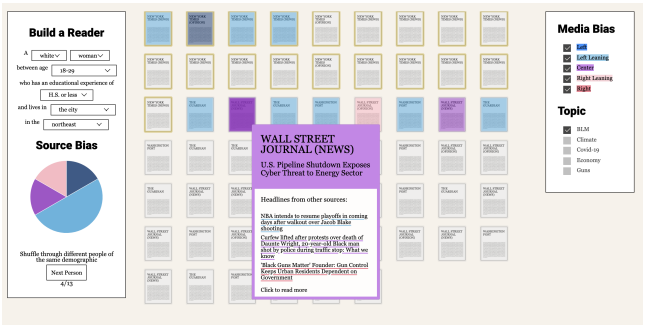

Figure 4: Final Visualization with filters enabled and tooltip

4 Results

In order to help users bridge the generational differences in american politics, our story telly visualization consists of three main sections designed to narratively build off one another. We start with 1) a timeline that introduces the two generations we are comparing, then we move to 2) a news media section that gives context on and highlights the news diet of both generations before opening up the martini glass to a 3) newsfeed visualization which allows users to freely explore and learn from someone else's newsfeed.

4.1 Timeline

We begin our visualization with an exploration of demographic facts and historical events to both give context on each generation and establish our overall goal of drawing similarities between the generations. By highlighting the similarities and using the mirrored timeline we emphasize the shared experiences between the generations.

To transition into our next section, we introduce the highlighting present throughout our scrollytelling here, giving a cohesive visualization. In addition, we use the tooltip interaction to show headlines from the different events to introduce our next section, news media behaviors.

4.2 News Media Scrollytelling

Next, we focused on the news media habits. This section of the scrollytelly was created to give context before our final visualization and give aggregated statistics on the news behaviors between the two generations. While the Pew Research Interactive tool had a plethora of statistics and interactive drop-downs, we wanted to guide the user through these statistics with more context using the scrollytelling format, and chose to focus on three different aspects of the data: political news engagement, main political news outlets, and political ideologies of the news outlets.

We began with political news engagement to introduce political news behaviors. We chose to use the bar chart encoding and different highlight colors of the bars to effectively show the user the important differences in political news behaviors.

Next, we used the scrollytelly to highlight both similarities and differences in the choices of news media Gen Z and Baby Boomers used. We chose to include differences not to stress the political polarization, but rather to explain the reasons why different generations could hold different beliefs.

We analyze the readership of the top media sources from each generation to continue to show how different news sources attract and affect different ideologies. We chose to use an area chart to visualize the political ideologies to represent the spectrum of political ideologies and show the distribution of readership.

Finally, we gave some intuition on our newsfeed visualization, giving examples of different headlines from the main news sources of different generations. By showing these examples, it effectively shows the user how reading news from biased media organizations can alter your opinions, and allows the user to read someone else's news.

4.3 Newsfeed Visualization

4.3.1 User Input

Before entering the final newsfeed visualization, we asked users to input what news sources they consume. This interaction creates a moment for the user to pause and personally reflect on where they get their news from. Upon clicking submit, the page automatically scrolls to the newsfeed visualization with all the articles from news sources that the user also consumes highlighted in gold. This gold color was carried over from the user input section and is meant to represent a sense of bridging and common ground.

4.3.2 Build a Reader

We wanted to allow users to choose a reader from the Pews Research Dataset, step into their perspective, and explore their newsfeed. Thus, we created a few dropdowns with options for the various demographics (ethnicity, gender, age, education, location) to build a real reader from. Though we originally wanted to exhibit the newsfeed of an "average" reader for a demographic, we realized that the concept of an "average" reader can perpetuate stereotypes more than build bridges. Thus, we added a "Next Person" button such that users can interact with and view the newsfeeds of all the readers in the dataset who match the demographics. In order to provide a "gestalt" of what news sources the reader consumes, we created a pie chart of the media biases. To represent the different biases, we used a red to blue color scale (with purple for the center bias) and used the same color mapping throughout the newsfeed visualization. After a quick glance at the pie chart colors, users have a better idea of what biases they can start filtering for. We also included a tooltip so that if users are curious, they can see exactly which news sources a reader consumes from each media bias.

4.3.3 Unit Visualization

The unit visualization is the display of the selected reader's newsfeed. This is where a user can explore various articles and visualize the similarities and differences in media consumption for people of different demographics. Each unit shows the name of the news source directly, which gives an overview of the distribution of news sources. The goal is for the user to scan the visualization and see if any sources stand out or are familiar to them. It will also encourage further engagement to discover what each article is about.

4.3.4 Interactions of the Unit Visualization

We provide the user with many ways to interact with the articles in the newsfeed to focus their attention and provide important information. Firstly, we allow users to filter for topics of interest and particular media biases by clicking in a panel of checkboxes.

These filters cause the relevant articles in the unit visualization to be highlighted by the article's media bias color. The color scheme for media biases is also reinforced by the highlighting of the text in the media bias checkboxes upon clicking.

In addition to filtering, we include a tooltip interaction on the unit visualization that displays the headline of the article being hovered over and encodes the media bias as the background color of the tooltip. The idea for the tooltip was to resemble a newspaper/be an enlarged version of the small newspaper unit. Being careful not to hide important information behind clicking interaction, we decided to also add the headlines of suggested articles on the same topic in the tooltip itself. If users are interested in reading the article or any of the suggested articles, they can click to open up a modal. Continuing the theme of news, the modal is also designed to look like a newspaper. The modal includes buttons to open up the news articles in a new tab as well as a recommended reads graph ordering articles of the same topic on a line by media bias. The goal is to encourage users to read articles they might not usually read and further bridge the gap.

5 Discussion

5.1 Insights

Our visualization showed us the similarities and differences between Generation Z and Baby Boomers within events they grew up with, media consumption, and political leanings. We discovered the existence of an echo chamber, where people are greatly influenced by what they already know and are used to. Certain demographics leaned more heavily upon certain news sources and media biases. Oftentimes, it appeared as if those in one demographic may not have had much exposure to the news sources of another demographic. On the other hand, we also found that within a single demographic, people are reading from different news sources and have varying political leanings.

5.2 Feedback

The feedback we received helped us to narrow our scope and recognize what features and methods of data exploration would best bridge the gap and increase understanding of opposing sides. Users expressed interest in the idea and had wished for the generational gap topic to be further addressed in the visualization world. This influenced our decision to tell a more personal story before opening up into a larger exploration of different news feeds. Overall, users are able to engage with the data and visualize political and media biases under a new light.

5.3 Limitations

While one of our main goals was to provide more insight into what different people read as news, we recognize that there are limitations in our representation of the data. It was difficult to consider every variable and account for every possible combination of news sources and demographics. We made the hard decision of limiting our scope in order to accommodate for a deeper exploration of our interactive visualization. There are definitely people and news sources that we have missed or were not able to include within the scope of this project. We apologize if we missed any major news sources or made any simplifying generalizations. We tried to consider as many different perspectives and ideologies as possible and avoid introducing bias while processing the data, but we acknowledge that there still may be assumptions we made. However, we hope that this visualization still creates an awareness and even appreciation for the different news that others may read.

6 Future Work

6.1 More Generations

Instead of highlighting more generations (i.e. Millennials), we narrowed the scope to GenZ and Boomers, which most closely represents our generation and our parents generation. In future work, it could definitely be interesting to add more generations to explore. Ultimately, our goal would continue to be bridging the gaps in perspectives and encouraging people to try to read more about opposing views.

6.2 More User Input

One idea for our visualization that we did not end up implementing is sorting the reader's newsfeed in similarity to the user's preferred news sources. We could have integrated the user input section more deeply into our final unit visualization beyond the simple outlining of similar news sources. Another area of interest for the future is a method to generate and visualize a user's own newsfeed first before comparing it to the newsfeed of others. Along similar veins, it would be cool to see the user's pie chart of their media biases. To take it one step further, the information the user provides can be added to the dataset as well. Perhaps we could even allow comparisons between friends and family. An easy visual way of representing our own news intake and being able to share it with those close to us (especially with the recommended articles feature) could help bridge the gap on a more personal level.

Acknowledgments

Inspiration. Our main inspiration and people data came from the Pew Research Center. News articles were scraped from the All-Sides Website. The original idea stemmed from Annie's experience at home with her parents. Upon discovering they had different views on current events and media reliability, Annie suggested for them to trade news articles to read. This helped both sides come to a better understanding of the other. Thus, we wanted to utilize this idea of "I'll read your article if you read mine" to bridge the gap between readers in our visualization. In terms of visual design, we drew inspiration for our scrolly telly and styling from Wonyoung's Cartographers of North Korea, The Pudding's A Brief History of the Past 100 Years, and The Economist's How to Forecast an American's Vote.

Teaching Staff. Huge thank you to Professor Arvind Satyanarayan and Teaching Assistants Katie Bacher, Doğa Doğan, Saadiyah Husnoo, and Ebenezer Sefah (EJ). This project would not have been possible without the help of the wonderful teaching staff and all your support, encouragement, and advice. We always left office hours feeling inspired and hopeful. Thank you for an incredible class and semester!

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[1] Mark Jurkowitz, A. M. (2020, August 28). U.S. Media Polarization and the 2020 Election: A Nation Divided. Pew Research Center's Journalism Project. https://www.journalism.org/2020/01/24/u-s-media-polarization-and-the-2020-election-a-nation-divided/.