SENTIMENTAL ANALYSIS ABOUT DISABILITY AMONG POLITICIANS AND PUBLIC IN THE US USING NLP (NATURAL LANGUAGE PROCESSING)

EXECUTIVE SUMMARY

Purpose of the Report

This project aims to offer a closer examination of the circumstances faced by the disabled community, and we will be accomplishing this through the lenses of sentiment analysis. When given a holistic view through the lenses of data science analysis, these aggregated sentiments will demonstrate a great picture of some implicit obstacles faced by the disabled community that's not necessarily as obvious. These aspects may be hidden when the data was not present or when the data was not aggregated, but when put together, we hope to provide insights in the implicit infrastructure that the community is situated in, which could potentially have as great influence as some common obstacle in our recognition or considerations.
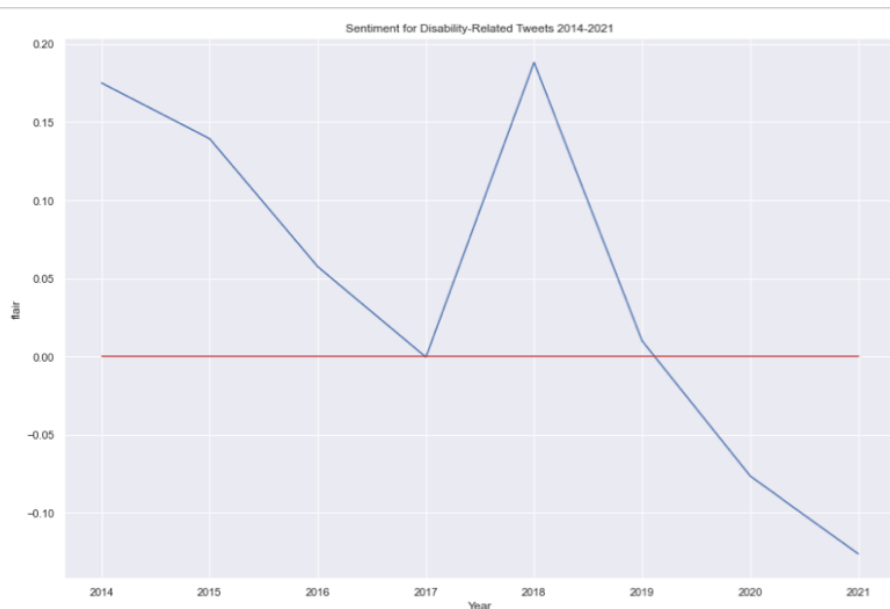
Methods Used

Following the above discussion, we have decided to look at the issue with two perspectives, one from looking at the sentiment among the general public, and another from looking at attitudes from a government perspective. Due to the different nature of these data, the methodology we used to analyze is listed below.

1. Twitter (Public Sentiment): analyzed using FLAIR model
2. Reddit (Public Sentiment): analyzed using VADER model
3. Twitter (Politician Sentiment): analyzed with topical analysis methods
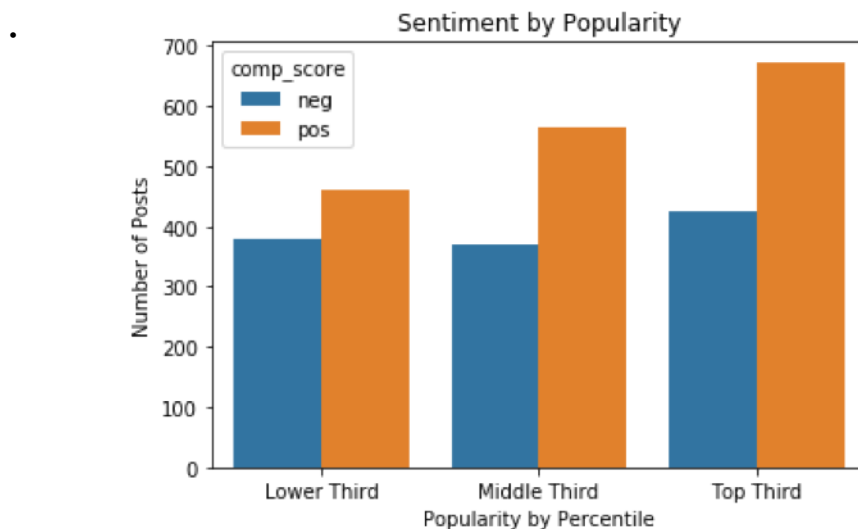4. Laws and Regulations: analyzed using word bank frequencies

Findings and Conclusions

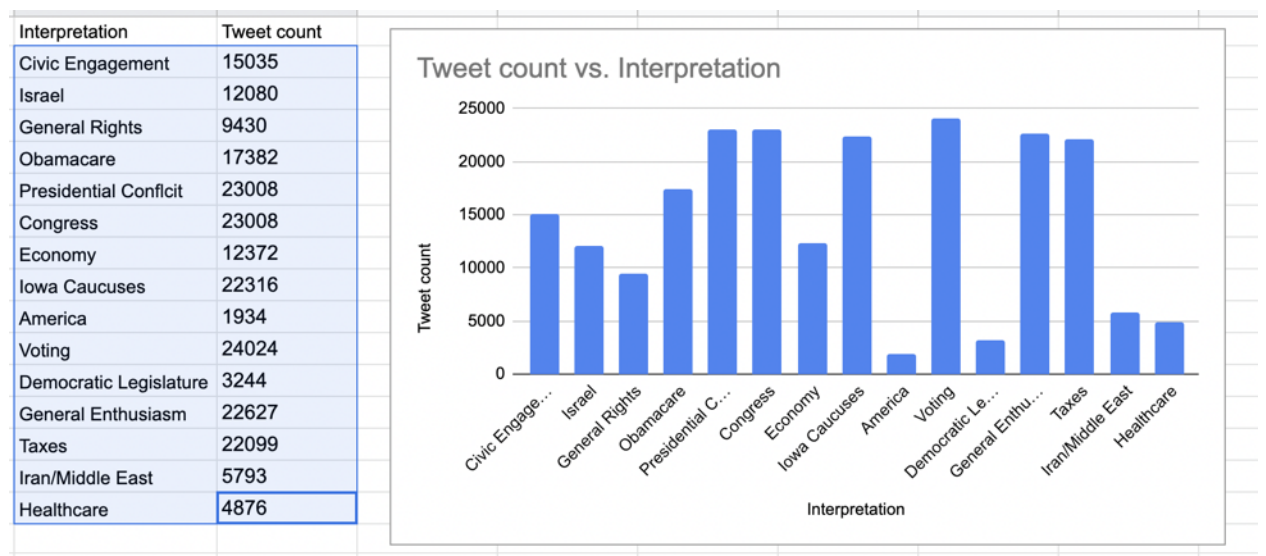We will provide a brief overview of the findings for analysis based on different pieces of data below.

• Twitter data for the general public reveals that there the sentiment related to disability has been in a gradual decline towards the negative end, and the sentiment has become especially negative starting in 2020, the year the COVID pandemic began. As can be seen through the graph below:
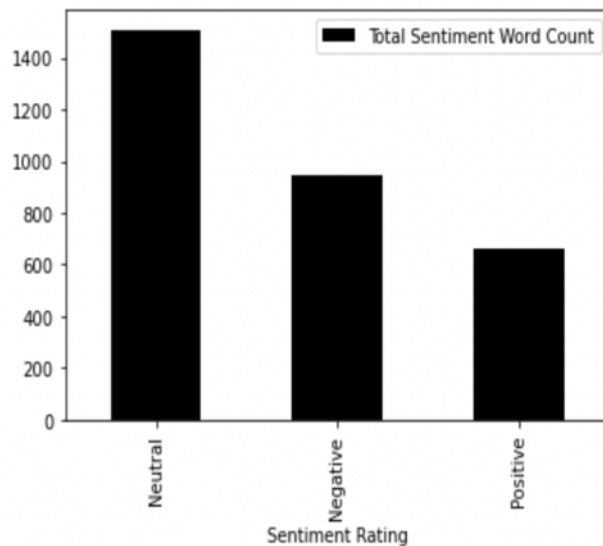

Sentiment for Disability-Related Tweets 2014-2021

• Reddit data shows that as the number of interactions with a certain post increase, the more likely that such a post has a stronger sentiment, regardless of being negative or positive. This shows that stronger sentiments are more likely to receive traction on social media.

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• Twitter politician data shows that the topic of disability is severly underaddressed in the big picture, with other topics such as patriotic posts, the economy, and other political discussion having a significantly higher attention than that given to disability.

Interpretation	Tweet count
Civic Engagement	15035
Israel	12080
General Rights	9430
Obamacare	17382
Presidential Conflcit	23008
Congress	23008
Economy	12372
Iowa Caucuses	22316
America	1934
Voting	24024
Democratic Legislature	3244
General Enthusiasm	22627
Taxes	22099
Iran/Middle East	5793
Healthcare	4876

• Analyzing the legislative literatures reveals that they are generally phrased negatively. This shows that those who drafted the legislations are not necessarily well versed in the usage of language sentiment and the realization that the sentiment of the language used may have an impact on the legislative structure.

Limitations

There are certain realistic limitations during the course of our research. There is data that was inaccessible such as the user locations, or the implicit Reddit algorithm. If these data was accessible through ethical approaches, it could contribute further to constructing more concrete analysis for our research topic. In other cases, there was simply a lack of abundant data for any meaningful trend analysis, which is the case for politicians tweets. The politician tweets are also only a partial representation of the actual sentiment picture for the politicians, as the popularity of politicians who are active on social media can also be correlated with other factors.

Recommendations

There could be more research on whether certain social events across the years resulted in the change in sentiment level, including political events, or the pass or veto of certain legislatures. Moreover, we could potentially contextualize the identity of the individual who posted the content. Whether they are an individual with disability, or they are an individual without disabilities commenting on the issue, can have an impact on how we interpret the posts and different sentiment levels for people from different perspectives.

ABOUT THE AUTHORS

Yingxin Wu is an undergraduate student at the University of Southern California majoring in Human Biology. On campus, Yingxin is involved with the USC Asian American Tutorial Program, USC APASS (Asian Pacific American Student Services), and is a peer mentor for the First Year Experience program to provide guidance for first-year and first-generation college students. She has also been involved in the First Year Experience student committee to design and lead professional development and wellness workshops. Outside of school, Yingxin enjoys hiking, reading, and baking.

Ezi Ozoma is a recent Human Biology graduate of the University of Southern California. On campus, she was involved in residential education as an RA, athletic medicine, the pre-physical therapy club, and a few other cultural clubs. During her free time, Ezi enjoys playing sports and watching her favorite shows.

Phillip Jang is an undergraduate student at the University of Southern California majoring in Biomedical Engineering. His current career goal is to become a prosthetist.

Adebayo Omileye is a recent graduate of Obafemi Awolowo University in Nigeria and majored in Physical Therapy. On campus, he was involved in his class and fellowship administration and department volunteering. Adebayo enjoys reading and watching anything football (Arsenal FC precisely) in his free time.

Clio Klapsis is an undergraduate student majoring in Political Science at the University of Southern California with minors in International Relations and Spanish. Clio's campus involvement includes competing with the Model United Nations team (Clio was the 2021 President!), doing research with a security and political economy lab called SPEC, tutoring elementary school students, and providing after school programming for kids from third to twelfth grade through USC Troy Camp. She is passionate about disability justice, international human rights, labor rights, and learning languages (Clio speaks Greek and Spanish!), as well as reading, camping, and hiking in her free time.

Ojuade Fatimat Modupe is a recent graduate of Obafemi Awolowo University in Nigeria and majored in Occupational Therapy. She was inspired to pursue research in the disability sector after seeing the many challenges that persons with disabilities have faced, such as lack of inclusion in society, lack of access to rehabilitation services and assistive technology, and lack of support to help them live independently.

ACKNOWLEDGEMENTS

WHY THIS MATTERS TO VOSAP

VOSAP advocacy is strengthened with greater insight on the current state of rehabilitation services in the United States. This project addresses employment opportunities in the disability sector to highlight the need for laborial deficits in rehabilitation workers. The results of this study serve to direct future research into unearthing the multitude of societal factors that influence employment in the disability sector.

ABOUT VOICE OF SPECIALLY ABLED PEOPLE INC

Voice of Specially Abled People (VOSAP) is a global advocacy organization built on the principles of Empowerment of Specially Abled People. In Special Consultative Status with UN ECOSOC, VOSAP is working to create an Inclusive and Accessible world by accelerating implementation of UN Sustainable Development Goals (SDGs) and goals of UN CRPD (Convention on the Rights of Persons with Disabilities) treaty. In addition to enabling individuals with assistive devices, surgical interventions, scholarships etc, VOSAP has created innovative digital transformation tools to promote inclusion of Person with disabilities such as (a) Virtual Art Gallery on Disability to educate masses on disability and promote inclusion, (b) create crowdsource demand for accessibility of public places and create mass movement of virtually connected $\approx$ 10,000+ volunteers/changemakers using VOSAP App.