Well-being and Happiness among the Elderly – What have Canadian societies discussed concerning the context of the Elderly and the Pandemic?

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Context

To capture and assess the community's perception of elderly well-being in Canada, methods of data scrapping were utilized in three distinct sources: 1 – Twitter, as a representation of social media platforms, 2 – News bulletins of online journals, and 3 – Academic articles of Canadian institutions. The final data repository comprised 898 unique news articles, 101 academic papers summaries, and 58,716 tweets from January 2018 to February 2022. Datasets were cleaned and analyzed using Natural Language Processing methods and tools, including TextBlob, NLTK, Gensim Python libraries, and deep learning models for text classification.

Analysis and Results

Tweets around Canada mostly demonstrated negative polarity. When analyzing the news outlets, the most frequent and relevant words were support, home, housing, include, people, and health. The University of Toronto was the most active in terms of elderly-related academic research, followed by the University of British Columbia and McGill University. The most relevant topics in academic research are system, care, health, social, community, and evaluation.

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Data collection and analysis method

To build the dataset composing the research corpus, distinct methods of data scrapping were implemented within the three proposed information sources. **Academia** and **News Bulletins** websites were queried for seniors' tags using their built-in search functionalities, and the relevant information was captured and stored using Python and appropriate libraries. **Twitter** was scraped via Twitter Academic Research API v2.0, using query terms and geo-localization tags to filter the data accordingly to the research scope.

A binary-classifier task was then implemented to filter out the irrelevant content that eventually came up from the data collection methods. Unwanted text strings, website footers, or call-to-actions were removed during the data cleaning step, resulting in the final **research corpus** that contains data from **January 2018** to **February 2022.**

Tweet Topics Word Scores

News Topics Word Scores

The **topic modeling** task was performed by a transformer-based deep learning technique for natural language processing known as BERT (Bidirectional Encoder Representations from Transformers)**1**. The algorithm segmented the research corpus into distinguishable topics that were later grouped into nineteen main categories: covid, health, vaccine, house, homecare, grocery, money, volunteer, safety, abuse, physical activity, social activity, first nations, schooling, environment, autonomy, freedom, climate, and temperature.

1 Devlin, Jacob; Chang, Ming-Wei; Lee, Kenton; Toutanova, Kristina (11 October 2018). "BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding". arXiv:1810.04805v2

Finally, a **polarity index** was assigned to each occurrence from Academia, News Bulletins, and Twitter. The method was fundamental to visualize the society perception captured in the dataset. The index that ranges from -1 to 1 represents how negative or positive the discussions around a particular topic or period were.

Sentiment Analysis

May, 2021

June, 2021

Average Polarity

Negative — Positive

Contextualization

COVID-19 highlights help provided by family to those in long-term care

Formation of provincial group needed to strengthen role of family members who help loved ones living in long-term care.

May 22, 2021

Temperature records broken during heat wave in B.C. on Monday

Cache Creek, Abbotsford, and White Rock were among the areas of B.C. that broke records for hot weather.

June 22, 2021

Source: Vancouver Sun, 2021 news repository