Libraries and COVID-19: What users expressed on Twitter

Kavya Asok and Vysakh C
kavyadvg4@gmail.com, chingathvysakh@gmail.com

ABSTRACT

Due to the pandemic hit, libraries worldwide face hard choices around which services to offer and how. In this study, we present the Twitter sentimental analysis on libraries and COVID-19. We used the Mozdeh Big Data Text Analysis to collect 23 tweets in the English language. The findings reported that most female and male tweets have come under the score of "1", which means the positive and negative sentiments are "None". The hashtag '#libraries' was the most occurred hashtag in the user tweets (3 times). Furthermore, the word occurrence delineated that the words "and", "librarie" and "covid-19" were the frequented ones with 49, 41 and 39 times, respectively. The present study results give the stakeholders a hint to analyse the user sentiments for different decisions to improve the library services amid these uncertain pandemics.

Keywords: Twitter, Sentimental analysis, COVID-19, Libraries.

Introduction

Twitter is a popular microblogging platform that people use to express their thoughts and opinions(Kouloumpis et al., 2011). Sentimental analysis is a core area in Twitter that recently got attention from researchers (Giachanou & Crestani, 2016). Analysing the sentiments of people they share on social platforms, especially on Twitter, will help decision-making, especially regarding pandemics (Chandra & Krishna, 2021) (Chew & Eysenbach, 2010). As far as libraries are concerned, how people expressed their views and opinions amid the COVID-19 pandemic on Twitter would give proper insights to serve the users better. In this study, we carried out a sentimental analysis of the people's (patrons, library staff, government or any other stakeholders) tweets during the pandemic. After assessing the sentiments expressed, libraries can plan or replan further actions to deliver the services.

Objectives of the study

To measure the gender-wise sentiments of tweeters regarding libraries and COVID-19.

To find out the most used hashtags in tweets.

To ascertain the most occurred words in tweets.

Data extraction and methodology

To extract the data, we used the Mozdeh Big Data Text Analysis software. A project titled "Libraries and COVID-19" was created first. Under this project, the data extraction was carried out by hitting the keyword "Libraries and COVID-19" as a query after limiting the language to "English". Since the software wanted to access Twitter for searching, permission was given by typing the pin as it appeared. The software started to search for the tweets and again selected the language "English" for analysis by setting the default number "1". Thus, a total of 62 tweets were produced, in which 23 tweets were found apt for the study after clearing the

duplicate tweets. The result was made in 3 seconds. Later, the tweets were analysed separately for males (13 tweets) and females (10 tweets). The sentiments, according to the software was as follows,
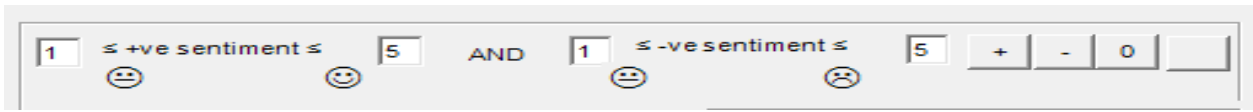
None(1), Weak(2), Moderate(3), Strong(4) and Very Strong(5) (Applicable for both positive and negative sentiments)

Results

Sentiment analysis

Table 1 and Figure 1 show the result of the sentimental analysis carried out in the software. The score of the sentiments is numbered from 1 to 5, i.e. 'None' to 'Very strong'. Positive and negative emotions are displayed differently, and as per Figure 1, blue-coloured bars represent positive and orange coloured bars represent negative feelings. It is seen that most of both female and male tweets have come under the score of "1", which means the positive and negative sentiments are "None". Weak positive emotions were logged 20% for females and 15.38% for males, while negative was 40% for females and 23.08% for males. No feelings were recorded under the category of "Strong and Very strong."

Table:-1 Sentiment analysis as per gender

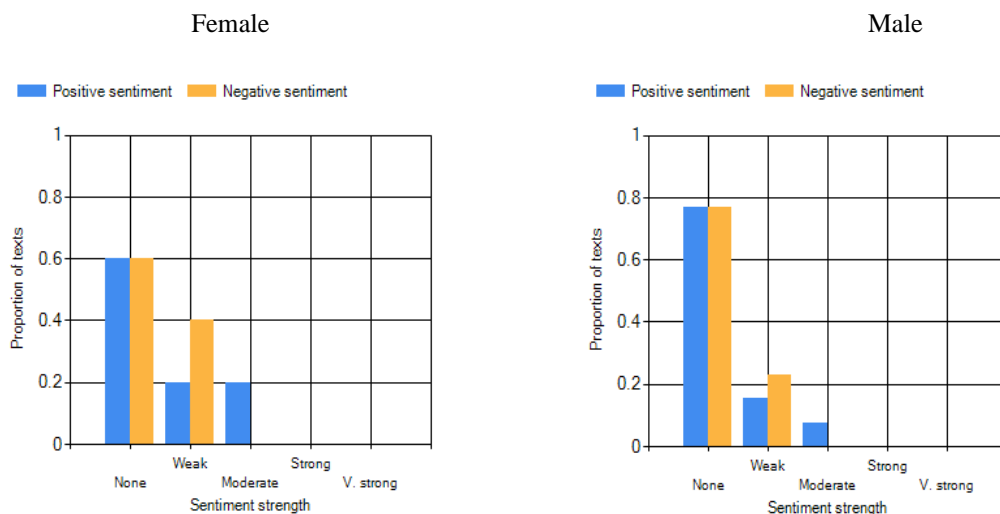|	Female		Male	
Score	Positive	Negative	Positive	Negative
1	60.00%	60.00%	76.92%	76.92%
2	20.00%	40.00%	15.38%	23.08%
3	20.00%	0.00%	7.69%	0.00%
4	0.00%	0.00%	0.00%	0.00%
5	0.00%	0.00%	0.00%	0.00%

Figure:1 Sentiment analysis as per gender

Top 5 hashtags

The tweeters use a total of 21 hashtags to express their opinion, and as per Figure 2, the most happened hashtag is "#libraries", with a total count of 3, which comprises both males and females tweets. The following most frequented hashtags in the row include "#covid-19", "#liblearnx", "#worldpatientsafetyday", and "#uoft" with one occurrence.
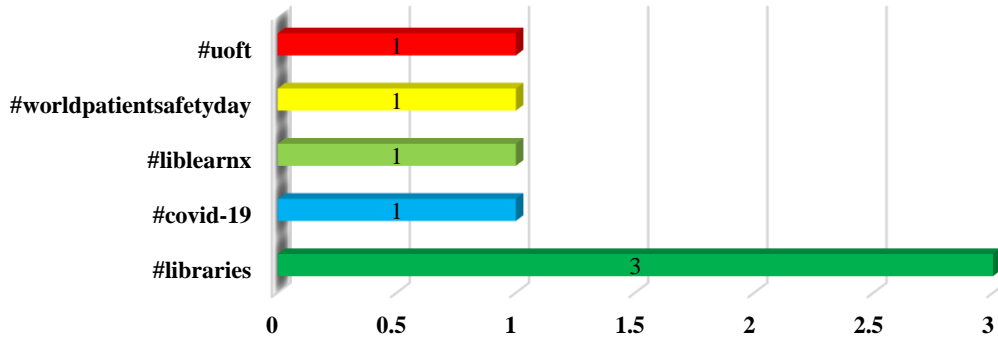

Figure:2 Top 5 hashtags

Top 10 words

The software extracted a total of 1000 most used words by the tweeters in their tweets. The most employed ten words are displayed in Figure 3. According to the figure, the word "and" occurred 49 times, followed by "librarie" with 41 times and "covid-19". The rest of the terms and their frequency of occurrence are as follows, "the" with 36 times, "in" with 27 times, "to" with 27 times, "of" with 26 times, "a" with 19 times, "are" with 17 times and "test" with 16 times.
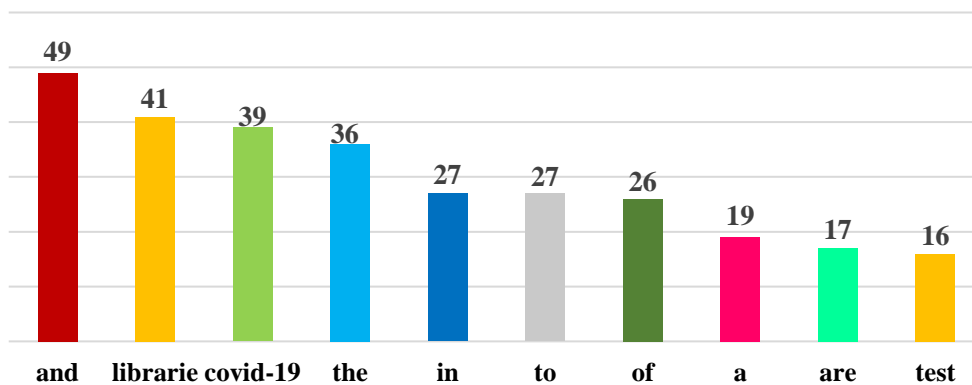

Figure: 3 Top 10 words

Findings, conclusion and recommendations

We analysed the users of Twitter regarding the pandemic outbreak and library operations by analysing the sentiments using Mozdeh software. The study was based on 23 tweets available in the English language, including 13 tweets by males and 10 tweets by females. It was reported that both males and females had 'None to Weak' positive and negative feelings expressed through their tweets. The most occurred hashtag was "#libraries", with a total occurrence of 3 times in the tweets. The most used word in tweets was "and" with 49 times. Analysing the sentiments of the users always help the libraries to take quick action to improve their services. Thus, it is recommended to have a Twitter presence for the libraries for communicating both formal and informal matters with the patrons, especially in these kinds of pandemic times.

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