#newnormal: UNDERSTANDING PUBLIC TWEETS ON LIVING IN THE NEW NORMAL

Jen Aviciel B. Casillano, MAEd[1], Niel Francis B. Casillano, MAT[2]

[1]*Eastern Samar National Comprehensive High School, Borongan City*

[2]*Eastern Samar State University, Borongan City*

ABSTRACT

This research primarily aimed to determine the sentiments of twitter users towards living in the new normal. A total of 786 tweets were collected using the twitter widget of Orange data mining software. Data mining techniques specifically word cloud generation and sentiment analysis were employed to reveal the general sentiments of twitter users. The world cloud showed that the most prevalent words in the collection of tweets were: new normal, covid-19, travel, precautions, pandemic, office, travel, safe, workplace, people, remote work, wfh, digital and workplace. These words were the most used words in the tweets of online users talking about living in the new normal. The sentiment analysis revealed a compound sentiment score of 0.13 which implies that the general sentiment of tweets of online users towards living in the new normal is positive.

KEYWORDS: *Sentiment analysis, Word Cloud, Twitter, Tweet, New Normal*

1. INTRODUCTION

Almost two years after the onslaught of the pandemic, people around the world have been forced to adjust with the so-called "new-normal" which to sum up is doing a work-from-home set-up, parents home-schooling their children in a new blended learning setting, lockdown and quarantine, and the mandated wearing of face masks and face shields in public (Corpuz, 2021). The pandemic demanded a massive shift in how people interact and operate in their daily lives and at work, which is likely to have an impact on our lives for the foreseeable future (Griffin & Denholm, 2020). While many establishments were forced to close down, others were forced to drastically decrease operations or rethink their business strategies in order to adjust to the pandemic's impact. Other organizations that were able to survive were compelled to create new ways of working remotely, relying on new communication tools and changing behaviors to meet social distancing requirements and altered work patterns. Companies, public service organizations, and governments have attempted to provide services to their clienteles by making extensive use of technological applications and cloud-based infrastructure and deploying them quickly (Herath & Herath, 2020). The use of digital technology is anticipated to be permanently normalized due to pandemic (Carroll & Conboy, 2020). One evidence that this normalization has already taken effect is the significant increase in the use of social media during the pandemic. Online users have used a variety of online platforms to express their opinions, communicate with family members and use it as a primary tool in teaching, studying and working. A social media analytics company, Sprinklr, even noted that many people have used emojis to vent out theiremotions during the time of pandemic (Treceñe & Abides, 2020). Twitter is one of the leading social media platform being used worldwide based on the active users as evidenced by the 192 million monetizable daily active users in the fourth quarter of 2020. This platform allows users to send short 280-character messages called tweets (Statista.com). This platform has been used by people to express their opinions, comments, and sentiments of certain issues especially in this time of pandemic. With the aid of emerging data mining and analysis techniques, these twits can be harnessed and analyzed to determine the latent sentiments behind the twits hence the conduct of this research.

2. OBJECTIVES

This research primarily aimed to determine the sentiments of twitter users towards living in the new normal.

Specifically, this study aimed to:
1. Determine the most frequently occurring words in the tweets that were collected.

2. Determine the sentiments of online users towards living in the new normal.

3. METHODS
3. 1 Research Design
The study started with qualitative data collecting and analysis, then moved on to quantitative data creation and analysis, and finally to a stage of data analysis that combined the two outcomes, resulting in an Exploratory Sequential Mixed Methods design (Isoaho et al.,2021). This study uses relational analysis, notably Sentiment analysis, to accomplish the research's goals.

3.2 Data Collection, Text Preprocessing and Cleaning
Tweets were harnessed using the twitter widget in the text mining package of orange. The twitter widget used the keys that were obtained from the twitter API. The hashtag "#newnormal" was used as the primary search parameter in the twitter widget and a total of 786 tweets were captured. Each tweet remained anonymous in compliance with the data privacy act of 2012. All tweets underwent text preprocessing and cleaning. In the preprocessing stage, information extraction from the tweets is performed to identify keywords and relationships within the text this is also known as pattern matching. This technology is very advantageous when dealing with large volumes of text. The preprocessing and cleaning methods performed in this research are:

Stopwords Removal: Natural language has a division called stop words. The reason for removing stop-words from a text is that they make it appear heavier and less essential to analysts. The dimensionality of term space is reduced when stop words are removed. Articles, prepositions, and pronouns are the most common words in text documents, yet they do not convey the meaning of the writings.

Stemming: This method is used to determine a word's root/stem. The words connect, connected, connecting, and connections, for example, can all be traced back to the word "connect".

The goal of this strategy is to eliminate multiple suffixes, minimize the number of words, ensure that stems are precisely matched, and save time and memory space.

Term Frequency-Inverse Document Frequency: The Term Frequency-Inverse Document Frequency (TF-IDF) is a numerical statistic that shows how essential a word is to a collection of documents. Information retrieval and text mining frequently use the TF-IDF as a weighting factor. The value of TF-IDF rises in proportion to the number of times a word appears in the document, but the frequency of the word in the corpus balances it out (Vijayarani et al., 2015).

3.3 Sentiment Analysis
Sentiment analysis was performed after the pre-processing step to show the sentiments behind people's tweets relating to living in the new normal. Sentiment analysis (SA) is a natural language processing technique that extracts useful information from text. The method was used to determine the emotions expressed by people in their respective tweets. Trust, joy, sadness, fear, anger, surprise, disgust, and anticipation are some of the emotions that can be identified in the collection of tweets.

3.4 Word Cloud
Word clouds, also known as tag clouds or weighted lists, are a visual representation of the frequency tabulation of terms in any written content, such as lecture notes, a textbook chapter, or an internet site. The greater the font size, the more often a word is used (Miley & Read, 2011; Casillano, 2019).

3.5 Programming and Online Tool Used in the Study
Text processing, sentiment analysis, and word cloud building were all done with the Orange Data Mining Software. Orange is a machine learning and data visualization open-source program. With a vast and diverse toolkit, it creates data analysis workflows visually (Demsar et al., 2013).

3.6 Ethical Consideration and Reflexivity
As Twitter grows in popularity, it now offers a free advanced programming interface that gives users access to millions of tweets, including details on the user's specific geographical location. This necessitates rigorous data handling procedures. The goals and techniques were clearly stated, the anonymity of tweet authors was preserved, and personal and private Twitter data was omitted.

4. RESULTS
4.1 Word Cloud Generation Result
As can be gleaned in figure 1, the most prevalent words that were generate are the words: *new normal, covid-19, travel, precautions, pandemic, office, travel, safe, workplace, people, remote work, wfh, digital and workplace.* These words were the most used words in the tweets of online users talking about living in the new normal. The prevalence of the words "remote work" and "wfh" were mentioned by Spiggle (2021), he explained that the tremendous increase in remote work has to be one of the most significant shifts in the new normal. Prior to the pandemic, 20% of workers did all or most of their work from home. By late 2020, more than 70% of workers would be working from home full-time or

part-time. However, this does not necessarily imply that the new normal will include an increase in the number of individuals working from home. One explanation for this is that many employees desire a hybrid work environment in which they can work from home and in an office. The word cloud also revealed that online users were talking about digital workplaces. Kane et al. (2020) said that one of the consequences of the COVID-19 pandemic for businesses has been a major increase in the adoption of digital technology that assist firms in reducing face-to-face interactions while also protecting consumer and staff health and well-being. Consumer-facing applications like grocery and food delivery services, business-to-business e-commerce apps, and applications like videoconferencing that appear to have permeated the consumer, corporate, and not-for-profit worlds are all examples of digital technology.

Figure 1. Word Cloud

4.2 Sentiment Analysis

The sentiment analysis results revealed a total of 400 tweets were determined to have positive sentiments, 151 tweets were determined to be negative and 235 were determined to be neutral. The compound score of all tweets is 0.13 (shown in table 1.0), this implies that the general sentiment of tweets of online users towards living in the new normal is positive. A visualization of the sentiment analysis result can be seen in figure 2. Figure 2 is a heatmap of all tweets which shows the colors blue to light yellow, the lighter the color the more positive the tweet is. It can be observed that most tweets were either green or light yellow which corroborates the result of the sentiment analysis score. Furthermore, figure 3 elucidates the specific feeling of each tweet.

It can be gleaned in the figure that most tweets were classified to be joyful, surprised and fearful. These feelings generally describe the mixed emotions of online users towards living in the new normal. The joyful or happy emotion of online users is consistent with the study of Folk et al. (2020), where they utilized a short-term longitudinal design to investigate the impact of COVID-19 on social connection, relatedness, loneliness and life satisfaction in two samples. Results of the study revealed a positive relationship was found between relatedness and life satisfaction during COVID-19 suggesting that connectedness plays a bolstering role. Similarly, positive attitudes and high confidence that COVID-19 would be successfully controlled were exhibited by people working in the public sector.

Table 1. Sentiment Analysis Result

Number of Tweets	Sentiment	Total Sentiment Score
151	Negative	-0.40
400	Positive	0.53
235	Neutral	0.00
Total: 786		Sentiment Score: 0.13

Figure 2. Heat Map

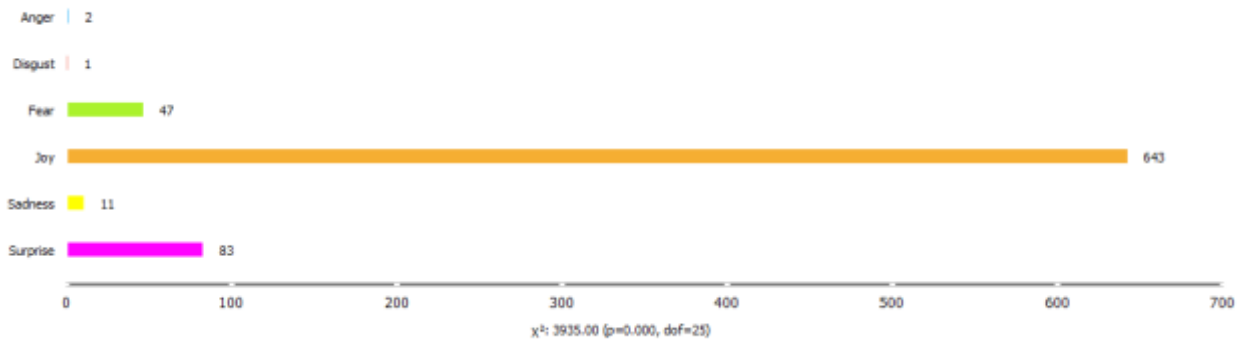χ^2: 3935.00 (p=0.000, dof=25)

Figure 3. Specific Sentiments of Twitter Users

5. CONCLUSION

This study aimed at determining the general sentiments of twitter users towards living in the new normal. With the use of automated programming tools to harness and analyze tweets and uncover the sentiments of twitter users, it was determined that prevalent words mentioned in the tweets were: *new normal, covid-19, travel, precautions, pandemic, office, travel, safe, workplace, people, remote work, wfh, digital and workplace.* Twitter users generally talked about the migration from conventional workplace to a digital workplace and the transition from face to face work setup to a remote type of work setup. The sentiment analysis revealed an overall sentiment score of positive (0.13) which means that people are mentioning positive comments and opinions towards living in the new normal.

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