DEPRESSION AMONG PUBLIC SCHOOL TEACHERS IN THE PHILIPPINES: A NEWS SENTIMENT ANALYSIS

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Abstract: *The study aimed to disclose and described the prevailing sentiments on the different news articles on mental depression among public school teachers in the Philippines. The study utilized a mixed-method research design utilizing content analysis of online news articles from January to December 2019. The study employed Plutchik Wheels of Emotions to present the sentiment analysis of the study. Google Trends was also utilized to present the vulnerability of the topic. The news content analysis revealed sentiments of the articles to negative (36.88%) and positive (63.12%) where writers principal emotions on Trust, Anticipation, Fear and Sadness and few articles on Joy, Anger, Surprise and Disgust. The unique discoveries of the study focused on the soft evidence and the actual news articles on Mental Depression among Public School Teachers. Further studies may be conducted to explore the hidden themes on the embedded sentiments found in the news articles in this study*

1. INTRODUCTION

The teaching profession is proven without a doubt as to the noblest and stressful job in the country. In the Philippines, teachers are expected of numerous tasks of such as teaching, extending community linkages and perform clerical functions. In particular, teachers are required to provide a conducive learning environment, prepare a lesson plan, provide instructional materials, engage into classroom teaching, rate students' performances, conduct home visitation, participate in co-curricular activities inside and outside of school, engage into continuing professional development courses, conduct research outputs and attend in-service training. Further, teachers are anticipated to take part in the different programs and activities sponsored by the parents and community partner activities to foster linkages in the institution.

The emotional turmoil, work strains, role conflict, and low reward system influences the increase of job burnout, anxiety and depression among these public-school teachers. Othman (2019), mentioned that public-school teachers with minimal teaching experience and without supervisors are more susceptible to occupational stress (Othman, 2019). de los Santos, Albasin, & de los Santos, (2018) mentioned young professionals in particular who have not developed a sound coping mechanism in handling occupational stress and with low self-efficacy were highly associated to mental health issues, specifically in this study, mental depression.

Mental Depression is a mental health problem which affects everyone regardless of socioeconomic status in the community. American Psychiatric Association (APA) defined depression having multiple symptoms which include frequent and prolonged depressed mood

and diminished interest in most daily activities (Hindman & Bustamante, 2019). Researchers presented depression as the leading cause to negative emotions in the workplace, burnout, anxiety and depersonalization. It can be observed as part of the ageing process of every individual in the organization but as revealed in several studies it has become one of the major concerns in mental health issues in the country.

The public-school teacher's mental health is dependent on how they handle the different sources stress in their academic life. The level of occupational stress among these teachers in the public school in the Philippines has adversely affected their work performance and interpersonal relationships in and outside of the organization. As published in different reputable news agencies there is a growing number of public-school teachers with mental health problems, which leads to tragic incidence.

The passage of Philippine Mental Health Act of 2017 (Republic Act No. 11036) provides every Filipinos with the right to access to mental health services on psychiatric, psychosocial and neurological in all hospitals, and the basic mental health services in the community settings. It further seeks to establish access to comprehensive and integrated mental health services, while protecting the rights of the people with mental disorders and their family members.

According to researchers and expert's mental health services remains a poorly resourced sector of healthcare in the Philippines (Lally, Tully, & Samaniego, 2019). Most of the psychiatrist works in for-profit services or private practices. To note by experts, mental health remains to be the neglected healthcare due to stigma that one may undergo in the process of recovery.

Experts revealed that journalists may embed emotional sentiments that may affect the discourse of arguments as either positive or negative (Balahur et al., 2013). Employing sentiment analysis is the application of Natural Language Processing to extract the subjective information from published news articles (Shirsat, 2017). Taj, Shaikh, & Meghji, (2019) mentioned two processes to automate the sentiment analysis in news articles through lexicon method and machine learning methods.

Several studies have been conducted using content analysis but a scarcity of empirical studies on news content analysis using unsupervised machine learning on mental depression among public school teachers in the Philippines. The study aimed to understand the hidden sentiments on the news articles published online on mental depression. Therefore, it is empirically essential to understand and unveil the prevalent sentiments about mental depression among public-school teachers in the Philippines. Specifically, this study seeks to answer the following:

- The frequency of words from the term-document matrix and a word cloud of news articles.
- What are the hidden sentiments prevalent in the different news articles about mental depression in public-school teachers in the Philippines?
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MATERIALS AND METHODS

1.1. Research Design

The study utilized a mixed-method research design utilizing content analysis where data collection starts with qualitative information and analysis, then concluded with a quantitative data analysis combining the results(Caluza, 2018). Further, the study employs unsupervised machine learning using R Programming language.

1.2. Data Selection and Collection

The researcher utilized Google Trends to capture the vulnerability of the study using keywords of Depression (Mood), Department of Education as Public-School and Teacher as a Profession in the Philippines from January to December 2019.

Further, the researcher adopted the four criteria in evaluating secondary sources of data in writing social research as presented by (Caluza, 2019) such as authenticity, credibility, representativeness and meaning of the news articles in this study.

With this, the researcher collected news articles on depression among Public School Teachers in the Philippines. Varied source of news articles were taken from reputable online news portal in the Philippines such as Philippine Information Agency, Philippine News Agency, CCN Philippines, Philippine Star, Manila Times, Manila Bulletin, Philippine Daily Inquirer and Sun Star from January to December 2019. A total of 54 News Articles were downloaded from the internet which features mental health issues in the Philippines. These news articles were then collated into MS Excel application for later processing using Unsupervised Machine Learning algorithm.
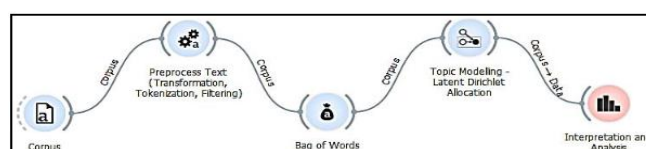

Figure 1 Research Data Mining Process

Figure 1 illustrates the processes involved in this study using unsupervised machine learning after data collection.

1.3. Pre-processingof Data

Text mining (tm) package was executed in R programming algorithm to create a corpus document based on the imported excel document known as big data collection. This process adds meaning and value on data analysis and visualizations. The removal of stop words, word stemming and term frequency were performed to attain the purpose of this study (Caluza, 2018). The term-document matrix (TDM) is the quality result in the pre-processing stage which can be presented in quantitative and visual presentations.

1.4. Content Analysis: Plutchiks' Eight Wheel of Emotions

The process reveals the embedded emotions of news writers in writing news articles in mental depression among public school teachers in the Philippines. Researchers stressed that writers' attitude is affected by his mental disposition and their level of emotional state while writing articles (Shirsat, 2017; Sultana, Kumar, & Chandra, 2019).

The study further utilized Robert Plutchik's eight (8) wheels of emotions as presented in Figure 2 (trust and disgust, joy and sadness, anger and fear, and surprise and anticipation). Further, the researcher utilized a lexicon-based approach to generate Bag of Words (BOW) that determined the sentiment polarities of the news articles as either positive or negative.
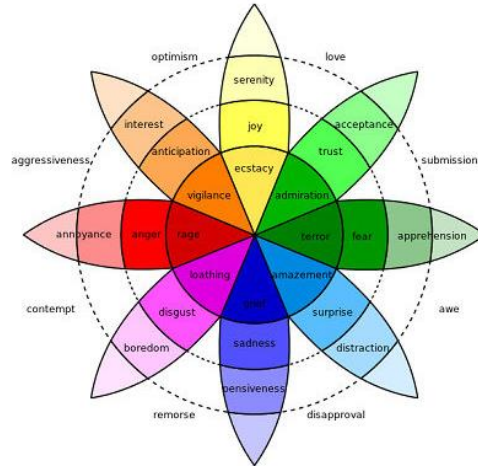

Figure 2 Plutchiks' Wheel of Emotion

1.5. *Tools and Software*

The study utilized R programming in performing data visualizations and document processing through RStudio application software. Excel was used to create a single document on the different news articles online about mental depression in public schools in the Philippines.

1.6. *Ethical Consideration Reflexibility*

The researcher strictly observed the following ethical consideration in this study. To remain the anonymity of the data, the researcher does not reveal the authors' name and the source of news articles published online to avoid future predicaments and legal issues.

Researcher position on this study was explicit; to reveal only the writers' embedded emotions on mental depression among public school teachers in the Philippines.

Interpretation of the researcher is based on his capacity and readings about the subject.

2. RESULTS

The study utilized a news content analysis using unsupervised machine learning to answer the objectives of the study. Specifically, the study utilized text mining techniques and sentiment analysis to present the Plutchik wheel of emotions.
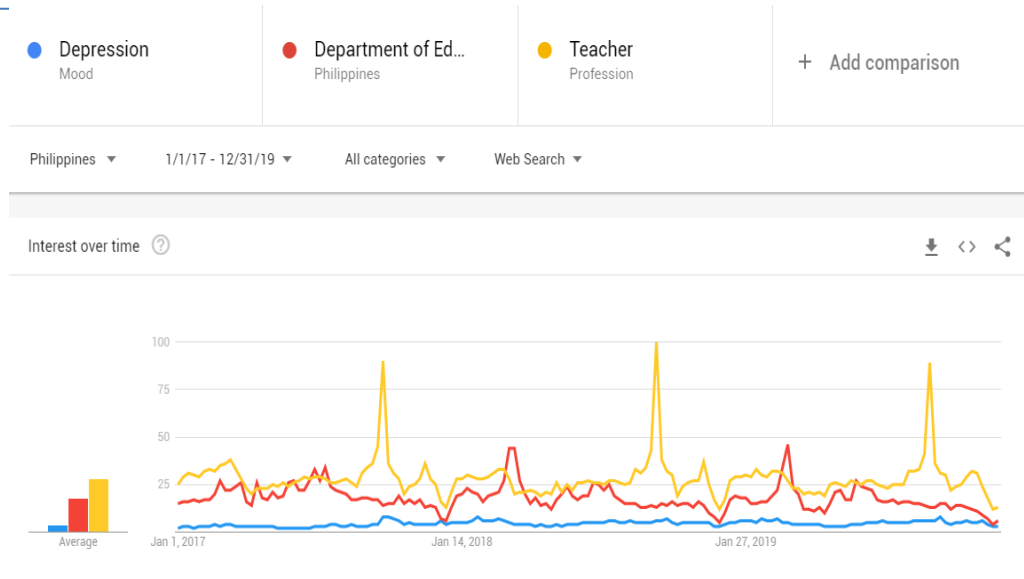
Figure 3 Vulnerability of the Topic Studied

Table 1 Top Ten Term Document Matrix

Health
Mental
Teacher
School
Suicide
Depression
Social
Student
Work
DepEd

Top 10 Keywords based on of term-document matrix

Figure 1 Frequency of Words

Figure 2 Word Cloud Term Document Matrix

Figure 3 Sentiment Scores of News Articles

Figure 4 Sentiment Word Cloud Comparison
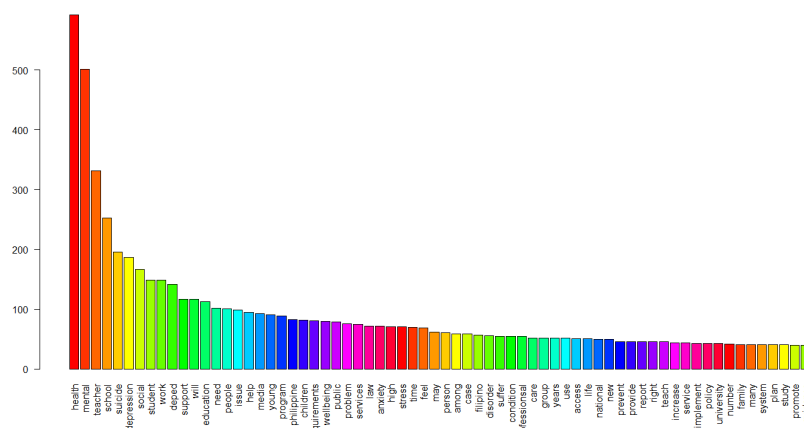
3. DISCUSSION

Figure 3 confirms the vulnerability of the topic understudied using Google Trends analytics. It can be observed on the 3-year trend from 2017 to 2019, the months of March, July, September and October have the highest incidence of depression among public school teachers in the Philippines. The month of July, teachers were required to accomplish the activities needed for the opening of classes such as classroom improvement and facilitating students' documents for their class.

The encompassing activities for the month of September and October in the scheduled periodic evaluation, end of semester student performance reports and School-Based Management (SBM) evaluation. Teachers are assigned to different areas of SBM parameters where they need to prepare documents as evidence in the quality of teaching and learning environment of the school.

March signifies the academic grandeur of the different teaching and learning activities in between teacher and students. Student documents are updated in preparation for their moving up ceremonies and enrollment purposes. Further, teachers are evaluated on their Individual Performance Commitment and Review Form (IPCRF) with supporting evidence for the academic year. These documents must be complete enough for teachers to merit a good rating for the academic year.

These activities contribute to depression among public school teachers due to workload requirements and some are attributed to personal problems as reported by a reputable news agency in the Philippines.

3.1. Term Document Matrix of News Articles

Table 1 presents the top ten (10) keywords from the term-document matrix generated from the corpus document using unsupervised machine learning algorithm. It reveals the frequency of words in the different news articles from a reputable news agency in the Philippines.

The results reveal a growing concern on mental health issues among public school teachers on the different incidence of teachers with depression committing suicide. Experts further observed that depression affects teachers' dealing with their students, towards work performance, and the organization they work for (Khurshid, Parveen, Yousuf, & Chaundhry, 2015).

The national government are taking the lead to develop policies and programs to address mental depression in the Philippines. the aims of these policies and programs is for the general welfare of every Filipinos on mental health issues not only the public-school teachers.

The bar plot in Figure 4, presents the frequency of words of at least 40 in the term-document matrix based on the corpus document. The frequency of the top 10 keywords was health (592), mental (501), teacher (331), school (252), suicide (196), depression (187), social (167), student (149), work (149) and DepEd (142). This implies that most writers were focused on the idea of good health among our public-school teachers.

Figure 5 presents the word cloud generated from the term-document matrix with a minimum frequency of 20 and a maximum of 500 words in the document corpus. It can be observed on the size and location of the words on health, mental, teacher and depression are at the center part of the diagram. This can be implied that most public-school teachers encounter depression from different work-school requirements. This influences the mental health condition of public-school teachers in the Philippines (Othman, 2019).

3.2. *News Content Analysis using Plutchiks 8 Wheel of Emotions*

Using R sentiment package in R programming, Figure 6 presents the sentiment scores on the different news articles on mental depression among public-school teachers in the Philippines. The public-school teachers still possess an attitude of trust and positivity towards government programs, policies and intervention. Regardless of news articles which presented emotions of anger, still, public-school teachers encounter a mixed emotion on anticipation, fear and sadness.

It can be further revealed on the frequency of embedded emotions of the news writers on the different news articles. It presents the frequency of emotions on anger (380), anticipation (660), disgust (209), fear (611), joy (406), sadness (587), surprise (248) and trust (1099). Articles have been further categorized into negative (963) and positive (1648) as presented in Figure 6. It can be implied that writers accept the idea that public school teachers still trust the system in the organization and further anticipates for the government policies and programs and intervention that will be implemented in the future.

3.3. *Sentiment Word Cloud Comparison*

The word cloud comparison illustrates Plutchik 8 Wheel of Emotions using content analysis and text mining techniques. Figure 7 reveals the different embedded emotions of the news writers on the different news articles on mental depression among public school teachers. It revealed that most of the news writer has dominant emotions of anger towards suicide. This can be observed on the different published news articles on the incidence of public-school teachers committing suicide due to much anxiety and depression.

Other emotions reveal public-school teachers to be: anticipation on public and time; disgust on the stigma of suffering; the fear of medical disorder; the joy on resources and salary to be productive; sadness on depression and chronic disability; surprise on the young incidence of suicide; and, trust on a teacher support mechanism, the school system, policy and programs.

4. CONCLUSION

The embedded emotions of news writers were revealed through the process of news content analysis using text mining package and R sentiment package in R programming. The different published news articles on depression are attributed to teacher's committing suicide in public schools. The study revealed a significant drift of emotions such as joy (9.7%), surprise (5.9%), trust (26.6%) and sadness (13.97%), fear 14.55%), anticipation (15.71%), anger (9.04%) and disgust (4.97%) based on Plutchik's wheels of emotions. Finally, the process deployed in this study on news content analysis gives a clear view and directions for

future researches.

5. RECOMMENDATIONS

Based on the results of the study, the following recommendations were formulated; a) to explore the hidden themes among news articles in this study using Latent Dirichlet Allocation (LDA) Algorithm to help school administrators on formulating intervention programs addressing Teacher Depression, and b) to conduct a content analysis on empirical studies of teachers depression in public schools to confirm or deny the results of the study.

REFERENCES

Balahur, A., Steinberger, R., Kabadjov, M., Zavarella, V., Goot, E. Van Der, Halkia, M., … Belyaeva, J. (2013). Sentiment Analysis in the News, (February 2014).

Caluza, Las Johansen B. (2018). Deciphering West Philippine Sea : A Plutchik and VADER Algorithm Sentiment Analysis, *11*(December), 1–12. https://doi.org/10.17485/ijst/2018/v11i47/130980

Caluza, Las Johansen Balios. (2019). Deciphering published articles on cyberterrorism: A latent Dirichlet allocation algorithm application. *International Journal of Data Mining, Modelling and Management*, *11*(1), 87–101. https://doi.org/10.1504/IJDMMM.2019.096539

de los Santos, J. R. N., Albasin, I. G. G., & de los Santos, M. G. (2018). Health Notions , Volume 2 Number 12 (December 2018) Coping Strategies among Employees towards Occupational Stress 1238 | Publisher : Humanistic Network for Science and Technology Health Notions , Volume 2 Number 12 (December 2018) ISSN 2580-4936 1239, *2*(12), 1238–1245.

Hindman, A. H., & Bustamante, A. S. (2019). Teacher depression as a dynamic variable: Exploring the nature and predictors of change over the head start year. *Journal of Applied Developmental Psychology*, *61*(October), 43–55. https://doi.org/10.1016/j.appdev.2018.09.004

Khurshid, S., Parveen, Q., Yousuf, M. I., & Chaundhry, A. G. (2015). Effects of Depression on Students '. *Pakistan Association of Anthropology*, *27*(2), 1619–1624.

Lally, J., Tully, J., & Samaniego, R. (2019). Mental health services in the Philippines. *BJPsych International*, *16*(03), 62–64. https://doi.org/10.1192/bji.2018.34

Othman, Z. (2019). Depression, Anxiety, and Stress among Secondary School Teachers in Klang, Malaysia. *International Medical Journal*, *26*(2), 71–74. https://doi.org/10.5281/zenodo.2586221.

Shirsat, V. S. (2017). Document Level Sentiment Analysis from News Articles. *2017 International Conference on Computing, Communication, Control and Automation (ICCUBEA)*, (January 2019), 1–4. https://doi.org/10.1109/ICCUBEA.2017.8463638

Sultana, N., Kumar, P., & Chandra, S. (2019). SENTIMENT ANALYSIS FOR PRODUCT REVIEW, (April). https://doi.org/10.21917/ijsc.2019.0266

Taj, S., Shaikh, B. B., & Meghji, A. F. (2019). Sentiment Analysis of News Articles : A Lexicon based Approach, (February).