

COMPUTER-AIDED QUALITATIVE DATA ANALYSIS (CAQDAS) ON THE LIFE SATISFACTION AND BURNOUT OF ARCHITECTURE FACULTY DURING THE COVID-19 PANDEMIC USING VALENCE AWARE DICTIONARY FOR SENTIMENT REASONING (VADER)

Maricel C. Vigor

University of Science and Technology of Southern Philippines, Cagayan de Oro City, Philippines

*Corresponding author's email: maricel.vigor@ustp.edu.ph

ABSTRACT. *This paper intends to investigate the burnout of full-time and part-time faculty in the architecture department of a State University in Northern Mindanao in terms of their life happiness or satisfaction during the COVID-19 Pandemic. Data from 15 full-time and part-time faculty members was gathered through google forms and analyzed using orange software and Vader's Sentiment Analysis. The most frequently mentioned words that appeared in the word cloud generated from the comments of instructors were work, followed by pandemic, students, personal, life, income, home, and time. There is a strong emphasis on work for the respondents, and stress only came in as the third most mentioned word. The results of the VADER analysis in ORANGE suggest the compounded sentiments of the respondents, which are 9 out of 15 are negative when asked about their life satisfaction in the pandemic, though the results also indicate a more neutrally leaning tone. One subject in the sample has clearly negative sentiments, and the analysis results also show that the sentiments were neither heading strongly in the positive direction. The general results from the sentiment analysis using VADER suggest that most instructors feel stressed and have life satisfaction heading in the negative direction.*

Key Words: *Architecture Faculty, Job Burnout, CAQDAS, Sentiment Analysis, Vader*

1. INTRODUCTION

The term VADER stands for Valence Aware Dictionary for Sentiment Reasoning, which is a model used for sentiment analysis of text and is quite sensitive to both positive and negative polarities, including the strength and intensity of an emotion. The sentimental analysis of VADER is reliant on a dictionary that can map features that are lexical to emotion, better known as sentiment scores, which are obtained by summing the word intensity used in the text. According to Liu [1], sentiment analysis is the computational study of people's attitudes, emotions, opinions, and sentiments. In this study, the VADER functionality of the Thematic Analysis capability of the software ORANGE was used to mine and analyze the written interviews of architects regarding their experiences with regards to life satisfaction and burnout during the pandemic. The architectural design instructors were then asked to highlight and emphasize words or phrases they wished to convey in their sentiments towards the topic. They were also asked to convey their negative and positive experiences without barriers and with full confidentiality. Computer-aided qualitative data analysis (CAQDAS) was utilized to investigate the epistemological point of view of the students regarding their experience in the use of the Interactive Spatial Intelligence Module.

According to Moreira [2], the use of or software programs to assist in qualitative research through lexical analysis, offers substantial advantages, such as being able to analyse and encode texts faster and less laboriously. In this study, a more advanced lexical analysis software tool, VADER, was used. The life satisfaction and burnout of architecture faculty were investigated in this study to look into the physical, emotional, and mental elements that influenced them during the COVID-19 pandemic [3]. It is important to note and remember that the pandemic prompted academicians across the globe to look into

online teaching strategies to cope with the closed borders and limited physical interaction between people [4]. With this, BOS or burnout syndrome, emerged among professionals because of the limited physical contact and interaction with people [5]. Working conditions that are poor could also lead to lower life contentment, and the pandemic had synergized this effect on a lot of people [6]. The fears and uncertainties of the pandemic had also reduced the life satisfaction and increased the burnout of people across the globe [7] with people having different responses and coping mechanisms to cope with this [8]. However, work-life balance still remained a predictor of happiness even during the uncertain time of the pandemic, and some clung to religion for hope and protection [8, 9].

2. METHODOLOGY

The study used a qualitative research approach to establish the epistemic perspectives of the research participants. Qualitative research, according to Cohen et al. [10], aims to gain a deeper knowledge of individuals' mental processes in connection to external stimuli, events, and the environment. According to Leavy [11], qualitative research examines the depth of meanings people make, as well as their processes in meaning production and subjective experiences. A descriptive study is conducted from September to October 2021 which is the most basic form of research that involves describing phenomena in this world [12]. The qualitative research methods will give this study a more comprehensive viewpoint and understanding of how the instructors felt about burnout and life satisfaction during the COVID-19 pandemic.

2.1 Data Gathering

The study is done among 15 full-time and part-time faculty members of a state university in Northern Mindanao's architecture department. Data is collected via Google Forms, which are then forwarded to the appropriate email addresses.

The main goal of the online survey is to characterize the characteristics of the analysis unit, which is the instructors [13]. The data is then analyzed using ORANGE software's VADER sentiment analysis to produce a word cloud, heat map, and sentiment table.

3. RESULTS AND DISCUSSION

3.1 CAQDAS Results

The software ORANGE was used to explore and data mine the sentiments and comments of the 15 full-time and part-time instructors of the Architecture Department, which reflected the following results.

Table-1: Sentiment Table (VADER RESULTS)

Respondent	Positive	Negative	Neutral	Compound
1	0	0.172	0.828	-0.6124
2	0.062	0.13	0.808	-0.7768
3	0	1	0	-0.4215
4	0.078	0.089	0.832	-0.3826
5	0.16	0	0.84	0.5023
6	0	0.22	0.78	-0.3089
7	0.142	0.086	0.772	0.6375
8	0	0.266	0.734	-0.5719
9	0	0.455	0.545	-0.3612
10	0	0.243	0.757	-0.7707
11	0.099	0.051	0.851	0.1655
12	0.064	0.132	0.804	-0.4556
13	0.166	0.062	0.772	0.8109
14	0.161	0.062	0.777	0.9735
15	0.136	0.067	0.796	0.7535

The results of the VADER analysis in ORANGE suggest the compounded sentiments of the respondents, which are 9 out of 15 are negative when asked about their life satisfaction in the pandemic, though the results also indicate a more neutrally leaning tone, One subject in the sample has clearly negative sentiments, and the analysis results also show that the sentiments were neither heading strongly in the positive direction.

3.2 Word Cloud and Heat Map

The most mentioned word in the comments of instructors is work," followed by pandemic, students, personal, life, income, home, and time. There is a strong emphasis on work for the respondents, and stress only came in as the third most mentioned word, as can be seen in the generated word cluster in figure 1.



Figure-1: Word Cloud

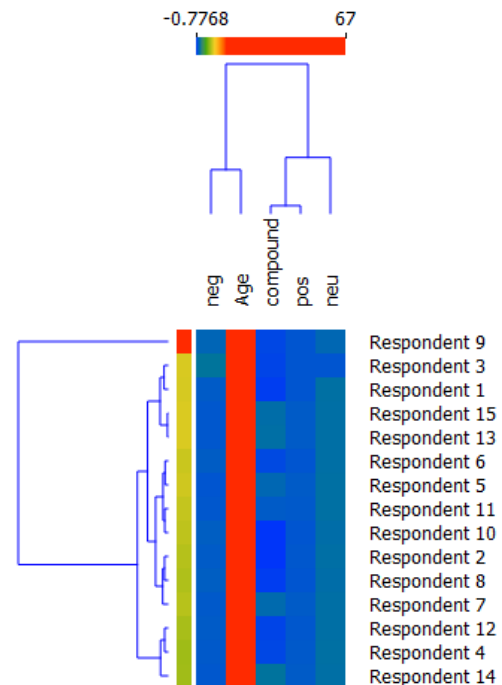


Figure-2: Heat Map

The heatmap, as indicated in figure-2 indicates that the general direction of sentiment is headed in the negative direction of the map.

4.CONCLUSION AND RECOMMENDATION

The general results from the sentiment analysis using VADER suggest that most instructors feel stressed and have a life satisfaction heading in the negative direction. According to Yengo-Kahn et al. [14], team sports could reduce burnout; however, the presence of the pandemic, which limits physical interaction, is a deterrent for this type of activity. However, individual exercise activities could also reduce stress levels and should be encouraged to help manage burnout in the pandemic [15]. It is also recommended that a study on a larger scale be conducted to confirm the results of the sentiment analysis in Vader.

5. REFERENCES

- [1] B. Liu, *Sentiment Analysis*, vol. 1, no. 2. Cambridge University Press, 2015.
- [2] A. P. C. L. P. R. A. Moreira, *Computer Supported Qualitative Research: New trends on qualitative research*. 2018.
- [3] M. Kaur, P. Sethi, N. Gupta, and P. Bhatia, "Burnout during the COVID-19 pandemic: time to ponder," *Brazilian J. Anesthesiol. (English Ed.)*, vol. 71, no. 2, p. 190, 2021, doi: 10.1016/j.bjane.2020.10.017.
- [4] L. Sokal, L. E. Trudel, and J. Babb, "Canadian teachers' attitudes toward change, efficacy, and burnout during the COVID-19 pandemic," *Int. J. Educ. Res. Open*, vol. 1, no. October, p. 100016, 2020, doi: 10.1016/j.ijedro.2020.100016.
- [5] G. Mion, P. Hamann, M. Saleten, B. Plaud, and C. Baillard, "Psychological impact of the COVID-19

- pandemic and burnout severity in French residents: A national study,” *Eur. J. Psychiatry*, vol. 35, no. 3, pp. 173–180, 2021, doi: 10.1016/j.ejpsy.2021.03.005.
- [6] N. Z. Bakkeli, “Health, work, and contributing factors on life satisfaction: A study in Norway before and during the COVID-19 pandemic,” *SSM - Popul. Heal.*, vol. 14, p. 100804, 2021, doi: 10.1016/j.ssmph.2021.100804.
- [7] C. D. Duong, “The impact of fear and anxiety of Covid-19 on life satisfaction: Psychological distress and sleep disturbance as mediators,” *Pers. Individ. Dif.*, vol. 178, no. March, p. 110869, 2021, doi: 10.1016/j.paid.2021.110869.
- [8] R. F. Carranza Esteban, J. E. Turpo-Chaparro, O. Mamani-Benito, J. H. Torres, and F. S. Arenaza, “Spirituality and religiousness as predictors of life satisfaction among Peruvian citizens during the COVID-19 pandemic,” *Heliyon*, vol. 7, no. 5, p. e06939, 2021, doi: 10.1016/j.heliyon.2021.e06939.
- [9] A. Li, S. Wang, M. Cai, R. Sun, and X. Liu, “Self-compassion and life-satisfaction among Chinese self-quarantined residents during COVID-19 pandemic: A moderated mediation model of positive coping and gender,” *Pers. Individ. Dif.*, vol. 170, no. 19, p. 110457, 2021, doi: 10.1016/j.paid.2020.110457.
- [10] L. Cohen, L. Manion, and K. Morrison, *Experiments, quasi-experiments, single-case research and meta-analysis*. 2020.
- [11] P. Leavy, *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches*, vol. 13, no. 2. 370 Seventh Avenue, Suite 1200, New York, NY 10001: THE GUILFORD PRESS, 2017.
- [12] F. C. Lunenberg and B. Irby, *Writing a successful thesis or dissertation*, no. 1. Thousand Oaks, CA 9132: Corwin Press, Inc., 2008.
- [13] J. R. Fraenkel and N. E. Wallen, *How to design and evaluate research in education*, 7th Editio. The McGraw-Hill Companies, Inc., 2009.
- [14] A. M. Yengo-Kahn *et al.*, “Team Sport Participation Protects Against Burnout During Neurosurgery Training: Cross-Sectional Survey Study,” *World Neurosurg.*, 2021, doi: 10.1016/j.wneu.2021.08.146.
- [15] J. Jacquart, S. Papini, Z. Freeman, J. B. Bartholomew, and J. A. J. Smits, “Using exercise to facilitate arousal reappraisal and reduce stress reactivity: A randomized controlled trial,” *Ment. Health Phys. Act.*, vol. 18, p. 100324, 2020, doi: 10.1016/j.mhpa.2020.100324.