Pakistan Journal of Psychological Research, 2021, Vol. 36, No. 3, 473-494

https://doi.org/10.33824/PJPR.2021.36.3.26

Sentiment Analysis of Imran Khan's Tweets

Sadia Saeed, Tehseen Zahra, and Asim Ali Fayyaz

Air University

In the recent past, sentiment analysis has been an area of interests of psychologists, sociologists, neurologists, computer scientists, and linguists including corpus linguists and computational linguists. Interdisciplinary approaches to researching various issues especially the analysis of social media websites such as Facebook, Twitter, and Instagram are becoming popular nowadays. The availability of data on social media has made it easier to analyse the opinion or sentiments of its users. Analysis of these sentiments could reveal the face of users and it could help in various decision-making processes. Sentiment analysis is a system of knowing polarity (positive, negative, and neutral) in discourse. Moreover, sentiments can enable and disable certain functions of discourse and can divert the attention of the audience from important to a less important issue or otherwise, hence, there is a need to analyse the sentiments. In this research, sentiments (Polarity) of Imran Khan's tweets are analysed with the help of R studio. Data for this study is collected from Imran Khan's one-year's tweets, tweeted from 1st January 2018 to 20th November 2018. Later we saved the data in. csv files. The results of the polarity check revealed that he has used all three types of sentiments that is positive, negative, and neutral. However, he mostly used neutral or free polarity items (FPIs) that is 67.41% in his tweets. Among positive and negative polarity items the number of negative polarity items (NPIs) is higher that is 23.21% as compared to positive polarity items (PPIs) which are only 9.40%. The manual analysis of results revealed that only software is not enough and there is a need to check the accuracy of the results manually. The use of negative polarity/negative face reveals that he tries to be independent and autonomous in his decisions (Goffman, 1967). The use of positive polarity items shows he tries to show his positive face to others. Moreover, sentiment analysis demonstrates the presence of themes propagated through the use of various lexical items.

Keywords. Sentiment analysis, tweets, opinion, polarity, Imran Khan

---

Sadia Saeed and Tehseen Zahra, Department of English, Air University.

Asim Ali Fayyaz, Department of Computer Sciences, Air University.

Correspondence concerning this article should be addressed to Tehseen Zahra, Department of English, Air University, Pakistan. Email: tehsin.azhar@yahoo.com

Social media has opened new vistas of information and news exchange. It has also provided adequate opportunities for citizens to raise their voices publically. Due to the viral nature of social media, some issues get rapidly dispersed, become important, and required proper investigation to have a clear image. Along with providing adequate opportunity to raise the voice, social media also provides huge data to researchers for a different type of analysis. Sometimes, users express their emotions and feelings through social media; these emotions are called sentiments of the users, and their analysis is named as sentiment analysis. Sentiment analysis is closely associated with opinion mining. Sometimes opinion mining is termed as sentiment analysis. Opinion mining is related to exploring or analysing an individual's opinions, feelings, and appraisals in a specific direction to know their feelings and views about a specific matter

Checking the polarity of the documents or texts is also a type of sentiment analysis. Polarity is the distinction between negative and positive words (Mejova, 2009). Some words have negative polarity such as "no", "never", etc. However, sometimes they do not act as negative, for example the expression "not bad" means good. While conducting sentiment analysis this feature of words should be kept in mind. To remove such kind of ambiguity Wilson, Wiebe, and Hoffmann (2005) used two types of polarity checking. First, they identify the positivity, negativity or neutrality of a word and later disambiguate it with the help of contextual polarity. Context helps to identify whether a word is polar or neutral.

Opinion mining and sentiment analysis are directly related to the computational treatment of emotions, statements, and opinions. For instance, it helps in perceiving the opinions of customers to the industry and as a result, the industry can make good decisions about the production, marketing, and modification of their product. Nowadays, we can have opinionated text from social media. After buying a product, people often, express their views about the product on Facebook, Twitter or give their opinions about the product on their websites or blogs (Liu, Li, & Guo, 2012; Bharath, Prabhakaran, Saravanan, & Vinoth, 2018). They also express their sentiments and opinions about various social and political issues on Facebook or Twitter. The messaging service of Twitter has become a platform for news consumers and customers to express their sentiments (Ghiassi & Lee, 2018). Liu (2010) and Jawale et al. (2013) are of the view, when an opinion is required by an organization about their products or services, they conducted surveys or opinion polls from a group. People reveal different opinions regarding the same situation. Many

factors affect the variations in the opinion-making process such as education, religion, power, and personality (Bulmer, Böhnke, & Lewis 2017). Opinion mining and summarization through sentiment analysis require sentence level or phrase level analyses. A similar study at phrase level sentiment analysis was conducted by Wilson et al. (2005). They proposed computational techniques to analyse psychological processes to identify the contextual polarity of a large subset of sentiments. Initially, they determined whether a phrase is polar or neutral. Later, they disambiguated the polarity of the expression.

Not just computational linguists (Asghar, Khan, Khan, & Kundi, 2018), but psychologists (Vij & Pruthi, 2018), neurologists, and practitioners in the field of medicine (Bulmer, Böhnke, & Lewis 2017) are also interested in conducting sentiment analysis; they adopt and adapt different methods for sentiment analysis according to their requirements and some of these methods are discussed below.

Sentiment analysis of social media websites can improve our knowledge of citizen's political preferences. Excessive usage of social media has made it possible to track the political preferences of citizens by analysing the online popularity of political leaders (Ceron, Curini, Iacus, & Porro, 2014). Sentiment analysis of Twitter posts can forecast the results of an election. With the help of the sentiment diffusion model, it is possible to predict how support or opposition towards a candidate spread or diffuses. With the help of diffusion model Kagan, Stevens, and Subrahmanian (2015) predicted 2013 Pakistani and 2014 Indian election and they predicted the winner. Sentiment analysis can help predict "who is a better Prime Minister?" It can also show how people feel about a candidate as a Prime Minister, and how the opinions of people change over time for that candidate (Zhou, Tao, Yong, & Yang, 2013). Positive, negative, and neutral behavior of party's leader and workers and impact of party's campaign on public can be predicted by analyzing social media content (Razzaq, Qamar, & Bilal, 2014).

Sentiment analysis is a rapidly growing area of Natural language processing and it ranges from document-level classification (Pang & Lee, 2008) to the learning of polarity of words and phrases (Hatzivassiloglou & McKeown, 1997). Sentiment analysis is a system of knowing the positive and negative opinions of people. This is an in-depth analysis because the users want to have detailed opinionated information related to a product or an individual. Researchers intend to know about the praised and criticized features of an incident or a new product through sentiment analysis. Hence, it helps both the company and researchers in mind reading of the consumers. Sentiment analysis of the speeches, Tweets or Facebook pages of politicians can

also be conducted to evaluate the polarity of their speeches and texts (Kagan, Stevens, & Subrahmanian, 2015). This research tries to explore the face of Pakistani Politician, Imran Khan, by analysing sentiments expressed in his Tweets.

The concept of positive and negative face was proposed by Goffman (1967) as an addition to the theory of politeness. According to Goffman (1967), there are two kinds of face acts: (a) Positive face (the desire to be approved of) and (b) negative face (the desire to be unimpeded in one's action). The theory of politeness (Brown & Levinson, 1994) expresses the speaker's intention to mitigate the face threats that were carried due to some face-threatening acts. A positive face is the desire to be connected with others while a negative face is a need for autonomy and independence and it shows power to take decisions independently. The concept of polarity and face are analogous and depend upon the use of positive and negative lexical items. Previously, the technique of sentiment analysis is used for knowing the sentiments only, but in the present research, sentiment analysis is used to reveal politeness or face. Instead of doing just manual analysis to reveal the face of Imran Khan, technique of sentiment analysis is used here to analyse the face so that the laborious work of manual analysis can be minimised. These two types of analyses are merged to explore two concepts of polarity and face as both positive face and positive polarity are related to the use of positive lexical items and negative face and negative polarity are related to the use of negative lexical items. After knowing the positive and negative polarity, positive and negative face of Imran Khan is revealed. After the analysis of sentiments just like Wilson et al. (2005), it is ascertained manually whether the software is giving correct results or not. This research is beneficial to establish either sentiment analysis through software can help reduce the time of performing manual analysis to reveal the face or politeness.

Sentiments are expressed through language in daily conversation. Sentiments can shape discourse in significant ways by enabling certain functions and disabling others (Hartelius, 2017). Analysis of these sentiments can reveal the polarity of discourse. Polarity can be positive, negative, and neutral (Mejova, 2009) and it can be measured to reveal the face of its speakers or writers, as both polarity and face depends upon the use of positive or negative lexical items. The manual analysis of a text to reveal someone's face is a laborious work and it is somewhat time consuming. To make this hectic task easy we proposed the use of sentiment analysis to reveal the face. In other words, we can say that the face will be analysed by analysing the sentiments. Both of the concept, that is, polarity and face are

dependent on the use of positive and negative lexical items. The use of positive lexical items makes the polarity and face 'positive' and the use of negative lexical items makes polarity and face 'negative'.

From the reviewed literature, previously sentiment analysis is performed just for the sake of analysing sentiments/polarity whereas not a single research is performed in which face is analysed by analysing sentiment analysis. To fulfil this gap, present study tries to reveal the face by using sentiment analysis technique and to do so we need some textual data and we decided to perform this analysis on twitter data of a Pakistani politician. The reason to select politician is that politicians' speech or writing is so influential that it can divert or grab the attention of people from one issue towards another and can convince, revolutionize, motivate, de-motivate, relax or tense the people. From Pakistani politicians, face of Imran Khan is studied because he is the Prime minister of Pakistan. Another reason for investigating Imran Khan's language is that the language of Imran Khan has been a controversial issue since he started his political career. Most of the people considered him as a blunt politician (Shabbir, 2017) having a negative face that is reflecting a need to be autonomous and independent. In the present research, focus is both the sentiment analysis to reveal the face and Imran Khan's Tweets language. The present study analyses the polarity/sentiments in his tweets to reveal whether he shows an inclination towards working in collaboration (positive face) or he wants to be autonomous in his decisions (negative face). Neutral polarity in the Tweets of Imran Khan is also explored along with positive and negative polarity.

Method

Research Design

Interdisciplinary approaches to researching various issues are becoming popular nowadays (Ruben, 2018). Following modern trends of research, the current study integrated disciplines of computational linguistics (Poecze, Ebster, & Strauss, 2018; Sharma et al., 2018), corpus linguistics (Bhatia, Garg, & Johari, 2018) and psychology (Vij & Pruthi, 2018) to analyse features of written discourse.

Data Collection

The data for this research is collected from Imran Khan's official Twitter account. We collected Tweets of Imran Khan from 1st January 2018 to 20th November 2018. The reason to collect the data between this time span is that politician was selected based on 2018 election. In

2018 election, Imran khan was elected as Prime Minister, so data collection started from 1st January 2018 until 20th of November 2018 followed by data analysis. Both the person and period is selected based on the 2018 election. We have selected Imran Khan because he won the highest votes in the 2018 election. We selected 405 tweets for this study (N = 405). There are many methods of collecting Tweets from Twitter, however, in this study; we have collected the data manually. Only written discourse in the form of tweets is selected for this research.

Pre-Processing of Data

After collecting the data, all tweets were pre-processed. In this pre-processing phase some of the shortened spellings such as *abt* [about], *ppl* [people], *bn* [billion], *yrs* [years], *esp* [especially], *mtg* [meeting], *govt*. [government], *mths* [months], are replaced with correct spellings, Some Urdu words such as *Jalsa* [sitting], *Naya* [new], *junnon* [enthusiasm], *Insaf* [justice], *ladla* [beloved], *darbari* [courtier], *laanath* [shame, curse], *Awam's* [people's] are replaced with their English substitutes, and Twitter features just like user name and picture, etc. are removed. This process of replacing, correcting, and removing unnecessary things is called corpus cleaning. After cleaning the corpus all the tweets were placed in a .csv file one by one. The total number of tweets were 405 (*N= 405*) and the corpus size for the study was 14,060 words.

Procedure

In the present study, the polarity in Imran Khan's tweets is analysed with the help of R-studio. R-studio is an integrated development environment (IDE) for R. It is available in open and free source and commercial editions. It uses programming language for statistical computing and graphics. R-studio uses different packages for text analysis. Packages in R-studio are the collections of R functions, data, and compiled code in a well-defined format. The directory where packages are stored is called a library. We have preferred this software over others as it is freely available, has built-in libraries for sentiment analysis and highly compatible with many programming languages. Moreover, it provides over 10,000 packages to perform data analysis. As the concept of polarity is parallel to the concept of face in politeness theory (1967), therefore, the results are also evaluated from the lens of the positive and negative face. The concept of positive and negative face was proposed by Goffman (1967).

Theoretically Driven Analysis

Present study analyses the results of sentiment analysis through the lens of positive and negative face. The concept of positive and negative face was proposed by Goffman (1967) as an addition to the theory of politeness. According to Goffman (1967), there are two kinds of face acts: (a) Positive face (the desire to be approved of) and (b) negative face (the desire to be unimpeded in one's action). A positive face is the desire to be connected with others and work in collaboration while a negative face is a need for autonomy and independence and it shows power to take decisions independently. As discussed above, to maintain positive and negative face, people use positive and negative politeness strategies (positive and negative face) such as demonstration of interest, sympathy, expressing optimism or pessimism, and apologizing. While using these mentioned strategies, the lexical items with positive and negative polarity are used. Lexical items used for showing positive politeness contain positive polarity and those showing negative politeness have negative polarity. It is a good strategy to explore polarity to find the politeness in a discourse. Moreover, the results of sentiment analysis shows that positive face can represent the political need of working in collaboration and negative face can represent the power and authority of a political leader over others and his ability to take decisions independently without anyone's interference. It can be assumed that polarity of sentiments in a discourse may be situational and closely related to the working of brain as brain may trigger specific responses in a situation and ultimately influence human behaviour.

Results

The data has been analysed by using R-studio (software). The results are checked manually that is if the tweet declared as positive or negative by the software is conveying the sentiments of positivity or negativity or not. The tweets collected for analysis were 405 in number. The results derived through R studio are displayed in tables.

Table 1

Imran Khan's Tweets Polarity (N = 405)

Polarity	**Number of Tweets**
Positive	38
Negative	94
Neutral	273
Total	**405**

The results show that in Imran Khan's Tweets, there are 38 positive polarity items (PPIs) whereas the negative polarity items (NPIs) are 94. A large number of NPIs shows a negative face and the negative face shows that the speaker is prone to be independent and autonomous in his decisions (Goffman, 1967). It shows that between positive and negative, he was inclined towards negativity. Neutral or free polarity items (FPIs) are more in number than the combinations of PPIs and NPIs. The number of his neutral polarity items is 273. The analysis reveals that his tweets having neutral polarity are greater in number than PPIs and NPIs. Neutrality is also a face-saving act. He has been trying to be neutral in his language as either he may not intend to hurt the feelings of the majority of people or he does not intend to speak explicitly.

We downloaded the results in MS Excel sheet and later arranged them in a Table 2 (see in Appendix). In the first column, the serial number is given, the second column contains the text of tweets, and the third column is of element ID and it shows the serial number of the tweet. If a tweet has more than one sentence, then all the sentences of that tweet carry the same ID as shown by the second tweet, which has two sentences, and the same ID represents both as 2. The fourth column represents sentence ID. It shows the ID of sentences of a particular tweet as if a tweet has more than one sentence then all the sentences will have the sentence ID as 1, 2, or 3 for first, second and third sentence respectively. The fifth and sixth columns tell the number of words in that sentence and the sentiment or polarity of that particular sentence respectively. There are three variables of polarity: 0 (zero) shows neutral, + sign shows positive, and - sign shows negative sentiments.

Table 2 (see in Appendix) shows the polarity of different sentences of Tweets. The polarity is between 0 to 1 and -1. The highest positive polarity is 1 (not a single tweet in table 2 has positive polarity as 1) and the highest negative polarity is -1 such as tweet with serial number 4 and 17 have the maximum negative polarity as -1. Each sentence may have some amount of positive or negative polarity. However, if the polarity is between 0 (tweet with serial number 8) to 0.4 (tweet with serial number 1) or -0.4 (tweet with serial number 2), it is considered as zero which means it is neutral. Most of the tweets have a polarity under the value of 0.5 or -0.5 that is why the overall polarity is much inclined towards neutrality as is shown from Table 1 and 2.

Some of the randomly selected tweets, from 405 tweets of Imran Khan are analysed one by one and are shown in Table 2 (see in Appendix).

Following Wilson et al., (2005), after having computational sentiment analysis, the results are analysed manually to disambiguate the polarity of expressions. The tweets are manually analysed by keeping in mind the concept of both polarity and face. As discussed earlier in introduction section, there are two kinds of face acts: **(a) Positive face** (the desire to be approved of) and **(b) negative face** (the desire to be unimpeded in one's action) (Goffman, 1967). The concept of face is part of politeness theory and face is the public self-image that everyone tries to protect. The theory of politeness (Brown & Levinson, 1994) expresses the speaker's intention to mitigate the face threats that were carried due to some face-threatening acts. A positive face is the desire to be connected with others while a negative face is a need for autonomy and independence. Some of the manually analysed tweets are given below.

For example in Table 2 (see in Appendix), the tweet with serial number 1 is analysed as below.

Tweet 1. "On behalf of the people of Pakistan and myself I want to let President Erdogan and the people of Turkey know we are praying for their success in dealing with the severe economic challenges confronting them as they have always succeeded against adversities in their glorious history".

The Tweet 1 consists of just one sentence having the element ID and sentence ID as 1. As the Tweet consists of just one sentence, the overall sentiment of this tweet is 0.209, which means it is inclined towards positivity and represents the theme of empathy and love as Imran Khan reveals a positive face for President Erdogan and the people of Turkey. The positive face is a desire to be connected with others and Imran khan is showing his positive face by showing empathy and love. The use of words such as *praying*, *success*, *succeeded*, and *glorious* makes it a positive tweet.

Tweet 2 and 3. "Saddened to learn of the death of our newly elected MPA from Rajanpur Tariq Dreeshak. My condolences and prayers go to the family."

The Tweet 2 and 3 consists of two sentences with the same element ID as 2 and different sentence IDs as 1 and 2. The first sentence appears with the negative polarity of -0.116 because of the use of words such as *saddened* and *death* whereas it does not show negativity in context because the tweet is condolence on death and

shows a positive face. The second sentence has no polarity, hence, shows neutrality as zero.

Tweet 4, 5 and 6. "Condemnable terrorist attack in Quetta by enemies of Pak seeking to disrupt our democratic process. Saddened by the loss of innocent lives. Pakistanis must defeat the terrorists design by coming out in strength to cast their vote."

The Tweet 4, 5 and 6 has three sentences with the same element ID, but different sentence IDs. These three sentences show negative polarity because of the use of negative words such as a *condemnable terrorist attack, enemies, disrupt, saddened, loss, defeat, and terrorists*. Although the tweet is not negative, but showing negative polarity due to the use of negative words. The tweet shows a positive face of Imran Khan.

Sr. # 50 and 51. "My name is Khan and I am not a terrorist. Moreover the SC has pronounced me *Sadiq* and *Ameen* and I am coming after them crooks".

The above tweet with serial number 50 and 51 has two sentences with the same element ID, as 24 and different sentence IDs as 1 and 2. The first sentence shows the positive polarity of 0.316 and the second sentence shows the negative polarity of -0.25. In the first sentence although the word *terrorist* is used, but before that the use of the word *not* is cancelling the effect of terrorist and makes it a positive sentence. It means the machine understands this concept and only miscalculate when a negative word is used such as in the second sentence the use of the word *crooks* makes the sentence slightly negative.

As a prime minister, it may be in his favour to be neutral in his words; however, positivity is also needed to save his face. As far as negativity is concerned, if it is in terms of using strict words for the betterment and safety of the country then it also becomes crucial for a prime minister to use it and it is a negative face which shows the need to be autonomous (Goffman, 1967). For example, in the following tweet, Imran Khan uses the direct expression. He expresses negative sentiments for Trump due to Trump's address against Pakistan. The tweet is given below:

Tweet 52, 53, 54, and 55. "Trump's false assertions add insult to the injury Pak has suffered in US war on terrorism in terms of lives lost and destabilised and economic costs. He needs to be informed about historical facts. Pak has suffered enough fighting US's war. Now we will do what is best for our people and our interests".

Tweet 52, 53, 54, and 55 consists of four sentences having the same element ID as 25, but different sentence IDs as 1 for the first sentence, 2 for the second, 3 for the third sentence, and 4 for the fourth sentence. The sentiment of each sentence is mentioned in the results shown in Table 2 (see in Appendix). The sentiment of this tweet is slightly inclined towards negativity as the lexical items *destabilized*, *suffered* and *fighting* reveal that he dislikes Donald Trump. Moreover, the last part of this Tweet "Now we will do what is best for our people and our interests" reveal his patriotic feelings. Thus, it carries positive sentiment having sentiment polarity 0.289.

Discussion

Polarity analysis of Imran Khan's Tweets shows that he is using all kind of sentiments, but according to the computational analysis of his Tweets, 273 out of 405 tweets are neutral. In this research, it is clear from the manual analysis that sentences have polarity as positive or negative, however, many of the tweets' polarity is less than 0.5 or -0.5, and we have set the standard that polarity below 0.5 or -0.5 will be considered as neutral. Neutrality in itself shows a positive behavior as it is not destructive and it is a face-saving act in which one tries to keep emotions out of his communication as much as possible. Speakers and writers do not lack emotion or warmth, they priorities explicit information over implicit signaling and Imran Khan is also trying to keep his emotions out of his written communication as much as possible. The negative polarity is the second highest sentiment used in Imran Khan's tweets as there are 94 negative tweets out of 405 which shows that he holds the power and wants to be autonomous in his decisions (Goffman, 1967). Positive polarity items are the least used sentiments in Imran Khan's tweets being 38 positive tweets out of 405. Although the analysis shows correct results according to the use of words but sometimes, the machine could not get the context of these words which make them positive such as in case of Tweet 4, 5, and 6 in which the words *Condemn, Attack,* and *Terrorist* are used. These words show negative polarity but in that tweet due to the context, they are not negative.

Based on percentage, the data reveal that neutrality in Imran Khan's tweets is 67.41% that is relatively higher than the negativity that is 23.21% and positivity that is, 9.38%. The positive and negative polarity of sentiments is related to the concept of Face (Goffman, 1967). The analysis of Imran Khan's tweets reveal that he shows his positive face using positive lexical items of English such as *praying,*

success, and *succeed*. When he congratulates someone on success, appreciate someone for some good work, or wish someone on some festival such as Eid or Diwali, he is posing his positive face. For instance, the Tweet 1 is an example of positive sentiments with 0.209 positivity and the theme of empathy and love.

The analysis reveals that Imran Khan used direct expressions and grating words for PMLN's party leaders for being corrupt. He also shows his hatred towards nepotism, injustice, corruption, money laundering, fraud, and forgery. The analysis affirms the negative sentiment of Imran Khan's tweet against opposition and represents a theme of hate against corruption and fraud.

Although the machine is displaying results based on the polarity of the lexical items, still there is a need of making the machines capable enough that they could feel sensitivity and they can feel sympathy for others that affect their next behavior as compared to have an information processing system higher than humans do (Shaheen, El-Hajj, Hajj, & Elbassuoni, 2014). It is clear from the manual analysis that due to the use of negative polarity items the polarity of a tweet is negative, but actually the tweet represents the positive polarity and positive face of Imran Khan as he is giving a positive message in that tweet. The manual analysis reveals that the sentiment analysis through software is very helpful and time saving, but it cannot be completely relied upon as it sometimes shows miscalculation of sentiments, especially when negative words are used. Currently, computational analyses are replacing manual analyses and sentiment analysis is one of such kind that has replaced hectic manual analysis of polarity and opinion mining. Computational methods of analyses are helpful, but they do not give 100% correct results and still are not capable to completely replace human intervention. Hence, instead of completely rejecting these computational methods there is a need to use them in combination with manual analysis (Wilson et al., 2005), so that we could have a better idea of how reliable these methods are and in which part they still need to improve their efficiency.

After looking deeply into the results and then manually analyzing them, It is suggested that the results could be more reliable if both sentiments and emotions are analyzed simultaneously (Al-Hajjar & Syed, 2015) or if the machine becomes capable enough that it could understand context just like humans do. While doing manual analysis of tweets, it is noticed that various themes are communicated through his tweets such as good wishes, empathy and love, protest against brutality, persuasion for something, love for his nation, patriotism, prayers for others, support, the authority of decision-making,

criticism, condolence, condemnation and hatred towards corruption and fraud, and hatred toward nepotism. All these themes could be analysed if both polarity and emotions are analysed as these themes are related to emotions such as joy, anger, disgust, fear, surprise, trust, sad, and anticipation. Moreover, diverse vocabulary items are used in his tweets that make his tweet negative, positive, and neutral. Some of the lexical items that show positive polarity in his tweets are: Praying, success, glorious, massive, congratulations, accountable, victory, stability, and prosperity. Some lexical items that reveal negative polarity in his tweets are: Saddened, death, condemnable, terrorist, attack, enemies, disrupts, defeat, blatant, bias, against, and aggression. Whereas, some lexical item in his tweets shows neutrality such as coincidence, transform, and prayers. In addition to lexical items, some statements used as description of an image such as *"Jinnah at Valika Textile Mills Ltd"* also shows neutral polarity.

The technique of sentiment analysis could be used not just for analyzing polarity and opinion mining for some product, but it can also be used to detect political preferences of people (Ceron, Curini, Iacus, & Porro, 2014). The technique is also of great help to predict "who is a better Prime Minister?" It can also show how people feel about a candidate as a Prime Minister, and how the opinions of people change over time for that candidate (Zhou, Tao, Yong, & Yang, 2013). We can also predict the best prime minister by analyzing and comparing the face of prospective candidates for the seat of Prime minister and instead of complete manual analysis to reveal face, we can use the technique of sentiment analysis as used in present research.

Limitations and Suggestions

Present research contributes in existing literature in a way that it utilizes the already existing method (sentiment analysis) to analyze a different aspect of language (face). Moreover, the technique of revealing face with the help of sentiment analysis could be used to predict the better Prime Minister. Although there are some issues as the machine is still not able to give hundred percent correct results, but the accuracy can be improved and we can also disambiguate the results by adding manual analysis along with machine analysis. Further research studies can be conducted by using both sentiment and emotion analysis for better results. Moreover, more accurate machines and software can be developed by the software developers to get results that are more accurate.

Conclusion

In a nutshell, sentiment analysis of Imran Khan's tweets conveys that 67.41% tweets are neutral as he seems careful in choosing the words. According to Galasiński (2017), there is no neutral language but in the field of sentiment analysis neutral means the use of words without having a positive or negative polarity. It is the combination of different words that makes the language positive or negative. Comparing the polarity of positive and negative items in Imran Khan's tweets, we found that negative polarity is higher than positive polarity and it is 23.21%. The negative polarity is associated with a negative face and shows autonomy in his decisions as reflected in Imran Khan's Tweet for Trump. Imran Khan has used the least percentage of positive polarity that is only 9.38% yet he is not inclined towards showing a negative face as he is considered a blunt politician (Shabbir, 2017, May 19).

Overall, the results of the study reveal that the technique of using sentiment analysis to reveal the face is a different and unique strategy to save time and energy of manual analysis, it is very helpful and can be used to analyze big data.

References

Al-Hajjar, D., & Syed, A. Z. (2015). Applying sentiment and emotion analysis on brand tweets for digital marketing. In *2015 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT)*, 1-6. doi:10.1109/AEECT.2015.7360592

Asghar, M. Z., Khan, A., Khan, F., & Kundi, F. M. (2018). RIFT: A rule induction framework for twitter sentiment analysis. *Arabian Journal for Science and Engineering*, *43*(2), 857-877. Retrieved from https://link. springer.com/article/10.1007/s13369-017-2770-1

Bharath, R. B., Prabhakaran, R., Saravanan, N., & Vinoth, M. (2018). Twitter sentiment analysis. *International Journal of Pure and Applied Mathematics*, *119*(10), 1785-1791. Retrieved fromhttps://acadpubl.eu/jsi/ 2018-119-10/articles/10b/61.pdf

Bulmer, M., Bohnke, J. R., & Lewis, G. J. (2017). Predicting moral sentiment towards physician-assisted suicide: The role of religion, conservatism, authoritarianism, and Big Five personality. *Personality and Individual Differences*, *105*, 244-251. doi:10.1016/j.paid.2016.09. 034

Bhatia, R., Garg, P., & Johari, R. (2018). Corpus based twitter sentiment analysis. In *Proceedings of 3rd International Conference on Internet of*

Things and Connected Technologies (ICIoTCT), 743-748. doi:10.2139/ssrn.3170323

Brown, P., & Levinson, S. C. (1994). *Politeness: Some universals in language usage*. London: Cambridge University Press.

Ceron, A., Curini, L., Iacus, S. M., & Porro, G. (2014). Every tweet counts? How sentiment analysis of social media can improve our knowledge of citizens' political preferences with an application to Italy and France. *New Media & Society*, *16*(2), 340-358.

Galasiński, D. (2017). On '*neutral language*' [Blog Post]. Retrieved from https://dariuszgalasinski.com/2017/07/27/on-neutral-language/

Ghiassi, M., & Lee, S. (2018). A domain transferable lexicon set for Twitter sentiment analysis using a supervised machine learning approach. *Expert Systems with Applications*, *106*, 197-216. doi:10.1016/j.eswa.2018.04.006

Goffman, E. (1967). *Interaction ritual: Essays on face-to-face behavior*. Garden City, NY: Doubleday.

Hartelius, E. J. (2017). Sentimentalism in online deliberation: Assessing the generic liability of immigration discourses. In *Emerging genres in new media environments* (pp. 225-242). Basel, Switzerland: Springer International Publishing AG.

Hatzivassiloglou, H., & McKeown, K. R. (1997). Predicting the semantic orientation of adjectives. In *ACL '98/EACL '98 Proceedings of the 35th Annual Meeting of the Association for Computational Linguistics and Eighth Conference of the European Chapter of the Association for Computational Linguistics,* 174-181. Retrieved from http://aclweb.org/anthology/P97-1023

Jawale, M. A., Kyatanavar, D. N., & Pawar, A. B. (2013). Design of automated sentiment or opinion discovery system to enhance its performance. In *Proceedings of International Conference on Advances in Information Technology and Mobile Communication 2013 (AIM 2013) and in ACEEE 2013 Digital Library,* 48-53. doi:10.1.1.429.2866&re=rep1& type=pdf

Kagan, V., Stevens, A., & Subrahmanian, V. S. (2015). Using twitter sentiment to forecast the 2013 Pakistani election and the 2014 Indian election. *IEEE Intelligent Systems*, *30*(1), 2-5.

Liu, B. (2010). Sentiment analysis and subjectivity. In N. In-durkhya & F. Damerau (Eds.), *Handbook of natural language processing* (2nd ed.; pp. 627-666). Boca Raton: Chapman & Hall/CRC.

Liu, K. L., Li, W. J., & Guo, M. (2012). Emoticon smoothed language models for twitter sentiment analysis. In *Proceedings of the AAAI Conference on Artificial Intelligence*, *26*(1). Retrieved from https://ojs.aaai.org/index.php/AAAI/ article/view/8353

Mejova, Y. (2009). *Sentiment analysis: An overview*. University of Iowa, Computer Science Department.

Pang, B., & Lee, L. (2008). Opinion mining and sentiment analysis.

Foundations and Trends in Information Retrieval, *2*(1-2), 1-135.

Pawar, A. B., Jawale, M. A., & Kyatanavar, D. N. (2016). Fundamentals of sentiment analysis: Concepts and methodology. In W. Pedrycz & S. M. Chen (Eds.), *Sentiment analysis and ontology engineering: An environment of computational intelligence* (pp. 25-48). Cham: Springer International Publishing. doi:10.1007/978-3-319-30319-2_2

Poecze, F., Ebster, C., & Strauss, C. (2018). Social media metrics and sentiment analysis to evaluate the effectiveness of social media posts. *Procedia Computer Science*, *130*, 660-666. doi:10.1016/j.procs.2018.04.117

Razzaq, M. A., Qamar, A. M., & Bilal, H. S. M. (2014). Prediction and analysis of Pakistan election 2013 based on sentiment analysis. *2014 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2014)*, 700-703. IEEE.

Ruben, B. D. (2018). *Interdisciplinary approaches to human communication*. New York: Routledge.

Shabbir, W. (2017, May 19). Imran Khan may be blunt but he speaks his heart out. That's why I support him. *The Nation*. Retrieved from https://nation.com.pk/19-May-2017/imran-may-be-blunt-but-he-speaks-his-heart-out-and-that-s-why-i-support-him

Shaheen, S., El-Hajj, W., Hajj, H., & Elbassuoni, S. (2014). Emotion recognition from text based on automatically generated rules. In *2014 IEEE International Conference on Data Mining Workshop*, 383-392. doi: 10.1109/ICDMW.2014.80

Sharma, N., Pabreja, R., Yaqub, U., Atluri, V., Chun, S., & Vaidya, J. (2018). Web-based application for sentiment analysis of live tweets. In *Proceedings of the 19th Annual International Conference on Digital Government Research: Governance in the Data Age*, 1-2. doi:10.1145/3209281.3209402

Vij, A., & Pruthi, J. (2018). An automated psychometric analyzer based on sentiment analysis and emotion recognition for healthcare. *Procedia Computer Science*, *132*, 1184-1191. doi:10. 1016/j.procs.2018.05.033

Wang, Y., Kim, K., Lee, B., & Youn, H. Y. (2018). Word clustering based on POS feature for efficient twitter sentiment analysis. *Human-Centric Computing and Information Sciences*, *8*(1), 17. doi:10.1186/s13673-018-0140-y

Wilson, T., Wiebe, J., & Hoffmann, P. (2005). Recognizing contextual polarity in phrase-level sentiment analysis. In *Proceedings of the Conference on Human Language Technology and Empirical Methods in Natural Language Processing*, 347-354. Retrieved from https://www.aclweb.org/anthology/H05-1044.pdf

Yu, H., & Hatzivassiloglou, V. (2003). Towards answering opinion questions: Separating facts from opinions and identifying the polarity of opinion sentences. In *Proceedings of the 2003 Conference on Empirical*

Methods in Natural Language Processing, 129-136. Retrieved from https://www.aclweb.org/anthology/W03-1017.pdf

Zhou, X., Tao, X., Yong, J., & Yang, Z. (2013). Sentiment analysis on tweets for social events. *In Proceedings of the 2013 IEEE 17th International Conference on Computer Supported Cooperative Work in Design (CSCWD)*, 557-562. doi:10.1109/CSCWD.2013.6581022

Appendix

Table 2

Sentence-Wise Analysis of Imran Khan's Tweets

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
1	On behalf of the people of Pakistan and myself I want to let President Erdogan& the people of Turkey know we are praying for their success in dealing with the severe economic challenges confronting them as they have always succeeded against adversities in their glorious history.	1	1	45	0.209
2	Saddened to learn of the death of our newly elected MPA from Rajanpur Tariq Dreeshak.	2	1	15	-0.116
3	My condolences and prayers go to the family.	2	2	8	0
4	Condemnable terrorist attack in Quetta by enemies of Pak seeking to disrupt our democratic process.	3	1	15	-1
5	Saddened by the loss of innocent lives.	3	2	7	-0.170
6	Pakistanis must defeat the terrorists design by coming out in strength to cast their vote.	3	3	15	-0.077
7	Beginning to wonder why whenever *Nawaz Sharif* is in trouble there is increasing tension along Pakistan borders and a rise in terrorist acts?	4	1	23	-0.209
8	Is it a mere coincidence?	4	2	5	0

Continued…

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
9	*MashaAllah* there is a massive wave building up for 25 July.	5	1	10	0.057
10	It will be a vote against the crooks and their mafias.	5	2	11	-0.302
11	Congratulations to the Pakistan cricket team for their victory in the Twenty20 Tri Series and especially to Captain Sarfaraz for the way he led the team.	6	1	26	0.373
12	Just as Mahatir is going after the corrupt ruling elite we need to do the same in Pakistan.	7	1	18	0
13	PTI is committed to holding the corrupt ruling elite accountable.	7	2	10	0.411
14	Congratulations to President Erdogan on his electoral victory.	8	1	8	0.530
15	Wishing his new term brings stability and prosperity for the people of Turkey.	8	2	13	0.721
16	PMLN leaving with record fiscal deficit record current account deficit negligible net foreign exchange reserves highest circular debt highest losses in state owned enterprises highest debt to GDP ratio at 70 percent ratings downgrade.	9	1	33	-0.714
17	Absolutely shameful!	10	1	2	-1
18	A thrice-elected PM today declared before NAB Court that the Avenfield Apartments belonged to his sons and he didn't know where they got the money from but as they are UK citizens the law of Pakistan does not apply to them according to NS.	10	2	45	-0.089
19	Qatari letter also disowned.	10	3	4	0
20	Today our Quaid words continue to resonate.	11	1	7	0.151

Continued…

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
21	I also hope that while planning your factory you have provided proper residential accommodation and other amenities for the workers for no industry can thrive without contented labour.	11	2	28	0.076
22	Jinnah at Valika Textile Mills Ltd.	11	3	6	0
23	Shameful how we Pakistanis have to suffer such humiliation because of our corrupt elite that has laundered billions into Dubai property.	12	1	21	-0.546
24	Strongly condemn the brutality of Indian forces against innocent Kashmiris and the killing of unarmed civilians in IOK.	13	1	18	-0.200
25	The people of Pak stand with the Kashmir is democratic struggle for self-determination.	13	2	13	0.069
26	The UNSC must act against Indian aggression in IOK.	13	3	9	-0.25
27	This exposes all the lies and propaganda about the economy spewed by Dar and the Sharifs through billions worth of ads.	14	1	21	-0.436
28	Reveals how they did the job of economic hit men on Pak by making the country sink into the worst ever debt trap.	14	2	23	-0.521
29	The richest wealth is wisdom.	15	1	5	0.559
30	The strongest weapon is patience.	15	2	5	0.559
31	The best security is faith.	15	3	5	0.671
32	The greatest tonic is laughter and the greatest force is love.	15	4	11	0.588
33	The surest assurance is hope in God.	15	5	7	0.378
34	And the source of our strength is the joy of the Lord.	15	6	12	0.361
35	Surprisingly all are free.	15	7	4	0.25

Continued…

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
36	The corrupt breed hate in our society to cover their crimes.	16	1	11	-0.377
37	I want to thank everyone for their prayers and good wishes on my marriage.	17	1	14	0.708
38	The father daughter Sharif duo really should stop trying to fool the nation by declaring repeatedly that they are going to peoples court for justice.	18	1	25	-0.094
39	Everyone knows in democracies people use their vote to elect their reps but it is Judiciary that must dispense justice.	18	2	20	0.358
40	We must also revitalize the cotton economy and improve the profitability of the cotton farmer.	19	1	15	0.194
41	We must restore our competitive advantage of cotton which has been lost by years of neglect and anti-farmer policies of the government	19	2	23	-0.261
42	Hypocrisy thy name is Nawaz Sharif.	20	1	6	-0.408
43	Which democracy would tolerate its government Minister having undeclared foreign accounts.	21	1	11	-0.181
44	undeclared foreign assets.	21	2	3	0.144
45	foreign iqamas with foreign source incomes?	21	3	6	-0.204
46	Conflict of interest is obvious.	21	4	5	-0.224
47	I have known the Sharifs for 40 years and I know all their sordid personal lives but I would never stoop to the level of exposing these sordid details.	22	1	28	-0.378
48	For 3 days I have been wondering have I looted a bank or money laundered billions in nation's wealth or ordered a model-town-like killing spree or revealed state secrets to India?	23	1	32	0.265

Continued…

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
49	I have done none of these but discovered I have committed a bigger crime wanting to get married.	23	2	18	0.088
50	My name is Khan and I am not a terrorist.	24	1	10	0.316
51	Moreover the SC has pronounced me *Sadiq* and *Ameen* and I am coming after them crooks.	24	2	16	-0.25
52	Trump's false assertions add insult to the injury Pak has suffered in US war on terrorism in terms of lives lost and destabilised and economic costs.	25	1	23	-0.928
53	He needs to be informed about historical facts.	25	2	8	0.141
54	Pak has suffered enough fighting US's war.	25	3	7	-0.964
55	Now we will do what is best for our people and our interests.	25	4	12	0.289
56	Doing a U-turn to reach one's objective is the hallmark of great leadership just as lying to save ill-gotten wealth is the hallmark of crooks	26	1	27	0.212
57	Wishing all our Hindu citizens a happy Diwali.	27	1	8	0.548
58	Strongly condemn the new cycle of killings of innocent Kashmiris in IOK by Indian security forces.'	28	1	16	0.363
59	'It is time India realised it must move to resolve the Kashmir dispute through dialogue in accordance with the UN SC resolutions & the wishes of the Kashmiri people.'	28	2	28	0.161
60	According to our Holy Prophet PBUH cleanliness is a religious duty for us.	29	1	13	0.374
61	Let us transform our country into a # Clean Green Pakistan	29	2	8	0

Continued…

No	Tweets	Element_ID	Sentence_ID	Word count	Sentiment
62	We are also moving to remove hassles Overseas Pakistanis confront at immigration when they come to Pakistan.	30	1	17	0.449
63	Our Missions abroad have also been directed to look after and deal effectively with the concerns of our Overseas Pakistanis.	30	2	20	0.034
64	Disappointed at the arrogant and negative response by India to my call for resumption of the peace dialogue.	31	1	17	-0.327
65	However, all my life I have come across small men occupying big offices who do not have the vision to see the larger picture.	31	2	24	-0.051

Received 15 July 2019
Revision received 19 April 2021