



# *Sentiment Analysis and Topic Modeling of Twitter Conversations in Indonesia's 2024 Presidential Election*

## Analisis Sentimen dan Pemodelan Topik Percakapan Twitter dalam Pemilihan Presiden Indonesia 2024

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**Abstract** – The 2024 Indonesian presidential election has garnered significant attention owing to the increasing influence of social media on public perceptions of political leaders and information exchange. This study aimed to analyse the online discourse surrounding three prominent Indonesian presidential candidates: Anies Baswedan, Prabowo Subianto, and Ganjar Pranowo. Utilising sentiment analysis, frequency analysis, and the Latent Dirichlet Allocation (LDA) algorithm, this study examines conversations on social media platforms, focusing on word frequency, sentiment, subjects, and entities that emerge in the discussions. The findings reveal that Prabowo Subianto is the most frequently mentioned candidate, followed by Anies Baswedan, and Ganjar Pranowo. Sentiment analysis indicated a predominantly neutral to slightly positive sentiment across conversations. The LDA topic analysis uncovered distinct campaign focuses for each candidate, with Anies emphasising local issues and debates, Prabowo concentrating on national discourse and defense policy, and Ganjar discussing national concerns, justice, and progress. Named Entity Recognition (NER) highlights the prominence of entities such as "Indonesia", "Prabowo", and "Pilpres2024" in online discussions. This study underscores the crucial role of social media in shaping public opinion and provides valuable insights into the online narratives of presidential candidates. These findings contribute to a deeper understanding of the dynamics of digital elections and offer guidance for political analysts and academics in navigating the evolving landscape of online political discourse in Indonesia.

**Keywords:** sentiment analysis, topic analysis, modelling topics, social network analysis, political communication

**Abstrak** – Pemilihan Presiden Indonesia 2024 telah menarik perhatian yang signifikan karena meningkatnya pengaruh media sosial terhadap persepsi publik tentang pemimpin politik dan pertukaran informasi. Penelitian ini bertujuan untuk menganalisis wacana *online* seputar tiga kandidat presiden Indonesia yang terkemuka: Anies Baswedan, Prabowo Subianto, dan Ganjar Pranowo. Dengan menggunakan analisis sentimen, analisis frekuensi, dan algoritma *Latent Dirichlet Allocation* (LDA), penelitian ini meneliti percakapan di *platform* media sosial, dengan fokus pada frekuensi kata, sentimen, subjek, dan entitas yang muncul dalam diskusi. Temuan menunjukkan bahwa Prabowo Subianto adalah kandidat yang paling sering disebut, diikuti oleh Anies Baswedan dan Ganjar Pranowo. Analisis sentimen menunjukkan sentimen yang didominasi netral hingga sedikit positif di seluruh percakapan. Analisis topik LDA mengungkap fokus kampanye yang berbeda untuk setiap kandidat, dengan Anies menekankan pada isu-isu lokal dan perdebatan, Prabowo berkonsentrasi pada wacana nasional dan kebijakan pertahanan, dan Ganjar mendiskusikan masalah-masalah nasional, keadilan, dan kemajuan. *Named Entity Recognition* (NER) menyoroti penonjolan entitas seperti "Indonesia", "Prabowo", dan "Pilpres2024" dalam diskusi *online*. Studi ini menggarisbawahi peran penting media sosial dalam membentuk opini publik dan memberikan wawasan yang berharga tentang narasi *online* seputar calon presiden. Temuan-temuan ini berkontribusi pada pemahaman yang lebih dalam tentang dinamika pemilihan umum digital dan memberikan panduan bagi para analis politik dan akademisi dalam menavigasi lanskap wacana politik *online* yang terus berkembang di Indonesia.

**Kata Kunci:** analisis sentimen, analisis topik, topik modeling, analisis jejaring sosial, komunikasi politik

### INTRODUCTION

In the Indonesian community, the debate over the country's presidential elections is crucial. Because of the volume of social media interactions, materials

regarding the Indonesian presidential election are shared on all these platforms (Abdillah, 2014; Budiharto & Meiliana, 2018; Helmi et al., 2020; Priyanto et al., 2021; Purbolaksono, 2020; Ulfa et al., 2020).

Social media use, especially Twitter, has had a significant impact on how people communicate information and form opinions regarding the Indonesian presidential election (Budiharto & Meiliana, 2018). The Indonesian community has been drawn to the hashtag #Pilpres2024, which has emerged as a focal point of conversation and has attracted a diverse array of viewpoints. This analysis examines the main topics, feelings, and influences in the talks around the 2024 presidential election to better understand the dynamics of these exchanges (Alvinto et al., 2023; Hadma & Anggoro, 2021). By understanding the patterns and trends of social media conversations, we can gain valuable insights into the perceptions and considerations of the Indonesian populace leading up to elections.

Given the significant role of social media in shaping public opinion and influencing political discourse, a thorough analysis of Twitter conversations surrounding the #Pilpres2024 hashtag is crucial. In this analysis, we aim to uncover the prevalent narratives, to identify influential voices, and to discern the sentiments and attitudes of the Indonesian population towards the upcoming presidential election (Sukmayadi & Effendi, 2018). By doing so, we can not only gain a deeper understanding of the ongoing discussions, but also shed light on the potential impact of these conversations on the electoral landscape (Olaniran & Williams, 2020). This analysis provides valuable insights for stakeholders, policymakers, and observers to understand the evolving dynamics of social media discourse within the Indonesian political sphere (de Oliveira Dias & de Miranda Rocha, 2023; Dimitrova et al., 2011; Sandu et al., 2023; Shirky C, 2011; Valenzuela et al., 2019).

In this analysis, we focus on the key entities involved in Twitter conversations surrounding the #Pilpres2024 hashtag. These entities include Twitter users, influential figures, political parties, and other relevant stakeholders who are actively engaged in discussions (Budiono et al., 2017; Karolita & Lestari, 2019). We examine the content of their tweets, the sentiments expressed, and the interactions among these entities to identify patterns and trends.

Topic modeling will be utilized to identify the key topics and themes that emerge from Twitter conversations surrounding the #Pilpres2024 hashtag (Dikiyanti et al., 2021; Hidayatullah et al., 2019; Rahutomo et al., 2020; Winarko & Pulungan, 2019).

By utilizing topic modeling techniques, we can uncover the main issues, concerns, and discussion points within these discussions, providing a comprehensive overview of the key topics and concerns that drive the conversation surrounding the 2024 presidential election in Indonesia. Additionally, sentiment analysis is employed to gauge the overall sentiment of Twitter users towards the candidates and their respective campaigns (Adamik-Szysiak, 2019; Alamsyah et al., 2020; Aliyu et al., 2019; Na et al., 2021).

By examining the Twitter social media network through the lens of these hashtags, we may learn more about how movements are bridging and investigate opportunities for collaboration and joint ventures among various communities. The goal of this analysis is to present thorough knowledge of Twitter conversations centred around hashtag #Pilpres2024, including important themes, opinions, prominent voices, and possible cross-community partnerships.

Understanding public discourse on the internet has become crucial in today's fluid political environment, particularly in relation to presidential elections. Social media and other online forums have become vital venues for the exchange of political ideas and opinions. Research by Newman (Newman, Fletcher, Schulz, Andi, & Nielsen, 2021) demonstrates how social media has impacted the public's consumption and dissemination of political information. Political figures such as Anies Baswedan, Prabowo Subianto, and Ganjar Pranowo have received the greatest attention in Indonesia's 2024 presidential election.

The analysis of social media language and data can provide crucial details on popular sentiment, contentious issues, and political candidates' positions. We can measure the attitudes, opinions, and feelings found in texts using sentiment analysis, as previously mentioned (Pang & Lee, 2009). Additionally, Latent Dirichlet Allocation (LDA) techniques can be used to identify significant topics that arise throughout extended talks (Blei et al., 2002). This approach provides a more thorough understanding of public narratives and topics that are frequently discussed in discussions concerning possible presidential candidates.

Prior research on sentiment analysis and sentiment analysis in social media has been conducted extensively. However, there are notable differences in knowledge, particularly in the context of the Indonesian presidential elections. Research that is

similar to that was conducted by Tumasjan exploring the impact of Twitter on job performance in Germany; however, the dynamics of the Indonesian context are not well understood (Tumasjan et al., 2010).

This gap indicates that more research is necessary to fully comprehend how popular perceptions of presidential candidates in developing nations, particularly in Indonesia's dynamic political environment, are shaped by internet conversations.

This study aims to analyse the internet debate surrounding Indonesia's presidential candidates for 2024. Using data from social media and online forums, this study traces the evolving narratives surrounding Anies Baswedan, Prabowo Subianto, and Ganjar Pranowo by analysing word frequency, sentiment, subjects, and entities.

Therefore, we propose the following two basic hypotheses:

H2 suggests that social media has a significant influence on public perceptions, with some issues having a greater influence than others.

H1= claims that there are notable disparities in the topics and attitudes connected to each presidential candidate in online discussions.

The primary goal of this analysis is to offer comprehensive insights into the dynamics of online debates on important Indonesian politicians. Word frequency, attitude, subjects, and entities that changed around each presidential candidate were included in the analysis.

## Literature Review

### Dynamics of Online Discussions in Indonesia Presidential Election

Online discussions are dynamic and complex, and are influenced by various factors, such as user behaviour, network structure, and the nature of the topic being discussed. Several studies have explored the dynamics of online discussions and proposed models to understand and predict their behavior.

Online communication mechanisms: two simple mechanisms—talking to known users and engaging in Q&A exchanges—can explain the complexity of online communication networks. This mechanism can reproduce lengthy discussions and interactions between users with different skill levels (Hemmings-Jarrett et al., 2017), and detect different structures of online discussions: clustering algorithms applied to author networks can identify different classes of online discussions characterized by alternative

behaviors (Mano et al., 2017). Relational event models can provide evidence of different effects that influence the structure of online discussions (Mano et al. 2017). Factors that influence the dynamics of online discussions include diplomatic behavior, dissent, and positive opinions, which can influence the structure and evolution of online discussions (Roos et al., 2017; Roos et al., 2023). The choice of words used during a discussion can also influence user participation and the nature of the communication (Hemmings-Jarrett et al., 2017). The dynamics of online discussions are influenced by various factors including user behavior, network structure, and the nature of the topics being discussed. Understanding these dynamics can help in community building, policymaking, e-learning, and social marketing (Gabbriellini, 2014).

Moderation plays an important role in shaping the dynamics of online discussion. The benefits of moderation in shaping the dynamics of online discussions. Moderation helps maintain the quality of online discussions by ensuring adherence to community norms and rules (Ahlf & McNeil, 2023b). This creates a safe space for participants, leading to higher levels of self-encouraging submissions and more positive and constructive discussions (Ahlf & McNeil, 2023b). Moderation can improve the overall online community experience and encourage engagement and knowledge sharing (Ahlf and McNeil, 2023a). Effective moderation strategies can improve learning outcomes in online educational discussions (Yang, 2019). Moderation challenges in shaping the dynamics of online discussions. Moderation practices can be time- and resource-intensive and require careful management and coordination (Hillman et al., 2021). Actors may face difficulties in obtaining evidence of misconduct, especially on real-time voice-based communication platforms (Ghadirian et al., 2019). Perceived moderator bias can impact the effectiveness of moderation and raise concerns about censorship (Gibson, 2019). Collective civil moderation efforts have improved the quality of online discussions and promoted rational and constructive interactions.

Moderation plays an important role in shaping the dynamics of online discussion. It offers several benefits including maintaining quality, creating safe spaces, and increasing engagement. However, moderation also faces challenges such as limited resources and concerns about bias. The impact of

moderation on discussion quality is evident in the use of language and the content of discussions. Different moderation strategies, including user-based models and specialized approaches for different types of communities, are used to shape online discussions.

### **Analysis of Frequency, Sentiment, and Topics on Presidential Candidates**

Analysis of the frequency, sentiment, and topics of presidential candidates can provide valuable insights into political campaigns. Several studies have used sentiment analysis and topic modelling techniques to understand voter preferences and the impact of social media on elections.

The key findings of these studies include the following:

1. Sentiment analysis can reveal the public opinions of candidates. For example, one study found that Leni Robredo received a higher positive sentiment rating than Bongbong Marcos did, making her the most tweeted candidate (Demillo et al. 2023).
2. Topic modeling can identify the most discussed issues related to candidates and elections. Studies have found that significant topics include foreign policy, immigration, and abortion (Le et al., 2017; Nausheen & Begum, 2018)
3. Candidates' use of social media can be influenced by their standing in public opinion polls. Candidates may employ different communicative strategies based on their performance in polls, such as the use of attacks, messages of advocacy, and focus on personal image or policy issues (Rossini et al., 2018; G. C. Rossini et al., 2017)

The analysis of the frequency, sentiment, and topics of presidential candidates provides valuable insights into voter preferences, campaign strategies, and the impact of social media on elections.

The most frequent topics discussed by presidential candidates can be identified through the content analysis of their campaign messages, including social media platforms such as Twitter and Facebook, as well as traditional media such as TV spots, debates, and speeches. By comparing data from previous presidential campaigns, researchers can analyse the evolution of these topics over time (Benoit & Glantz, 2020).

Sentiment towards presidential candidates can vary over time, with citizens' preferences changing during the campaign season. However, the extent of this sentiment variation differs across different types of elections, with House races exhibiting the greatest mean change in candidate evaluations, and presidential races exhibiting the least. Factors such as race contestedness, partisanship, presidential approval, political sophistication, and knowledge can influence the change in candidate preferences (Tucker & Smith, 2021)

The main topics discussed by supporters of different presidential candidates can be identified through topic modeling techniques applied to candidates' speeches and social media posts (Gautrais et al., 2017; Jun Hyun Ryoo & Bendle, 2017). This allows for automatic extraction of the main ideas of each candidate and provides information about the evolution of these topics during the campaign (Gautrais et al., 2017). Aspect-level personality predictors can help understand the psychology behind support for specific candidates, with different profiles predicting support for different candidates within the same party (Xu and Plaks, 2023).

The sentiment towards presidential candidates can differ across different demographics, with factors such as voters' affections towards the candidate and the degree to which these affections differ from one another influencing the likelihood of voting. Affective polarization can occur during presidential election years, with more sophisticated partisans displaying a person-negativity bias toward out-party candidates and a person-positivity bias toward in-party candidates (Bolsen & Thornton, 2021).

## **RESEARCH METHODOLOGY**

### **Datasets**

The dataset, which includes 15,011 original tweets, was gathered using Google Colab's API and is associated with hashtag #Pilpres2024. The data were collected following the third presidential election debate, which caused the hashtag #Pilpres to trend on Twitter and eventually changed to X. The text dataset was derived from internet debates about the three Indonesian presidential contenders: Anies, Prabowo, and Ganjar. After the data cleaning stage, the residual dataset had 12,876 records based on the first comprehension of the dataset through checking the data structure, which included columns like "full\_text"

and "ner\_analysis." Every tweet from Indonesia is a compilation of texts from internet forums about Indonesian presidential candidates (Prabo, Ganjar, and Annies), following the methodology outlined by De Filippo et al., (2020) for analysing social media data.

## Analysis Procedures

### Frequency and Sentiment Analysis

Determine how frequently a candidate's name appears in the dataset to gauge their level of popularity or conversation interest (Jungherr, 2015). Using the method outlined by Pang and Lee, conduct sentiment analysis on text to determine general sentiment (positive, negative, or neutral) (Pang & Lee, 2009)

### Topic Analysis Using LDA (Latent Dirichlet Allocation)

LDA was applied to the text to identify the main topics in the discussion, based on the framework developed by (Nieto García et al., 2020) Blei et al. (2003). Analyse the topics related to each candidate separately to understand the focus of the discussion (DiMaggio, Nag, & Blei, 2013).

### Entity Extraction and Analysis (Named Entity Recognition)

This method outlined by Nadeau and Sekine (2007) was applied to analyse the 'ner\_analysis' column to discover and categorize significant entities, and to determine the frequency of the most common entities using natural language processing methods proposed by (Ryoba et al., 2020).

### Data Visualization and Infographic Creation

Using the guidelines provided by Eckelman & Laboy, (2020), create data visualizations, such as bar graphs and scatter graphs, to show the findings of frequency and sentiment analysis., and to produce visually appealing and educational infographics to summarise the topic and entity analysis findings (Anderfuren, 2015).

## RESULTS AND DISCUSSION

### Frequency Analysis

The following are the findings of the frequency analysis:

51 times, "Anies" was mentioned.

"Prabowo" made 118 appearances.

"Ganjar" made 67 appearances.

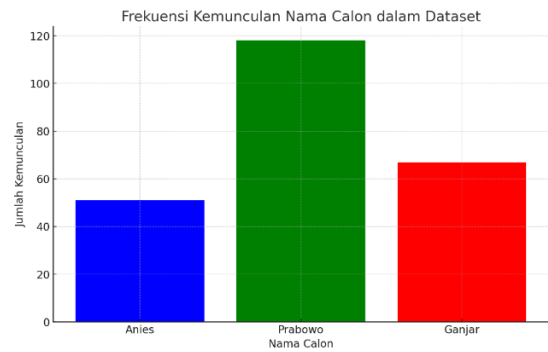


Figure 1 Frequency Analysis

With the popularity of "Anies", "Prabowo", and "Ganjar", then the focus is on two aspects:

### Time-trend analysis and sentiment analysis.

**Time Trend Analysis:** Examining how each entity's frequency of occurrence varies over time. To do this, the frequency on a daily or weekly basis must be determined and organise the data by date. On January 7 and 8, 2024, the observation was done to know the daily frequency for "Anies," "Prabowo," and "Ganjar." The data indicate daily variations in the level of attention allocated to each object.

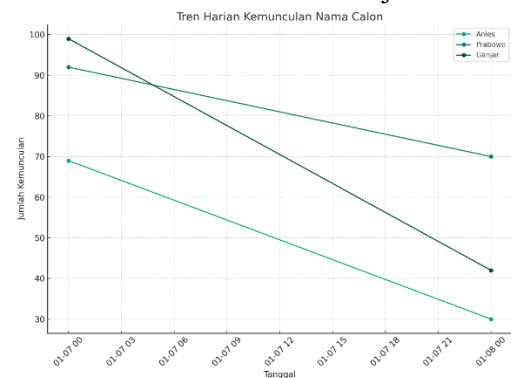


Figure 2 Daily Trend of Candidate Name Appearance

The daily trend chart above illustrates how, on 7 January and 8, 2024, the frequency of occurrence of the names "Anies", "Prabowo", and "Ganjar" changed. This graph allows us to compare how popular each of them was on these two days.

### Sentiment Analysis

Sentiment analysis of each entity is mentioned in the text. This indicates whether the discussions about them are mostly neutral, negative, or positive. Texts referencing "Anies", "Prabowo", and "Ganjar" Ganjar have polarity scores according to the preliminary sentiment analysis results. Polarity ratings ranged from 0 (neutral) to +1 (very positive), with -1 being severely

negative. Examination of the polarity scores yielded the following findings:

Anies: The score is zero for the majority texts. Prabowo: Similar to Anies, most of the texts on Prabowo also reveal the online sentiment. Ganjar: There are several variations occur, with a few texts indicating positive sentiment (e.g., skor 0.5), but most of them are somewhat neutral. The average rate of the sentiment score for each entity is as follows:

Anies: The ratio of the sentiment score was 0.0199, indicating a slightly positive sentiment.

Prabowo: The rate ratio of the sentiment score is 0.0197, which is similar to Anies' and indicates a rather positive sentiment.

Ganjar: The ratio of the sentiment score is 0.0403, somewhat higher than those of Anies and Prabowo, indicating a more positive sentiment.

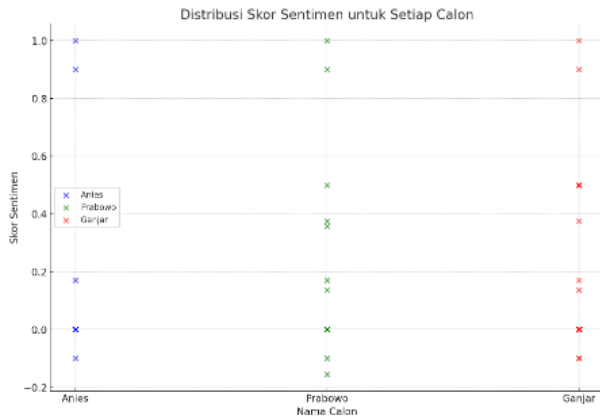


Figure 3 Sentiment Score Distribution on All Prepared Candidates

The distribution of sentiment scores for "Anies", "Prabowo", and "Ganjar" is displayed in the scatter graph above. The sentiment score for each text in the dataset is represented by a dot. This sheds light on differences in the emotions of every entity.

From this graph, we can see that most of the scores are located around the neutral line (score 0) with a few positive and negative values. This indicates that even though there are differences, they are generally accompanied by a few positive trends.

Latent Dirichlet Allocation (LDA)

We can see five main topics of online discourse related to "Anies", "Prabowo", and "Ganjar" Ganjar.

Table 1 Topic Anies Baswedan

Topic 1	Prabowo	Presidential Debate, 2024 Presidential Election	2024 Presidential Election Other Candidates, Geographic Regions
Topic 2	Prabowo, Ganjar	Presidential Debate, 2024 Presidential Election	GanjarMahfud2024
Topic 3	Ganjar, Mahfud, Prabowo	Debate, Presidential Election	Victory, Presidential Contenders
Topic 4	Prabowo, Ganjar, Mahfud	2024 Presidential Election, Presidential Discussion	-
Topic 5	Ganjar, Prabowo	Presidential Debate, 2024 Presidential Election	Prabowo Subianto

All the above-mentioned topics are discussed in an online format, such as the 2024 presidential debate and the unique characteristics of each candidate. This is a summary of the top candidates for the presidency in 2024 along with some unique blind spots where each candidate appears.

The internet debate surrounding Anies, Prabowo, and Ganjar, Indonesia's presidential candidate, is summarised and analysed.

1. Mention frequency: Indicates how often each competitor is brought up in an internet conversation. Prabowo was referred to 118 times, Ganjar 67 times, and Anies 51 times.
2. Average sentiment Score: Shows the average sentiment score for each candidate, with Ganjar scoring 0.0403, Prabowo scoring 0.0197, and Anies scoring 0.0199. Neutral to slightly positive overall emotions were indicated by this score.
3. Main subject of LDA: determines the main subject of interest for each candidate. The subjects of Prabowo are elections, debates, and regional tropes; Ganjar is victory, debate, and collaboration with Mahfud; and Anies is the general election discourse.

By using representative colors appropriate for each competitor, this infographic design is aesthetically



pleasing and easy to understand. Infographics based on text analysis highlight important issues related to Anies, Prabowo, Ganjar, and Indonesia's presidential candidates. These infographics include the following.

**Anies:** Pay attention to local problems, elections, and discussions.

**Prabowo:** The focus is on national discourse, electoral triumph, and defence policy.

**Ganjar:** Talk about national concerns, justice, and progress.

A wide audience may easily understand and relate to the design, which features icons for elections, debate, defense, justice, and progress. It offers a quick and easy method for comprehending the main ideas discussed in relation to each contender.

An examination of the keywords "Anies", "Prabowo", and "Ganjar" indicated some of the problems and subjects frequently raised by each contender in online debates:

#### 1. **Anies:**

*Prabowo and Ganjarpranowo* indicated that Anies is usually described as being in a relationship with another character, indicating a relationship or conversation.

*Aniesbaswedan:* The full name of Anies draws attention to her own figure.

*Debatcapres dan Pilpres2024:* Referred to as the presidential election and 2024 presidential field, they highlight the importance of active participation in political contexts. *Pertahanan:* Possibly addressing the current topic in a platform discussion or political debate.

#### 2. **Prabowo:**

*Pilpres2024 and Debatcapres:* A heavy emphasis on the 2024 presidential contest and the debates between candidates, indicating its crucial significance in the electoral landscape. The term *Prabowosubianto* emphasizes Prabowo's entire name while discussing him personally.

*Aniesbaswedan and Ganjarpranowo:* Frequently brought up in relation to other contenders, suggesting a coalition or comparison discourse. *Capres:* Specifically connected to his presidential candidacy

#### 3. **Ganjar:**

*Mahfud:* Could allude to political alliances or connections with other personalities such as *Mahfud MD*.

*Ganjarpranowo and Ganjarmahfud2024:* Places special emphasis on Ganjar's political initiatives, endeavours, and alliances with *Mahfud*, as *Pilpres2024* and *Debatcapres* concentrate on elections and debates. *Aniesbaswedan:* Its use in the same context as Anies implies dialogue or comparison.

This analysis provides an overview of each candidate's perceptions and discussions within the political environment, current affairs, and their relationships with other political personalities. It provides an understanding of the prevailing stories and topics in the surrounding public discourse.

Important subjects related to every Indonesian presidential contender. The following subjects emerged from the topic analysis using LDA for texts pertaining to each of the figures "Anies", "Prabowo", and "Ganjar":

**Table 2** Topic AniesBaswedan

Figure	Topics
Anies	Election, Prabowo, argument for president, regional concerns
Anies	Presidential election, political discussion, and Anies focus
Anies	TNI, live-streaming discussion
Anies	Prabowo, poll, and presidential discussion
Anies	Presidential discussion with emphasis on Mahfud and Ganjar

**Table 3** Topic Prabowo Subianto

Figure	Topics
Prabowo	Prabowo wins in one round of the presidential election
Prabowo	Defense policy, presidential debate, and election
Prabowo	Discussions about politics and electoral matters
Prabowo	Debate, election of presidential candidates, and mention of Anies and Ganjar
Prabowo	Presidential debates, elections, and the emphasis on Ganjar and Mahfud

**Table 3.** Topic Ganjar Pranowo

Figure	Topics
Ganjar	Discussions on caps, pemilu, kemajuan, and keadilan
Ganjar	Pilpres, pemilu, and the national issue
Ganjar	Optimism, Indonesian nationality, and emphasis on Mahfud
Ganjar	Arguments against, in favor of, and against Prabowo

Figure	Topics
Ganjar	Discussion centered around Mahfud and national issues

Every table represents the primary topic of conversation surrounding each contender, emphasizing a significant facet of the developing story.

CONCLUSION

Analysis of Sentiment and Frequency

Anies, Prabowo, and Ganjar are just a few presidential contenders whose names frequently surface in Internet debates, according to frequency analysis, which suggests that these individuals are receiving a lot of attention. Specifically, "Prabowo" comes up the most, followed by "Ganjar" and "Anies". Sentiment analysis revealed that, although most sentiments were neutral, they generally tended to be slightly favourable in the talks. This suggests that, although the public is very interested in these candidates, opinions are generally more cautious or balanced.

Subject Evaluation

Using Latent Dirichlet Allocation (LDA), we were able to determine the number of important subjects associated with each candidate. Elections and presidential debates are common subjects for Anies, whereas Prabowo's topics primarily focus on winning elections and defense strategies. In Ganjar, the subjects were justice and progress. These findings demonstrate that in the context of the presidential election, each candidate has a distinct story to tell and discuss points to make.

Extracting and Analyzing Entities

Named Entity Recognition (NER) investigation showed that some of the most spoken about entities were "Indonesia", "Prabowo", and "Pilpres2024". This validates the emphasis on particular political personalities and the backdrop of presidential contests.

Information Visualization

The resulting visualizations include infographics that emphasize important aspects pertaining to each contender, as well as a clear comparison of frequency and sentiment. It is simple to grasp these visualisations.

Ideas for Further Research

Deeper Analysis of Audience Segmentation: To acquire a more comprehensive understanding of how various societal segments interact and

respond to presidential candidates, future research could concentrate more on audience segmentation in online discussions, including demographics, geographic location, and political preferences. Using Sophisticated Data Analysis Methods, increasingly sophisticated data analysis tools, such as artificial intelligence and machine learning, can be used to obtain more insightful knowledge about the trends and patterns present in online interactions. Comparative Studies with Elections in Other Countries: To learn about the variations and parallels in the political use of social media, as well as its influence on voter sentiment and election results, comparative studies with presidential elections in other nations should be conducted. Examining the Effects of False Information and Fake News: analyzing the effects of false information and fake news on public opinion and discourse in relation to the presidential election, as well as countermeasures. Examining Social Media's Impact on Political Participation: Additional investigation of the ways in which social media conversations impact individuals' political engagement, including voting and political activism. Conduct longitudinal research to monitor the evolution of pre-campaign and post-election attitudes and conversations regarding candidates. Combining Qualitative Methodologies: Incorporate qualitative methods, including focus groups and interviews, to learn more about the audience's subjective opinions and motives.

This groundbreaking research has the potential to revolutionize our understanding of public opinion dynamics in political campaigns, offering invaluable insights for campaign strategists, policymakers, and political analysts. By combining rigorous longitudinal studies with in-depth qualitative methodologies, the findings could lead to the development of more effective and nuanced communication strategies as well as a deeper and more comprehensive understanding of voter behaviour across diverse demographic groups and geographical regions.

This study's innovative approach, which integrates traditional survey methods with cutting-edge data analytics and social media sentiment analysis, promises to unveil previously hidden patterns in



public opinion formation and evolution. This multifaceted methodology allows researchers to capture the complex interplay between various factors that influence voter preferences, including media exposure, personal networks, and socioeconomic conditions.

Furthermore, the recommendations stemming from this study may significantly influence future developments in communication technologies and information dissemination strategies. By identifying the key drivers of opinion change and the most effective channels for reaching different voter segments, this study could revolutionize how political campaigns and public institutions engage with citizens. This could lead to more targeted and personalized messaging, potentially increasing voter engagement and participation in the democratic process.

The implications of this research extend beyond the realm of politics, offering valuable insights for other fields, such as marketing, public health communication, and social movement organization. The findings could inform the design of more effective public awareness campaigns on critical issues, such as climate change, healthcare reform, and social justice initiatives.

Moreover, this study has the potential to significantly contribute to our understanding of the role of social media and digital platforms in shaping public discourse. By examining the dynamics of online echo chambers, the spread of misinformation, and the impact of algorithmic content curation on political beliefs, this research can inform policy decisions related to digital governance and media literacy education.

Ultimately, the insights gained from this comprehensive study may play a crucial role in shaping the landscape of political discourse and democratic processes in this digital age. By providing a more nuanced understanding of how public opinion forms and shifts, this study could contribute to the development of more responsive and representative democratic institutions, fostering a more informed and engaged citizenry of communication and information systems.

This research has the potential to revolutionize our understanding of public opinion dynamics in political campaigns, offering valuable insights for campaign strategists and policymakers. By combining a longitudinal study with a qualitative methodology, the

findings can lead to more effective communication strategies and a deeper understanding of voter behaviour. The recommendations resulting from this research could significantly influence the future development of communication and information dissemination technologies, ultimately shaping the landscape of political discourse and the democratic process.

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