

Analysis of Social Media Opinion on the Representation of the 2024 Presidential Election on Twitter: A Social Network Analysis

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Abstract: This study uses a quantitative approach to analyze netizen discussions on social media about political choices and 2024 Presidential Candidates. The data were collected through online participant observation using the Drone Emprit Academic program and Gephi tools as visualization from September 1, 2022, to December 15, 2022. Social Network Analysis (SNA) was employed as a data-gathering approach by Drone Emprit Academic (DEA), Universitas Islam Indonesia. The study found that degree centrality calculations can be used to identify prominent individuals. The @abu_waras node was identified as having the highest degree centrality value, indicating significant influence within the network. However, its follower rank was low, suggesting that popularity needs to be increased. The @ChsnulCh_ node had a high popularity value but a lower degree centrality value, indicating popularity but insufficient influence in the project. This study highlights the potential of quantitative approaches like SNA for analyzing social media conversations and identifying influential actors. However, it also emphasizes the importance of considering both influence and popularity values when evaluating the significance of individual actors within the network.

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INTRODUCTION

Social media can help spread different political material, increase the networked public's exposure to politics, and encourage political participation (Borge et al., 2022). The prevalence of post-truth influences cyberactivism. Because humans will live in shadows that appear to be real but are actually virtual, a reality that some people think to be true but is essentially a falsehood. Of course, this becomes a problem when social change sought through digital activism to advance the political agenda collides with a variety of interests, issues, and public opinion. Post-truth is a social and political condition in which the public no longer values the truth as a result of political polarization (Ritonga & Syahputra, 2019).

The presence of numerous social media platforms, like Twitter, makes it simpler for political actors to manipulate their political environment, capacity, and constraints in playing discourse (Borge et al., 2022). Twitter is a popular social media platform for people to express themselves. Because of its ease of use, Twitter is supposed to be capable of expressing all of its users' thoughts or opinions (Fitriyyah et al., 2019).

Digitalization's impact on political communication, participation, and democracy. Furthermore, this new emphasis aims to address significant theoretical and normative problems concerning democracy's quality, such as how social media increase echo

chambers and exclude less politically involved citizens, and how social media affects equality and diversity in participation.

As social media has grown in popularity due to the options it provides for legislators, organizations, and, most importantly, citizens, it has become a crucial medium of modern political communication. The growing popularity of actor analysis on social media indicates a growing understanding of the extent to which actors can impact decision-making processes (Khairiza & Kusumasari, 2020). Social media's contribution to the public realm and its impact on political engagement is nuanced, comprehensive, and comparative. The unique and important political outcomes or experiences of citizens' usage of social media, such as the level of political agreement encountered on social media, are one of its key assets (Borge et al., 2022).

Social media provides new opportunities for individuals and organizations to educate stakeholders, define common interests, share opinions and requests, and organize and manage activities. With many sorts of actors actively connecting and participating on social media platforms such as Twitter, it is unavoidable to consider categorizing actors on social media based on their use of social media handles (Farzam et al., 2022).

Twitter users frequently build networks of persons who hold similar thoughts or opinions. (Budiarsa, MGMC & Riski, 2020). According to (Farzam et al., 2022) opinion manipulation by untrustworthy sources is more common in controversial political arguments than in apolitical discussions. The network structure of Twitter aids in amplifying the content conveyed by inauthentic accounts in political discussions.

Political participation is the private activity of citizens to influence government decisions, and people have the right to express their views and attitudes on public matters that concern them, so that the government is aware of them and can respond.

Political engagement entails the opportunity to express political views both online and in person. Online political participation includes sending political emails, publishing political comments on blogs, and keeping up with political gurus on social media. Attending meetings, providing money to competing candidates, discussing problems or political parties, and so on are examples of offline political involvement, whereas voting is an example of online political participation.

Individuals' views or opinions on social media platforms such as Twitter, Facebook, Instagram, and others are referred to as social media opinions (Lawelai et al., 2022). These can be product reviews, opinions on current concerns, or personal perspectives on various topics. Opinion on social media is vital because it can impact how others perceive things and their behavior.

Social media opinion may also help businesses and organizations learn how the public perceives them and provide critical input for improving their products or services. Farsi Twitter arose as a public place where unfettered opinions thrived in the lack of independent media (Farzam et al., 2022).

Social media opinion analysis uses data from social media platforms to monitor and interpret public opinion. Monitoring specific hashtags, tracking brand mentions, and tracking certain conversation themes are all examples of this.

Online media provides unparalleled access to the digital public sphere, significantly increasing users' options for engagement and providing new avenues for democratic dialogue (Frischlich et al., 2021). Political participation are possible both online and in person. Sending political emails, leaving political comments on blogs, and following politicians on social media are all examples of online participation. Offline engagement involves activities such as attending meetings, supporting candidates, and discussing problems, and political parties (Masduki, 2021).

Even if people are inadvertently exposed to political information via social media, such exposure can boost political activity. Social media platforms offer specific qualities that enable political participation. They provide access to many contacts while lowering the cost and time needed for mass information distribution and organizing protest strategies. Social media also encourages establishing communities with shared interests (Bruns & Nuernbergk, 2019). The relationship between social media and political involvement, as well as non-traditional political participation, is dependent, which means that it does not act in all circumstances in the same way (Scherman et al., 2022).

Election representation on social media" is how social media influences public thoughts and attitudes regarding elections. Social media has a significant influence on forming public opinion and influencing elections in today's digital age. Candidates and political parties commonly use social media to communicate campaign messages and promote themselves to specific audiences. Furthermore, social media allows public discussion and debate on current political topics, altering the public's perception of certain politicians and political parties. As a result, knowing how social media influences the political process and shapes public opinion requires an understanding of how elections are represented on social media. (Nos-Aldás & Farné, 2020 and Manago et al., 2020)

In today's social media age, a buzzer is sometimes characterized as a social media account tasked with spreading, campaigning, and broadcasting specific messages or content to amplify a message such that it becomes public opinion. However, the term buzzer has evolved to apply to large-following social media accounts that participate in political campaigns, primarily by disseminating hoaxes and hate speech against their political opponents.

In general elections, social media is frequently utilized to sway public opinion through the activity of buzzers or specific accounts. Buzzers serve as communication mediators for certain individuals or parties seeking to defend themselves or a policy. The term "palace buzzer" refers to specific accounts that are regarded as parties that support every government policy, regardless of whether the policy is beneficial or detrimental to the community. 2017; Hasfi et al. Messages and information are developed to affect netizens' attention (Hasfi et al., 2017). Messages and content are designed to capture people's attention (Faulina et al., 2020).

Buzzers function as avenues of communication for particular parties to defend themselves or their policies. There is a phrase for accounts that purportedly back any

government policy, regardless of whether it has a favorable or detrimental influence on society (Ruffio & Hubé, 2022).

It is a big data technology-based system capable of monitoring and analyzing social media and numerous online platforms and presenting Social Media Network Analysis (SNA) maps. Furthermore, Drone Emprit Academic uses Twitter API (Application Programming Interface) services to capture real-time interactions (Arianto, 2020).

Social Network Analysis is an analytical method that measures and describes existing connections and linkages in data. SNA can generate a network visualization graph based on the data provided in nodes and edges (Kartino et al., 2021).

RESEARCHMETHODS

This study utilized a quantitative research approach, which is known for its ability to generalize about social processes (Bashith et al., 2021). Data was collected using various strategies at different stages, with online participant observation being the initial data-gathering method. At the beginning of the study, the researcher created a Twitter account and interacted with other accounts that were commonly engaged in citizen journalism. This allowed for insider information to be obtained from netizens (Ritonga & Syahputra, 2019).

The study's primary objective was to scan netizen discussions on social media from September 1, 2022, to December 15, 2022, using the Drone Emprit Academic program and Gephi tools for visualization. The data analyzed included discussions between netizens regarding the Representation of Political Choices and the 2024 Presidential Candidates. SNA was utilized as a data-gathering approach for these conversations, with DEA from Universitas Islam Indonesia being the tool of choice for this study (Kartino et al., 2021, Ritonga & Syahputra, 2019, Arianto, 2020).

DEA employs SNA as a data-gathering approach. SNA is a methodology that allows researchers to analyze the connections and interactions between individuals, groups, or organizations. The tool is used to identify the patterns of relationships between entities, such as the degree of centrality of individuals within the network. The use of SNA provides a unique perspective on social phenomena, allowing for a more in-depth analysis of the social processes that occur on social media.

Overall, this study utilized a quantitative research approach that incorporated various data-gathering strategies, including online participant observation. The objective was to scan netizen discussions on social media using the Drone Emprit Academic program and Gephi tools for visualization. SNA was used to analyze the data gathered, with the tool providing a unique perspective on the social processes occurring on social media .

RESULTS AND DISCUSSION

Data Analysis

Data is taken from the academic.droneemprit.id web Drone Emprit Academic on the project "Capres2024 and Representation of Political Choice" using the period from September 1, 2022 to December 15, 2022 on Twitter social media.

The data obtained were 6,803 nodes with 12,449 edges. The data obtained are nodes containing name is the name of the Twitter account, type is the type of Twitter account such as person / person and size of the number of retweets and replies and edges containing source is the origin Twitter account and target is the destination Twitter account and sentiment is the sentiment of the twitter account on the project (Sadat et al., 2022). However, the data used are nodes that contain the name and size of the number of retweets and replies and edges that contain the source (origin) and target (destination).

Network Property Calculation

The initial study focuses on the size property. The larger the nodes, the more Twitter accounts are entwined in the social network, showing that more Twitter accounts discuss specific themes. Then there are edges on the size property, where the more significant value of the edge implies many interactions between accounts on Twitter social media. The resulting size value is 6,803 nodes with 12,449 edges.

The density of a network is the second analysis on the density property, and the density value is 0.000. On a scale of 0 to 1, the recommended density value is [20], and this network has a suitable density.

The final analysis focuses on the modularity property, which shows that the higher the modularity number, the more a network is established. Each obtained network is established by a distinct community, where the community produces a network with more criteria for the community. The modularity score is 6803, and the network graph collection has 3357 communities. Figure 2 depicts the formation of 11 significant communities, each with a percentage of 1%.

The distance between nodes in a network is the fourth analysis of the diameter property. The diameter value is 18, resulting in the most excellent spacing between nodes (end to end).

The fifth investigation is into the average degree property. The average degree represents the value of the relationship between nodes in a network, with a higher degree indicating a better network with a more extensive distribution of information. The obtained average degree value is 1.869.

The sixth analysis on the Average path length property shows that the fewer average actor networks passed, the better the network and demonstrates that each current network has a strong association. The average path length is 5,801 meters.

The seventh approach, which focuses on the clustering coefficient feature, might reveal linked actors in a network. The associated actors in this study are 0.3736417277168265, indicating that the current actors are interconnected and help the information discussed to be understood more quickly.

Using relevant tables, figures, and text, the results section should communicate study findings clearly, and logically. The findings should be presented in an easy-to-understand and follow format, with a clear link between the data and the study question or hypothesis.

Tables and figures are helpful ways to display numerical or visual data and can help simplify confusing outcomes. The language should interpret the results clearly and highlight any significant conclusions or trends that arise from the data.

Most Engaged Users

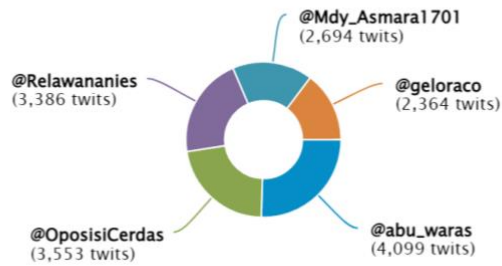


Figure 1. Most Engeged User

Source: Analysis results using Drone Emprit Akademik

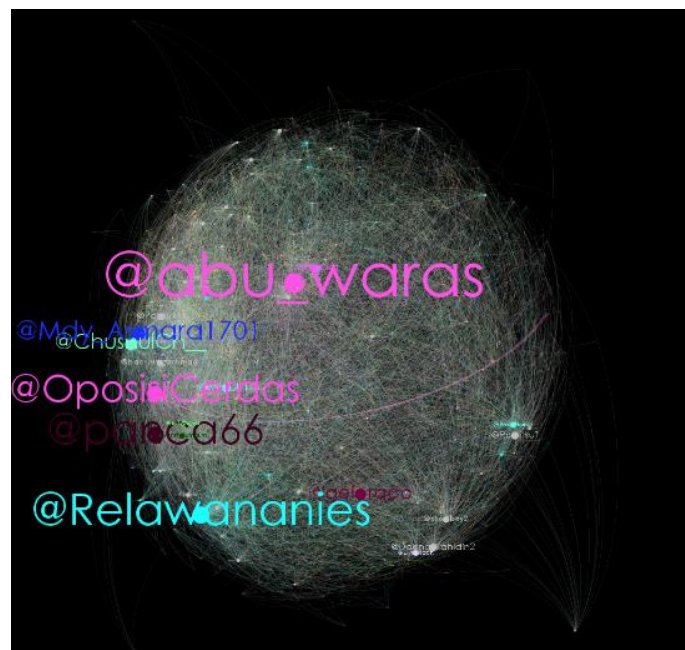


Figure 1. Overall Network Graph

Source: Analysis results using Tolls Gephi

Table 1. Centrality Calculation

Label	Eigenvector Centrality	Degree	Closeness Centrality	Betweenness Centrality	Modularity Class
@abu_waras	0.74843265	377	1	378	1
@Relawananies	0.66483764	318	0	318	0
@panca66	0.82883597	306	2	308	0.4375
@OposisiCerdas	0.7786683	290	0	290	0
@Mdy_Asmara1701	0.53395642	240	0	240	0
@ChusnulCh_	1	214	2	216	0.5
@geloraco	0.5605785	202	1	203	0
@Miduk17	0.57432106	154	1	155	0
@DaengWahidin2	0.2824322	135	1	136	0.152644836
@Paltiwest	0.47478192	133	3	136	0.188081937

Source: Researcher's Processed Results.

The calculation of the highest centrality value aimed towards the @abu_waras account based on the number of tweets, precisely 4,099, in Figure 1, is shown in the table

above. The @abu_waras bill has the most significant degree centrality value of 377, indicating that it has the most relationships compared to other versions. According to the table above, in addition to the node with me, @abu_waras, several others have significant ties with other nodes. The higher the degree of centrality in the actor relationship, the more the node has a reciprocal interaction relationship influencing one node with another. Figure 2 depicts the interaction of one node with another.

Degree centrality demonstrates the popularity of the actor's network in the social network, which reflects the actor's relationship with direction at this level. Figure 3 depicts the in-degree and out-degree correlations in the number of interactions performed in-degree centrality. The most twitted account on Twitter is @abu_waras, a degree actor.

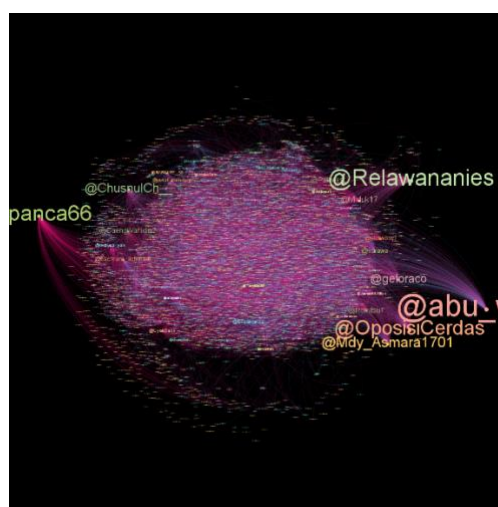


Figure 3. Degree Centarlity Graph

Source: Researcher's Process Results Using Gephi Tolls

A closeness centrality network, in addition to the degree centrality link, gives the average distance between nodes. The greater a node's proximity centrality, the closer it is to other nodes in transferring information, and the faster it spreads. The nearest node to other actors is the @Palltiwest node, with the highest closeness centrality score of 3.0. Then some nodes only receive values of 1.0 and 2.0. Figure 4 depicts the network's interaction between nodes.

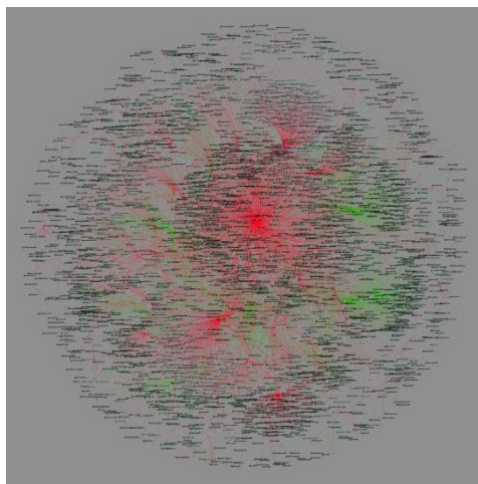


Figure 4. Closeness Centrality

Source: Researcher Processed Results Using Tolls Gephi

Betweenness Centrality is a measure of centrality in a graph; in this network, it measures the extent to which a node is some of the shortest paths between nodes in the network; in this study, the Betweenness Centrality network is on the @abu_waras node, which has the highest Betweenness Centrality (378). See Figure 1. Figure 5 depicts the interaction of Betweenness Centrality.

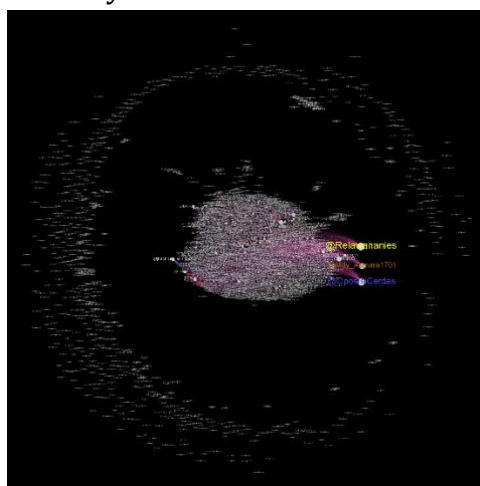


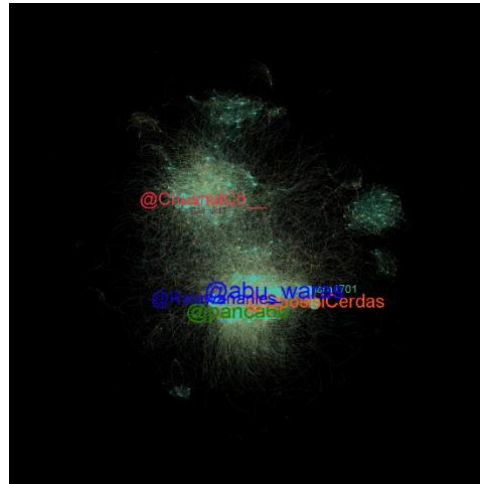
Figure 4. Betweenness Centrality

Source: Researcher Processed Results Using Tolls Gephi

An agent vector is a mathematical representation of individuals or entities (known as "agents") in a social network. Each component of the vector represents a property or attribute of an agent, such as their position in the network, degree of influence, or centrality. By merging the agent vectors for all agents in the network, one can acquire insight into the network's overall structure and behavior.

Eigenvector Centrality shows that node @ChusnulCh_ has a maximum value of 1.0. Then there's @panca66 with 0.82883597, @abu_waras with 0.74843265, @Relawananies with 0.66483764, and @Miduk17 with 0.57432106. If a node has the highest eigenvector centrality, the account has a relationship with many essential actors in a network. Can The generated agent vectors be utilized for various tasks, including

predicting future interactions, identifying influential agents, or recognizing communities in the network.



Gambar 5. Agent Vactor of Political Choice representation

Source: Researcher's Process Results Using Gephi Tolls



Figure 6. Word cloud Representation of the 2024 Presidential Election on Twitter

Source: Analysis results using Drone Emprit Academic

You can notice in the word cloud image that the words that regularly appear are Prabowo, @rkowboy2, Anies, and ganjar. Word Cloud displays the most frequently used words from 100 data in the project "Social Media Opinion Analysis on the Representation of the 2024 Presidential Election on Twitter" provided by the academic.droneempit.id website in the period of September 1, 2022, to December 15, 2022. Words with the highest frequency will be displayed as more significant than the others.

After computing the centrality value of the 10 nodes with the most significant degree of centrality value and analyzing the overall network interaction pattern, the following step calculates the follower rank. The following results of the calculation of top Influencers are displayed in Figure 7.










No.	Avatar	Account Name	RT + Reply Count	Retweets	Replies	followers
1		@abu_waras	4,099	3,715	383	171,860
2		@OposisiCerdas	3,553	3,042	511	218,836
3		@Relawanaries	3,386	3,054	332	32,023
4		@Mdy_Asmara1701	2,694	2,327	365	160,751
5		@geloraco	2,364	1,774	590	487,162
6		@ChsnulCh_	2,278	1,756	520	205,320
7		@ekowboy2	2,035	1,903	132	128,677
8		@NasDem	1,895	1,330	510	145,389
9		@RamiRizal	1,662	1,559	101	1,054,501

Figure 7. Top Influencers

Source: Analysis results using Drone Emprit Academic

CONCLUSION

This study reveals that prominent actors can be detected using degree centrality estimates. According to Table 1, the @abu_waras node has the most excellent degree centrality value of 377, closeness centrality value of 1, betweenness centrality value of 649082803, and eigenvector centrality value of 0.748433. However, in Table 3, the follower rank of the @abu_waras node is merely 0.004595. From this fact, we can see that although the @abu_waras node has a high influence value, its popularity needs to be higher. In contrast, the @ChsnulCh_ node has a degree centrality value of only 214, yet it can be an actor with the most excellent popularity value of 1.0. Although the actor @ChsnulCh_ has a high popularity value, the impact value is not high enough in the project "Social Media Opinion Analysis on the Representation of the 2024 Presidential Election on Twitter" utilizing the period September 1, 2022, to December 15, 2022, on Twitter social media. Influential actors are not necessarily the same as famous actors.

The search for essential players can be an advantage in further study. Notably, it can be easier to identify prominent accounts by applying degree centrality value limits, whether there are bot accounts or not. Then from the search for influential actors, account grouping can be done into a group with comparable account categories.

Can Improve this research by adding data coverage on different social media in Indonesia's Representation of Political Choices and 2024 Presidential Candidates to find a broader range of nodes or influential accounts at Drone Emprit Academic.

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