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Influencer Detection of Indonesia Citizens' Opinion toward Chemical Castrated Punishment for Perpetrators of Pedophile Using Social Network Analysis

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ABSTRACT

Social media is now capable of being a platform that often used to dispense various aspirations and creative ideas. Social media is also used as a place for discussions of the problem that is going on and makes it viral. This research will discuss about how to determine social media users that very central or key actor in the role of making the problem to be viral by using Social Network Analyst and Sentiment Analyst Approach to see the trait of influencer itself. The research leading to pedophile case with the data in the last two years produced one influencer of 500-twitter status with value degree of 0,311 and sentiment positive influence 84%, negative 15%.

Keywords: *Social Network Analyst, Influencer, Hashtag, Kebiri Kimia, Pedofilia.*

1. INTRODUCTION

Social media is currently becoming a means to dispense aspirations and creative ideas through facebook, youtube, twitter, instagram and any other kinds of social media. Social media is a platform from which can keep up the activities including integrating the web site, social interaction, and in the making of content based on community groups. Through services, social media can facilitate content, communication and conversation. Users are able to make, set, edit, comment on, give tags, discuss, combine, connect and share contents.[7] In this modern era, dissemination of information on social media is not a common matter but there are some important things that used by some circles. On disseminating information, there is pattern and actor that used to make the information whether it is useful or not. The pattern of dissemination information requires role of actors, influencer or usually known as Social media influencer. Influencer is the most important actor who acts as the third party on connecting others in a pattern. For that reason, in the dissemination of information influencer or Social Media influencers plays an important role in maintaining the current information.[1][9]

This research discusses about a phenomenon in which occurred in the past two years, such as Pedophile which is currently becoming a criminal act and threat for children that may deprave their mental and personalities as what had posted on social media about Robert Ellis's case, found guilty of doing pedophile against eleven girls from the ages of seven to seventeen quoted at www.bbc.com. This then procures criticism due to some cases occurred in many states including Indonesia that continually contrives citizens restless with such criminal case. Indonesia Government had made a rule to punish the perpetrators in order to give a deterrent effect even to eradicate the perpetrators of pedophile.

Indonesia Government officially ratified the Government Regulation in Lieu of Law or Perpu No. 1 of 2016, often called Government Regulation in Lieu of Law of Castrated which read directly by President Joko Widodo through his broadcasted live speech by some television stations as well as youtube which contains Criminal Penalty to the perpetrators of Pedophile is sentenced to death, prison confinement at least ten years and twenty years at maximum. Additional criminal identity announcement of perpetrators, actions in the form of chemical castrated and installation of electronic detection devices. Indonesian Government set the regulation of chemical castrated punishment receives responses from citizens through twitter, they give pro and contra through comments with hash tag Pedophile and Chemical Castrated. Simultaneously, the topic being crowded talk about in twitter and goes viral.

Based on that matter, this research is about to analyze how the pattern of dissemination of information makes a topic goes to viral on social media, then to detect of the influence of key actor on dissemination of information using Social Network Analysis method towards citizens' opinions about the chemical castrated punishment for the perpetrators of Pedophile in Indonesia. The information obtained from citizens' comments on twitter.

2. CONNECTING RESEARCH

Detecting key actors in interorganizational networks Research by Ignacio Ramos-Vidal SNA (Social Network Analysis) is network depiction of actors in an interorganizational that interlocking each other. Yet, there are certain actors who take hold of important role or often called as key actor. This key actor detected to know how important the key actor is in interorganizational[2].

Mapping Social Media Networks in Youth Organizing Research by Michael P. Evans explains about the use of social media as a means of promotes collaboration and enhance communications in a teenager organization from a group formed in twitter. The results of the research show that SNA as the exact method to find key actor in a pattern found based on the results of the analysis. The discussion leads on how key actor influenced in a communication network to develop new knowledge that becomes the quintessence of organization built[3].

Based on the research, the researcher proposes SNA (Social Network Analysis) to detect and analyze influencer and Key Actor in every single discussion on social media with the topic of Pedophile that related to Castrated Punishment decided by Indonesia Government. The analysis results used to see the pattern of dissemination of information on twitter and to detect and analyze how central actors influence in the pattern of dissemination of information therefore this research can explain the influence of influencer in detail. This matter will be distinguishing factors with both previous researches. The process starts doing collecting data, analysis process, as well as retrieving conclusion.

3. RESEARCH METHODS

The use of method in this research is quantitative with several phases as follows:

The first phase; Literature Study, Conducting literature review related to Social Network Analysis (SNA) and Influencer methods.

The second phase; At this phase, collecting data conducted from;

a. Population and Sample

Collecting data from social media, twitter using Crawling method, the data on twitter can use search system, by keyword. Search using keyword is searching using word split or hash tag with tweet. Extraction features obtained from twitter index for users data are total tweet, total follower, total following, account, and name. Whereas feature extraction obtained from twitter index for tweet data including URL mention, re-tweets, hash tag, number of likes and number of re-tweets[4].

The crawling process conducted randomly in accordance with each user included in the conversation about chemical castrated punishment. Time limits on data retrieval are from 2016 to 2017. The data extracted will be analyzed using SNA method.

b. Object Research

The research object in this study is Indonesia Government Regulation (Chemical Castrated Punishment). Each data search focused on hash tag Pedophile and Chemical Castrated on twitter.

Third phase; Analysis and processing of data previously had done the process of grouping documents. There can be several stages, namely;

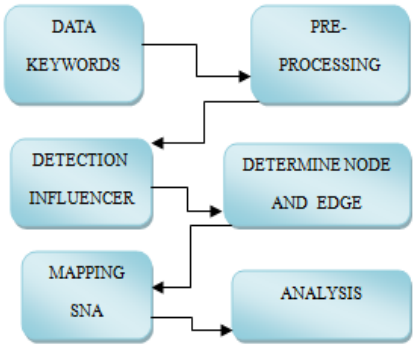

Fig. 1. Extraction and Analysis Process.

1) Data keywords: Data keywords obtained by Crawling method, on twitter. Data keywords in the form of tweets that captured as much as needed related to the attributes required in processing data on chemical castrated punishment.
2) Pre-Processing: In the pre-processing stage, there are cleansing and filtering stages. The sorting process has done to get easier in the process of determining relationships between actors.

Table 1: Actors Relation

Vertex 1	Vertex 2	Relationship
Muhamad Nasir	Farhira Idris	Retweet
Snow-fog	bussjiige	Replies to

3) Determine Node and Edge: This stage is a formation process of network using Application Programming Integration (API) twitter by using NodeXL 2016 in this case the tools used for dataset and networking modelling of Network Analysis. The process done by using imported dataset from twitter with tokenisasi process. In determining the node and edge seen from the relationship between user based on the number of re-tweets and reply from a tweet post.
4) Detecting Influencer
Then the next process is to determine degree centrality value to see how many actors related to key actor in responding content. The determination of influencer or actor very central on disseminating information seen from the highest degree centrality value with the following formula:

$$C'D(i) = \frac{d0(i)}{n-1}$$

In the calculation of the degree of an actor (C'D (i)) will be seen from the number of relations of the actor (do(i)) and then divided the total actor at dataset minus one (n-1).[10][5]

5) Mapping SNA
In representing information using 2 ways either graph or matrix. Of the many types of graph is, network analysis using a kind of graph containing nodes or point to represent actor and edges or lines to represent connection or relation, called "socio-grams". The depiction of a relationship in graph who our homeland symbolized by using edges or lines there are two ways, directed graph or bonded-tie graph. Simple or bonded-tie graph is a simple graph that connects a pair actor which having the relationship of, it is just that edges or lines which are used without using a dart. Directed graph is graph in which demonstrated relationship clearer because the relation symbolized by the edges or lines described with a dart[8]. Based on the dataset made according to needs, the next step is to map the data visually in the form of a communication network using the features of NodeXL tools. The network made based on a collection of posts with hash tag Pedophile and chemical castrated. Both hash tags of pedophile and chemical castrated used as starting points, with Recommending #-Tagas in Twitter as the recommendation supervised hash tag based on similar texts in tweets[11][12]. Then the disseminating patterns seen by the number of re-tweet and reply of each actor.

6) Analysis
Is the final stage after mapping network analysis done on the outcome of mapping to recognize further patterns and the characteristic of influencer as the actor acting central to the dissemination of information[6]. Analysis done by sentiment analyst approach based on comments to content of the key actor. Sentiment analyst approach is analysis sentiment is one of the branches of text mining, natural language program, and an artificial intelligence. The process conducted by sentiment analysis to understand, extract, and processing data text automatically to be any information useful. Besides, the sentiment analysis is the field of science analyzing opinion, attitude, evaluation, and the assessment of an event, topic, organization, and individuals [13][14][15]. Sentiment Analysis done with some phases, they are filtering, cleansing and weighting[15].

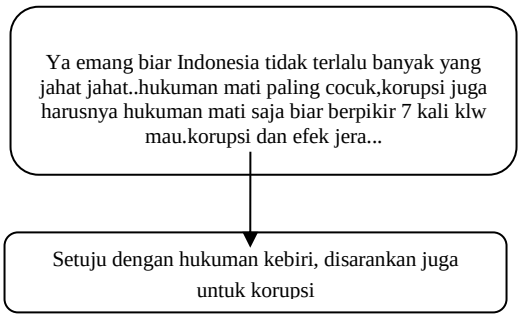

Fig. 2. Filtering process

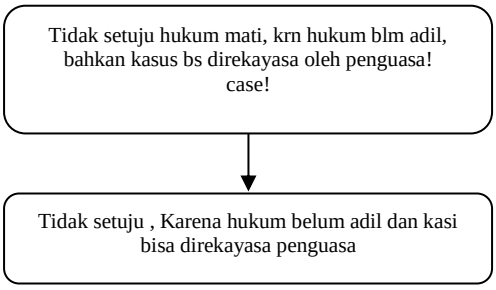

Fig. 3. Cleansing process

Table 1: Weighting

Sentiment	Value
Positif	1
Netral	0
Negatif	-1

From the initial three phases then sought the average value of the sentiment with *lexion based.*

$$\text{TR rate} = \frac{\text{TN/TP}}{\text{Total TN/TP}}$$

From the results of the analysis will see how a content on a key actor in influencing and developing sentiment public with TN (True Negative) and TP (True Positive).[16]

4. RESULTS AND DISCUSSION

The initial phase in the mapping process is to set the starting point of the node as a *start* point or beginning of dissemination of information. The option in collecting the research data process is the data of the actors and the comments of the chemical castrated punishment occurred contained on *twitter* in Indonesia. The process of retrieval of text and actor data is using *crawling* method. Data is taken based on *tweets* with *hash tag* chemical castrated in a *twitter.*

Fig. 4. Result of Capturing data

The results of *capturing* data from *twitter* will be made into a dataset with separation of actors, *tweets*, *hash tags*, number of *re-tweets*, and number of *reply.*

A. Detecting Influencer and Mapping

The data is taken based on comments with *hash tag* of chemical castrated, the data is filtered by posts or *tweets* that are being *re-tweet* and *reply*. The created data formed in a group based on the *hash tag* then the mapping is done by making the pattern of the number of actors' posts with the *hash tag* and mapping based on both the numbers of *re-tweets* and *reply*. From each *re-tweet* the node will take place and has continuation of *re-tweet*, this pattern used to see how wide a post is spreading. The pattern of the spread will be rated on the degree of each actor

Tabel 2: Relation calculation and degree centrality value

Actors	Number of *re-tweet*	Number of *reply*	Value Degree
Ar*	7		0,025
Fr* a*k j***	1	2	0,011
L****	1		0,003
Ma**** Ex***	2		0,007
J2*	2		0,007
M'*** Sil****	2		0,007
El*'*	1	1	0,007
Oke***	2		0,007
Riana ***	3	2	0,018
Pink****	6		0,022
Uztd Ma****	25	3	0,103
Sya****	3		0,011
Kome****	2		0,007
Fahira I***	65	19	0,311
Deso***	1		0,003
Radio****a	2	28	0,111
ChokyR****n	9		0,033
Negat*****	18	1	0,070
Ajari M***	24	1	0,092
Dirga s****	15	3	0,066
Total actors			**271**
Highest value degree			**0,311**

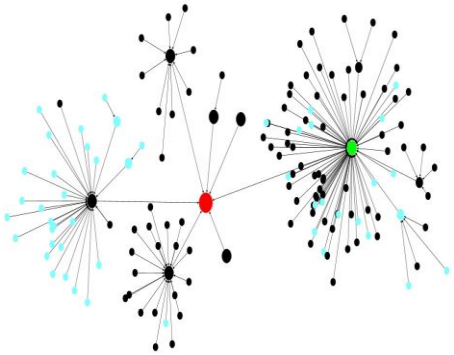

Fig. 5. Mapping SNA (1)

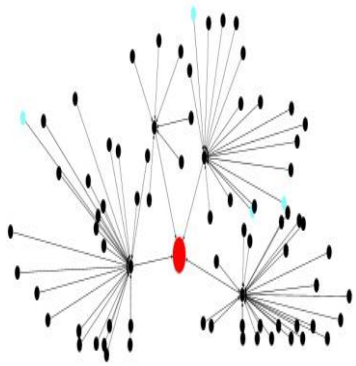

Fig. 6. Mapping SNA (2)

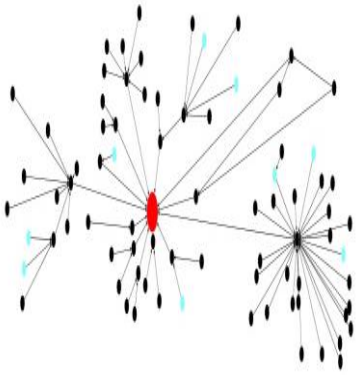

Fig. 7. Mapping SNA (3)

Descriptions:

Red Node : starting point (with *hash tag* chemical castrated)

Black Node : actors who did re-*tweet*

Blue Node : actors who commented

Green Node : *key actor*

Analysis

From 500 data record through *filtering* process is taken 271 data processed and through the actor with the degree centrality to determine actor with most relations. Selected actor of *re-tweet* about 65 and *reply* about 19 is having degree centrality value, 0,311. Sentiment analysis approach is done towards comments of the *key actor*'s content. From 19 comments on the *key actor* classified on the following table

Table 3: Sentiment Classifications

Sentiment	Total	Average
Positif	16	84 %
Netral	0	-
Negatif	3	15 %

From the content of or status made by *key actor* produces 25 actors who spreading and capable of being steered thought some community members to support the policy made by the Government. With 19 comments and 84% have positive sentiment or agree and the rest do not agree.

5. CONCLUSION

Based on this research, it can be concluded that the role of central actors or *influencers* is very crucial in the dissemination of information in a pattern. The pattern found on social media such as *twitter* using *toolshashtag* with *re-tweets* by using *Social Network Analysis* method in this research is focused to find the actors who have the highest nodes value to be the central point or the *influencer* actors to influence each actor in response to problems on social media.

REFERENCES

[1] Morgan Glucksman (2017), The Rise of Social Media Influencer Marketing on Lifestyle Branding:A Case Study of Lucie Fink, Elon Journal of Undergraduate Research in Communications, (Vol. 8), No. 2.

[2] Ignacio Ramos-Vidal (2017), Detecting key actors in interorganizational networks, Cuadernos de Gestión (Vol 17).

[3] Michael P. (2013), Mapping Social Media Networks in Youth Organizing, Journal of Information, Information Technology, and Organizations (vol 8).

[4] Jaka, Erwin, Abdurahman (2016), "Data Crawling Otomatis pada Twitter", Ind. Symposium on Computing.

[5] Yesi , Heri, (2017) "Analisis Pemangku Kepentingan dan Perannya Dalam Pemanfaatan Informasi Geospasial di Pemerintah Daerah Menggunakan Metode Social Network Analysis" , Seminar Nasional Geomatika.

[6] Bambang Sunarwan (2015), Communication Activites and Social Media (Survey of communication model in DKI Jakarta peoplesby Social Network Sites, Jurnal Studi Komunikasi dan Media Vol. 19 No. 1 Hal : 93 – 106

[7] Jawhari Fajri, "Dimensi Interaktivitas Media Sosial Instagram Instamarinda Guna Memperkenalkan Daerah Pariwisata di Kota

Samarianda" ,eJournal lmu Komunikasi, 2017, 5 (3): 87 – 101
[8] Budi, Herlina, Antonius,"Penerapan Social Network Analysis dalam Penentuan CentralityStudi Kasus Social Network Twitter", Article · July 2012, researchgate
[9] Freberg, K., et al. Who are the social media influencers? A study of public perceptions of personality. Public Relations Review (2010), doi:10.1016/j.pubrev.2010.11.001
[10] Based on Wasserman and Faust (1994). Centrality & Prestige, SOC8412 Social Network Analysis Fall 2009
[11] Yumarsono, Mirza, "Rekomendasi Hashtag Untuk Tweet Berbahasa Indonesia", Article · January 2016, researchgate
[12] Zangerle E, Gassler W, Specht G (2011) Recommending #-Tags in Twitter. Proceedings of the Workshop on Semantic Adaptive Social Web 2011. http://ceurws.org
[13] Wanda, Imam, Rizal,"Analisis Sentimen Cyberbullying pada Komentar Instagram dengan Metode Klasifikasi Support Vector Machine" Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer, Vol. 2, No. 11, November 2018, hlm. 4704-4713
[14] Akbari, Astri, Casi (2012). Analisis Sentimen Menggunakan Metode Learning Vector Quantization. Telkom University
[15] Liu, B., 2012. Sentiment Analysis and Opinion Mining. In: Chicago: Morgan & Claypool Publisher.
[16] Winda ,Rizal, Ali, "Analisis Sentimen Terhadap Tayangan Televisi Berdasarkan Opini Masyarakat pada Media Sosial Twitter menggunakan Metode K-Nearest Neighbordan Pembobotan Jumlah Retweet", Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer,Vol. 1, No. 1 2 , Desember 2017, hlm. 1750 – 1757.