

What philosophy does the leader have in crisis management?

- Focusing on the Korean President's Speech

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A B S T R A C T

Modern society is a hazardous society with characteristics of ‘uncertainty’. A leader’s role is essential to maintaining order and safety in a hazardous society. When facing danger, message delivery from the leader has a positive effect on actions and motivation to protect citizens and help to minimize the damage. In this research, recognizing the importance of a leader’s role in disaster safety, we studied the message delivered by the Presidents. In performing the research, disaster safety-related speech networks were analyzed in the speeches of for Presidents from the 16th to the 19th. First, the risk management of Korea was reflected in the times through the President’s speeches. Second, it contains the President’s philosophy and value. Finally, when looking at the discourse analysis of the President's speech in common in disaster safety, it can be seen that the majority of common languages put the safety of the citizens first priority so that more citizens are enabled to take safe actions and attitudes.

Key words: Language-network analysis, President, Speech, Risk management, Disaster management, Safety

1. Introduction

A disaster is defined as an event that disrupts the normal survival condition and exceeds the viability of the community. Generally, there are three conditions to enlarge an event into a disaster. An event makes the normal condition into chaos, exceeds the resilience of the regional community and exhausts people physically and mentally. In particular, a disaster contains people. Otherwise, it is simply regarded as a physical phenomenon.

A successful leader in modern society reduces uncertainty and improves the resilience to overcome risk. Breaking away from the moral authority of the past, we believe that message of present leaders should contain trust (Morden, *et. al.*, 2013; Brooks, *et. al.*, 2019).

It is important that the leader’s role induces order from chaos in disaster control. Logically, leader in crisis situation could be various ranks such as event commander or disaster manager in public official or President of the country where the disaster occurred. In general, under normal circumstances, leader’s decision is made through a deliberation process with the intervention and advice of experts in relevant fields. It is served by frameworks of the law

the providing formal support and confirmation (Mahmud, *et. al.*, 2020).

In this study, we will focus on the speeches of four Korean Presidents from 16th to 19th generation on philosophy and value of crisis management leadership through language network analysis of the President’s language characteristics related to crisis management.

2. Theoretical Background

2.1. Leader’s role focus on disaster safety.

A number of risk elements induces and amplify physical and physiological anxiety about the survival of individuals (Lupton, 2013; Mitzen, 2006; Esposito, 2008; Foucault, 1991). Boin and Hart (2003) suggest that modern leader’s role is dealt with public safety as a primary factor and it advocates for predicting future hazards while at the same time demonstrating decisive action for the physical and mental protection of disaster victim.

Moreover, in particular, it demonstrated that needs for disaster prevention and preparedness were considered important in modern society with increasing uncertainty (Renn, *et. al.*, 2011; Di Floristella, 2015; Shufutinsky, *et. al.*, 2020; Hashikawa & Gold, 2018). Anxiety that something out of the ordinary

will happen is constantly growing, and when a disaster occurs, (Boin & Lodge, 2016; Wright & Horta, 2018; Sørensen, 2018), it becomes difficult to find a single cause or completely eliminate the risk (Gephart, *et. al.*, 2009, Arfan, *et. al.*, 2019).

In every crisis, a leader must recognize danger of people, send the message for mitigation of risk through social environment and philosophical cogitation. However, damage may be magnified owing to wrong perception of risk in the leader and miscommunication with people (Renn, 2004; Beck, 2009; R. Kasperson & Kasperson, 1996; Mishra & Kanti, 2019). Therefore, modern leader with higher decision-making authority must have the understanding of risk recognition, information analysis and construction of message for protection of citizens (Leach, *et. al.*, 2010; Barnes, 2002; Beck, 2015; Dibai, *et. al.*, 2020).

2.2. Leaders influence and language

Previously reported studies have shown that leader's speech affects a variety of things, such as raising trust in leaders (Pravichai & Ariyabuddhiphongs, 2018), changing attitudes (Banks, 2014; Rowley Mayfield, *et. al.*, 1998), and mediating conflicts (Leader Maynard & Benesch, 2016), and members' commitment and effort (Mayfield & Mayfield, 2012; Mayfield & Mayfield, 2002).

Therefore, leader's speech about disaster safety induces improving safety awareness of citizen (Soltani, *et. al.*, 2016; Rosenstiel, 2019), minimizing damage from disaster (Farazmand, 2017) and enhancing the resilience (Crowdell & Tschakert, 2021).

3. Sample and Measure

To evaluate faith and philosophy about disaster management of leader, we analyzed language characteristic using analyzing speeches of Presidents. The speeches of 16th and 18th Presidents were obtained from Presidential archives (<https://www.pa.go.kr/> searching date: 22. May. 06),

but the speech of 19th President was referred Korea policy briefing website <https://www.korea.kr/> searching date: 22. May. 20) data migration to Presidential archive.

In this study, text was mined by R program and language network analysis was performed by NodeXL and R. First, special characters were removed in collected data using R program as open source software. After cutting the text into word unit, each word was divided into words and encodings and data were refined in the order of extracting only words (noun) from among them.

We analyzed frequency of words and summarized proportion of word occurrences though a table. Also, to analyze the connectivity between each word, bigram was extracted using R, the number and centrality of the connecting lines were evaluated and language network chart was also created by NodeXL. The R program was used for the CONCOR analysis carried out to from a cluster by identification the similarity of keyword.

4. Analysis & Findings

4.1. Keyword analysis in the disaster safety related speech

We analyzed disaster safety related text from four Presidents. As shown in speeches from 16th President, 118 speeches were related to disaster safety in a total of 770 speeches and total words were 169,992. In case of 17th President, of a total of 819 speeches, 229 speeches were focus on disaster and total words were countered as a 385,841. Park Geun-hye(18th President) gave 164 disaster safety related speeches in total speeches of 493. The 19th President who recently finished his tenure, made 606 of 1207 speeches related to disaster safety and total words was countered 376,299. Compared to other presidents, 19th president gave the most speeches about the disaster.

<Table 1 > Language network analysis of 16th to 19th presidents

	Category	Frequency	Category	Frequency
16th Presiden (Roh Moo-hyun)	Total words	169,992	Mediation centrality	17883.66
	Total connecting line	88,311	Proximity centrality	0.0000
	Average number of connecting lines for each word	3.508	Eigen-vector centrality	0.0006
	Category	Frequency	Category	Frequency
17th President (Lee Myung Bak)	Total words	203,810	Mediation centrality	17683.901
	Total connecting line	109,667	Proximity centrality	0.0000
	Average number of connecting lines for each word	3.478	Eigen-vector centrality	0.0006

	Category		Frequency	Category		Frequency
	Category	Frequency	Category	Frequency	Category	Frequency
18th President (Park-Geun-Hye)	Total words	385,841	Mediation centrality	13685.590		
	Total connecting line	69,059	Proximity centrality	0.000		
	Average number of connecting lines for each word	3.6986	Eigen-vector centrality	0.007		
	Category		Frequency	Category		Frequency
	Category	Frequency	Category	Frequency	Category	Frequency
19th President (Moon Jae-in)	Total words	376,299	Mediation centrality	27395.240		
	Total connecting line	227,639	Proximity centrality	0.289		
	Average number of connecting lines for each word	3.509	Eigen-vector centrality	0.002		

To monitor the words that appear at the same time, we performed to analyze the language network and confirm the number of connected lines, Mediation centrality Proximity centrality and Eigen-vector centrality (Table 1).

As shown in the results of the 16th President, connected lines were counted at 88,311 and the average number of connected lines in each ward are 3,508. In centrality results, the average of mediation centrality was 17883.66, proximity centrality was 0.0000 and 0.0006 is the average of Eigen-vector centrality.

In the 17th President, the number of connected lines existed was 109,667 and the average of connected lines measured 3,478. Moreover, mediation centrality is 17683.901, proximity centrality is 0.0000. In final, Eigen-vector centrality was calculated as a 0.0006.

In analysis table in the 18th President, the number of connected lines were 67,059 and average connected lines was measured at 3.6986. As shown in centrality analysis, Mediation was 13685.590, Proximity was 0.0000 and Eigen-vector was 0.007.

Looking at the results of the language network of the 19th President, the number of connected lines is 227,639 and the average number of the connected line for each word were 3.509. In centrality analysis results, mediation centrality was calculated as 27395.240, proximity centrality was 0.289. Finally, Eigen-vector appeared as 0.002.

The following table # is extracted as the top 50 words with a high-ranked Eigen-vector centrality among words that appeared in the speeches related to disaster and safety of the 16th to 19th Presidents.

<Table 2> Top 50 words in Eigen-vector based president's speeches

Rank	Word	16 th President (Roh Moo-hyun)			Word	17 th President (Lee Myung Bak)			Word	18 th President (Park-Geun-Hye)			Word	19 th President (Moon Jae-in)		
		Betweenness Centrality	Closeness Centrality	Eigenvector Centrality		Betweenness Centrality	Closeness Centrality	Eigenvector Centrality		Betweenness Centrality	Closeness Centrality	Eigenvector Centrality		Betweenness Centrality	Closeness Centrality	Eigenvector Centrality
1	Ours	141976	0.00003	0.00560	Ours	173800	0.00003	0.00606	Ours	762866	0.00004	0.00743	Ours	317743	0.48540	0.20865
		70.69	4	3		46.91	5	6		9.161	5	7		07.92	4	1
2	Think	562771	0.00003	0.00415	Everyon	689903	0.00003	0.00398	Everyon	409430	0.00004	0.00535	Govern	162579	0.46602	0.17563
		2845	2	3		e	1.29	2		8	e	9.503		3	7	ment
3	Govern	526301	0.00003	0.00381	Word	582263	0.00003	0.00396	Govern	321772	0.00004	0.00499	person	116796	0.45388	0.15025
		6.83	2	7		8.062	2	8		ment	4.423	2		8	37.11	9
4	Proble	513112	0.00003	0.00376	Govern	507123	0.00003	0.00362	person	239315	0.00004	0.00437	World	802333	0.43885	0.12127
		4.899	1	9		ment	1.41	2		9	9.988	1		7	2.164	4
5	Man	544830	0.00003	0.00363	Think	479654	0.00003	0.00358	World	215387	0.00004	0.00414	People	608657	0.43672	0.11819
		3.956	1	9		3.873	1	4		5.461	1	4		8.191	1	8
6	Everyo	554814	0.00003	0.00358	Person	450300	0.00003	0.00345	Korea	145952	0.00004	0.00406	Econo	465206	0.43200	0.11587
		7.913	1	4		8.986	1	3		4.644	7	mic		2.638	3	3

7	Person	371359 6521	0.00003 1	0.00327 5	Korea	311578 8.139	0.00003 1	0.00328 4	Effort	140422 5.827	0.00004 2	0.00359 Effort	458368 8.227	0.42923 4	0.10467 7	
8	Because	338019 9403	0.00003 1	0.00313 4	Country	207491 3.589	0.00003 9	0.00286 Korea	North 7.037	211835 7.037	0.00004 5	0.00353 Korea	476856 3.293	0.42948 8	0.10385 8	
9	President	337803 3961	0.00003 8	0.00297 8	Korea	303214 2.203	0.00003 2	0.00280 Think	129920 2.605	0.00004 1	0.00352 Everyon	668923 1.94	0.42954 7	0.10202 6		
10	Economics	263024 9851	0.00003 6	0.00294 6	Because	287568 9.726	0.00003 8	0.00268 Deveolp	ment 2.346	125035 2.346	0.00004 7	0.00350 Today	612605 3.327	0.42925 1	0.10134 1	
11	This	251839 745	0.00003 3	0.00289 3	Econo	192970 1.973	0.00003 2	0.00263 Korea	187882 2.52	0.00004 4	0.00347 Co-	operatio 356977	0.42460 8.151	0.10099 1	0.10099 3	
12	That	260199 3211	0.00003 6	0.00275 6	Country	187548 9.428	0.00003 6	0.00239 Econo	mic 5.664	109694 5.664	0.00004 1	0.00305 Korea	417374 0.908	0.42364 6	0.09525 6	
13	Policy	209014 096	0.00003 4	0.00271 4	Problem	228582 8.631	0.00003 2	0.00232 Co-	operatio 2.191	118481 2.191	0.00003 9	0.00302 Job	277117 3.103	0.41979 3	0.09052 4	
14	Participatory government	187170 2.102	0.00003 7	0.00253 7	Presiden	259240 0.809	0.00003 9	0.00231 Future	625170 5575	0.00003 9	0.00283 7	Situatio 380376	0.42188 0.938	0.09051 6	0.09051 9	
15	Social	158632 2414	0.00002 9	0.00249 9	Social	192457 7.999	0.00002 9	0.00219 Today	807875. 5848	0.00003 9	0.00266 9	Support	523014 6.535	0.42407 3	0.08869 9	
16	Korea	168305 9592	0.00003 5	0.00242 5	Effort	134087 1.762	0.00002 9	0.00218 Country	912222. 7777	0.00003 9	0.00259 3	Country	339621 5.981	0.42147 8	0.08787 5	
17	Story	127171 3.537	0.00002 9	0.00223 7	North Korea	216254 2.171	0.00002 9	0.00216 Both	country 946196. 7138	0.00003 9	0.00256 8	Peace	297742 5.268	0.41644 6	0.08702 9	
18	People	126716 1.296	0.00002 9	0.00217 8	Develop	121806 0.694	0.00002 9	0.00214 4	Nation	723319. 3806	0.00003 8	0.00250 9	Think	293339 4.543	0.41711 4	0.08254 5
19	Branch	135423 7.756	0.00002 9	0.00216 6	Today	165348 2.379	0.00002 9	0.00205 7	Region	128747 4.565	0.00003 9	0.00240 6	Preventi 275639	0.41604 9.646	0.08179 1	
20	One	136428 1.383	0.00002 9	0.00211 8	Person	215477 1.18	0.00002 9	0.00199 7	People	677863. 2561	0.00003 8	0.00236 3	This year	379650 8.941	0.41804 8	0.07938 8
21	World	202900 6.729	0.00002 9	0.00208 5	Job	134721 9.415	0.00002 9	0.00199 1	Korean Peninsul a	729936. 2854	0.00003 8	0.00236 2	Develop ment	189861 8.148	0.41240 2	0.07863 8
22	Nation	118923 4.082	0.00002 9	0.00208 4	This	144422 7.32	0.00002 9	0.00198 5	Creative econom y	505446. 0628	0.00003 8	0.00222 8	Korea	261775 5.892	0.41021 7	0.07607 4
23	Effort	141097 1.261	0.00002 9	0.00207 7	opportu nity	116726 3.39	0.00002 9	0.00196 3	Once	463379. 1871	0.00003 8	0.00213 9	Compa ny	277285 2.19	0.41333 2	0.07532 8
24	Democracy	134001 8.16	0.00002 9	0.00205 8	Compa ny	143975 6.597	0.00002 9	0.00193 9	Internati onal society	594397. 8265	0.00003 8	0.00212 2	Future	161168 3.177	0.41116 8	0.07531 5
25	Level	156125 5.172	0.00002 9	0.00203 8	Era	117380 9.903	0.00002 9	0.00191 7	Differen ce	394606. 8039	0.00003 8	0.00208 6	nation	230894 9.196	0.41227 8	0.07511 6

26	Market	122915	0.00002	0.00200	Position	115262	0.00002	0.0019	Faith	365852	0.00003	0.00208	Region	333766	0.41255	0.07325
		8.739	9	7		66	9	1723		8	0.922	8		8		
27	Country	159650	0.00002	0.00196	Future	100353	0.00002	0.00187	Peace	291221	0.00003	0.00206	Start	232484	0.41116	0.07111
		4.247	9	5		2.521	9	8.896		7	2	4.481		8	2	
28	Import ant	739283	0.00002	0.00195	Actually	116540	0.00002	0.00178	Our nation	484306	0.00003	0.00197	Difficult	189416	0.40842	0.06962
		4.543	9	1		9.625	9	9		0.0393	8	4		2.835	9	2
29	Develo pment	105497	0.00002	0.00193	Co- operatio n	829289	0.00002	0.00173	Support	107570	0.00003	0.00197	Role	176008	0.40638	0.06862
		8.068	9	8		0.0498	8	3		4.855	8	2		5.01	4	9
30	History	123719	0.00002	0.00192	Our country	116207	0.00002	0.00172	Hope	296381	0.00003	0.00196	Safety	212340	0.40878	0.06824
		5.081	9	4		5.725	9	1		9.229	7	8.64		9	5	
31	Next	127796	0.00002	0.00190	Internati onal commu nity	534884	0.00002	0.00165	Celebrat ion	505411	0.00003	0.00194	Policy	173402	0.40416	0.06816
		4.688	9	9		6.635	8	8		1.149	7	1		1.016	5	8
32	Era	149803	0.00002	0.00186	Differen ce	859800	0.00002	0.00164	History	473908	0.00003	0.00191	Innovati on	136460	0.40437	0.06746
		3.368	9	6		3.945	8	7		9.063	7	1		1.949	5	4
33	Compa ny	116312	0.00002	0.00184	This	850433	0.00002	0.00164	Culture	557072	0.00003	0.00189	Categor y	262318	0.40586	0.06734
		0.915	8	9		1.419	9	1		2.984	7	7		7.279	3	3
34	USA	122119	0.00002	0.00179	Thank	942662	0.00002	0.00162	Magnifi cation	997004	0.00003	0.00187	Magnifi cation	394531	0.40876	0.06614
		7.735	8	9		2.169	8	5		0.116	8	2.63		6	6	
35	Future	799554	0.00002	0.00179	This year	111302	0.00002	0.00160	This time	620873	0.00003	0.00185	Opportu nity	154333	0.40559	0.06591
		1.054	8	8		8.289	8	4		3.023	7	9		6.96	9	5
36	Politic	909530	0.00002	0.00178	Once	104457	0.00002	0.00160	Era	347831	0.00003	0.00185	Result	148587	0.40559	0.06567
		5.032	8	3		5.29	8	2		0.673	7	2		1.049	9	8
37	Investig ation	114298	0.00002	0.00175	Develop ment	706491	0.00002	0.00154	During	360197	0.00003	0.00183	Corona	128303	0.40284	0.06555
		6.091	8	1		7.03	8	9		6.877	7	1		2.504	5	6
38	Strategy	732815	0.00002	0.00174	Story	100882	0.00002	0.00154	Innovati on	403997	0.00003	0.00180	Because	266402	0.40738	0.06521
		4.311	8	8		6.99	8	8		3.129	7	7		7.634	5	
39	What	677310	0.00002	0.00167	Role	655131	0.00002	0.00152	Safety	488209	0.00003	0.00179	Best	142227	0.40592	0.06437
		5.782	8	4		6.361	8	7		0.511	7	9		3.094	3	1
40	Ideal	120191	0.00002	0.00166	USA	958256	0.00002	0.00151	Categor y	599189	0.00003	0.00177	Hope	131609	0.40354	0.06386
		0.815	8	5		2.553	8	9		3.878	7	9		3.199	5	5
41	North Korea	117554	0.00002	0.00165	Mind	813338	0.00002	0.00149	Northea st Asia	415400	0.00003	0.00177	Overco me	985423	0.40105	0.06366
		5.284	8			5.51	8	9		1.372	7	1		8.171	4	
42	Actually	851717	0.00002	0.00162	Difficult	547365	0.00002	0.00148	Police	374510	0.00003	0.00176	Ideal	249253	0.40724	0.06321
		1.097	8	9		8.313	8	8		2.354	7	9		1.302	9	
43	Necessa ry	722965	0.00002	0.00159	Every	519683	0.00002	0.00148	During	503669	0.00003	0.00174	Problem	220488	0.40503	0.06317
		8.961	8	5		5.048	8	6		2.589	7	7.669		5	3	
44	Once	776209	0.00002	0.00159	Green growth	614065	0.00002	0.00148	Global	380480	0.00003	0.00173	respons e	150938	0.40222	0.06309
		5.292	8	1		4.117	8	5		4.148	7	7		2.741	9	3

45	Opinion	758216. 3091	0.00002 8	0.00157 7	Policy	689036. 9192	0.00002 8	0.00148 2	Growth	312089. 1991	0.00003 7	0.00172 9	Enhancement	226236 7275	0.40332 9	0.06273 4
46	Situation	797474. 0613	0.00002 8	0.00154 6	Help	461120. 4907	0.00002 8	0.00147 4	Problem	597738. 6734	0.00003 7	0.00172 6	North Korea	221771 5256	0.40369 4	0.06199 8
47	Today	944153. 6426	0.00002 8	0.00154	Opinion	919144. 0409	0.00002 8	0.00147 3	Role	442322. 2933	0.00003 7	0.00171 6	This time	176927 6566	0.40274 9	0.06188
48	Press	830584. 2806	0.00002 8	0.00152 7	Hope	644086. 5822	0.00002 8	0.00146 6	Opportunity	410209. 4729	0.00003 7	0.00170 7	Growth	128306 6259	0.39835 4	0.06178 6
49	Change	517612. 1197	0.00002 8	0.00152 2	Best	450106. 1951	0.00002 8	0.00138 5	Think	306949. 098	0.00003 6	0.00168 8	Central	211545 5.159	0.40287 5	0.06158 1
50	People	105284 2354	0.00002 8	0.00151 7	Police	637451. 0891	0.00002 8	0.00137 6	Society	487006. 8557	0.00003 7	0.00167 7	Promotion	203102 5.72	0.40486 2	0.06131 1

5. Summary & Implication

As shown in the analysis results in the speeches related to disaster and safety, the first, a word with a high-ranked eigenvector was 'our'. Second, words in speeches change relying on the president's political philosophy. In the 16th President, un-selected words against other presidents were used such as democracy, participatory government, press and necessary. In particular, democracy and the participatory government is contained his value and ideology. Myung-bak Lee, the 17th President, utilized the words green growth and help and the 18th president used the northeast Asia, global, creative economy. Finally, the 19th president applied the words prevention, performance, overcoming, response, and reinforcement in his speeches.

Third, the words used during the speech contained the image of the era of disaster safety. In the 16th President, words related to national defense appeared such as North Korea. and the 17th President used the word about international climate change based on the ecological crisis. 18th President focused on northeast Asia security crisis and life safety. 19th President, former president, used the word about prevention, Coronavirus and overcome due to COVID-19 pandemic.

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