Dissemination of Policy Issues on YouTube: Sentiment in Video Headlines and User Engagement in the Case of Medical School Expansion in Korea

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Abstract: This study examines YouTube videos as a key medium for disseminating policy issues, specifically focusing on the controversy surrounding the expansion of medical schools in Korea. By analyzing video titles and user engagement metrics—such as views, likes, and comments—the research explores how sentiment and framing affect the spread of policy discourse. YouTube was chosen for its status as the most influential platform in Korea for discussing policy matters, along with its unique capacity to measure user engagement through video content and an algorithm-driven recommendation system. The findings reveal three critical insights: (1) the need to restore credibility in policy communication, (2) the significant impact of risk-oriented discourse in fostering public engagement, and (3) the paradoxical resurgence of traditional media's influence as issues become increasingly complex. The study also proposes a model for issue dissemination on YouTube, providing valuable insights for both media and policy research.

1. Introduction

Mass media has played an important role in the process of spreading policy agendas. However, its influence has decreased as one of the various news producers that convey policy agendas due to development of social media [1]. The media agenda represents a subset of issues covered by mass media outlets. It also reflects issues that journalists, editors, and media owners deem newsworthy and important [2]. Media agenda setting theory posits that the prominence and frequency of coverage given by the media to certain issues can influence public perception and policy agenda [1].

Social media has democratized access to information and broadened the range of voices that contribute to policy agenda [3]. In this manner, social media facilitates direct engagement among citizens, policymakers, and advocacy groups, which amplifies public opinion and mobilization effort [4]. Platforms, such as X, Facebook, and YouTube, enable real-time feedback loops in which public reactions can directly influence policy decisions [5].

Social media amplifies public agendas by enabling users to organize various issues through hashtags, viral campaigns, and online petitions. Prior to the popularity of social media, mainstream media was the major entity that produced and disseminated agendas [1], [6]. In social media, as opinions expressed by individuals receive attention (agenda of readers) and as mainstream media reports on readers' agenda (media agenda), a pattern of readers' agenda is spreading [7]. In this process, issues typically and explosively spread simultaneously instead of sequentially [8].

This scenario can rapidly elevate certain policy issues to national or international attention. Currently, policymakers monitor social media to gauge public sentiment and anticipate reactions to policy initiatives [9]. This direct engagement with public opinion can influence the formulation and implementation strategies for policy [10].

This study empirically examines dynamic changes in the policy implementation process, which was traditionally centered on mass media, since the development of social media given the coexistence of multiple news producers that address policy agendas and the changing public agendas influenced by user attention. Specifically, it focuses on the issue of increasing the number of medical schools in Korea and proposes a new model from the communication perspective for policy implementation, which modifies the existing process.

2. Theoretical Background

2.1 Policy diffusion process

The policy diffusion process consists of policy decision making and implementation, communication with the public, and evaluation of the suitability and feasibility of policies [11]. Specifically, the policy implementation process denotes step-by-step procedures in which the government decides, implements, and evaluates policies. The step model is notable for its emphasis on the procedural logic of the public decision process [12]. Various models that describe the policy implementation process use different terminologies and pose several points of emphasis. Previous research highlights the importance of effective communication among levels of government ministries and between policy makers and implementers during the policy implementation process [13]. It also highlights that policy implementation should be clear, consistent, and manageable by focusing on the nature of policy issues. Another study proposes a framework that emphasizes public support [14].

In Figure 1, agenda setting refers to the identification of which problem to address, policy formulation involves the development of policies for the selected problem, and policy selection pertains to the selection and justification of a particular policy. Policy implementation address how to put the policy into practice, while program evaluation assesses whether or not the policy can achieve its intended goals. The policy framework can be retained once issues have been resolved after evaluation, but the process can be repeated if the original policy continues to require attention [12].

This study focuses on the agenda setting stage of the policy framework, as depicted in Figure 1 [15].

Agenda Setting: Within this framework, agenda setting pertains to the process in which policy makers discuss policy agendas. During this process, the policy agenda of the government can be communicated to the public through the media, which highlights the importance of the relationship among the government, media, and public [16]. Traditional mass media has been the major channel for the conveyance of government policies during the policy implementation process for a considerable period, which provides a one-way flow of communication from policy makers to the public [17].

Policy Implementation: A crucial step in the policy cycle is policy implementation in which formalized policies are translated into actionable programs and tangible results. In this process, the media influences the success or failure of policies by serving as a conveyor of information, public discourse, and policy monitoring [18]. For example, in the formation of public awareness and behavior on environmental issues, the media can influence policy implementation through its role in the dissemination of campaigns [19, 20]. The media can aid in reaching a consensus on policies and fostering a sense of ownership among citizens, who are the beneficiaries of policies, by promoting dialogue between policy makers and the public [21].
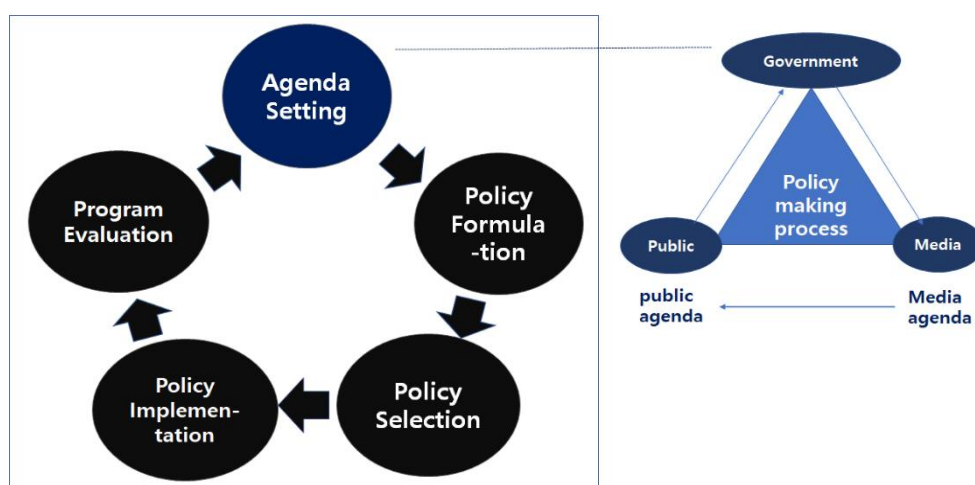
Figure 1. Policy framework stage (left) and policy agenda setting process (right)

The policy framework of McNutt and Hoefer (2021) poses the advantage of a maintaining simple and clear direction, which makes it useful for the policy formation process. However, it is unsuitable for explaining the policy formation process during the social network era, which is dynamic. The reason is that various policy-related publics actively express opinions and interact with policymakers. For example, information accessibility has

increased due to the advent of social media, such that the cycle of the setting and formation of agenda and the selection and implementation of policy simultaneously occurs instead of linearly. Public opinions related to policy issues can be actively expressed on social media [22]. Additionally, this framework unsuitable for explaining the causal relationship between steps, which makes hypothesis testing difficult, although it provides direction [12].

2.2 Diffusion model of policy issues in the social media era

Previously centered on mass media, the landscape of the policy implementation process has changed due to the emergence of social media, and it has been transformed into a dynamic, interactive, and distributed one [22]. Social media expedites the policy implementation process by enhancing the direct communication of policies, public participation, and government accountability [23].

The role of mass media, which had disseminated policy issues during the policy implementation process, has shifted to various news producers. With the increase in social media platforms, real-time interaction and feedback became possible. As such, the public, who previously received policy issues unilaterally through mass media, was enabled to acquire information on policy issues through digital social networks and to send various digital social signals [24]. The collective involvement of users, as much as those of producers who transmit and produce information, impacts the policy implementation process [25]. The evaluation of the public of policies and collective actions can now influence the successful implementation of policies [26].

Figure 2 presents a modified policy diffusion model in the social media era, which differs from the implementation process of the policy agenda that was centered on mass media. This model focuses on the policy cycle and the involvement of various news producers and users.

- **Non-linear Policy Cycle:** Social media has disrupted the traditional sequential policy cycle. Instead, agenda setting and policy formation, selection, and implementation currently occur in a fluid and overlapping manner due to real-time information exchange and public engagement [22].
- **Various News Producers:** Compared with Figure 1, the policy agenda of the government is delivered to the public through mainstream and Internet media, while the government directly announces policies through social media channels. The media environment, which was changed by digital technology and social media, presents opportunities and challenges in the policy implementation process. Digital platforms can improve the scope and speed of the spread of information, but policymakers requires strategies for immediately responding to false information and ensuring the reliability of information [27]. Individuals or organizations related to an issue occasionally produce opinions on policy issues.
- **User engagement:** It Reflecting the interest of users in policies in the policy implementation process is crucial. The policy implementation model underscores leveraging the passion and knowledge of affected actors to enhance effective policy execution [28]. Social media revolutionizes public participation by enabling citizens to voice opinions, raise issues, and directly interact with policymakers. Thus, the immediacy of social media necessitates agile and responsive decision making [22]. Moreover, it serves as a channel for government communication and enhances policy transparency through open data dissemination [29].
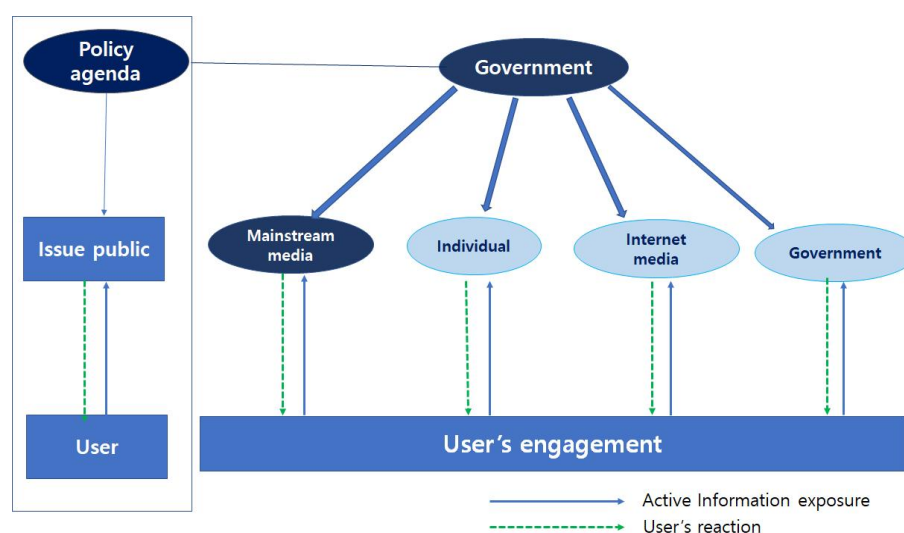

Figure 2. Social media-centered policy agenda diffusion model

Figure 2 demonstrates the transformation and implementation of public policy through social media by facilitating simultaneous processes and encouraging active public participation. The study investigates influential actors in the dissemination of policy agendas, which involves various news producers. It analyzes how these producers disseminate specific policy issues, which emphasizes their role in the process. As participants in the policy implementation of the social network era, the study validates a new policy model by examining the manner in which influential users engage with policy issues.

2.3 Nature of policy issues

Policy issues refer to social, economic, and environmental problems that governments and other organizations intend to address through government intervention or public policy [30]. Policy problems are often complex because they involve multiple interconnected factors, making them difficult to solve with simple solutions [31].

- **Value Conflicts:** Policy problems are typically complex, because they involve multiple interconnected factors, which makes solving them through simple solutions difficult [32].
- **Political Considerations:** Policy issues are frequently approached within a political context in which political factors can influence decisions [33].
- **Involvement of Various Stakeholders:** Policy issues typically involve multiple stakeholders in which each possesses diverse perspectives and interests. These differences can lead to conflict during policy implementation.

Various factors drive policy diffusion, including the political leadership of government officials, influence of political parties, economic interests, public opinion, and the effectiveness of agencies or systems for policy enforcement [14]. This aspect underscores the significant role of various actors in promoting or opposing new policies during the policy implementation process [13].

2.4 YouTube serves as a platform for creating and distributing information

Social media platforms have transformed the discussion and dissemination of policy issues. They facilitate real-time participation and serve as forums in which diverse members of the public can express opinions and demonstrate support or opposition [34]. These platforms facilitate interaction between content creators and users, which fosters increased user engagement and enables immediate feedback and discussion [35]. Neiger et al. [36] highlighted that public health organizations use social media to rapidly reach large audiences during emergencies.

YouTube is a significant platform for disseminating policy issues and plays a role in providing policy-related information to users while facilitating communication between policymakers and citizens [37]. Specifically, on YouTube, influential content creators and the platform's algorithms can shape public agendas by prioritizing specific policy-related videos [38]. The content creators studied here on YouTube help viewers understand and influence users by framing policy issues through visual and auditory elements in their video content [39].

YouTube, which is a vital platform for information sharing, altered the media dynamics by enabling diverse content creators, which includes individuals and Internet-based media, to freely provide news and information without a strict gatekeeping role such as that observed in portal sites [40]. YouTube, which hosts diverse news producers, features videos with varying degrees of quality and accuracy. Thus, a critical evaluation is crucial for the discernment of biased or low-quality information on this powerful platform for information dissemination [41]. Various news producers on YouTube produce and spread false information [42], which makes the role of media in the process of spreading false information increasingly important. In particular, similar to fake news, false information and misinformation spread across online social networks; thus, distinguishing between real and fake news has become crucial [43, 44]. For this reason, the media pays attention to pack checks. Repeated exposure to incorrect information reduces the accuracy of the beliefs of people as well as their trust in institutions such as the news media [45]. An experimental study sought to determine whether or not fact-checking helps elucidate problems to the public and found that it was similarly effective in reducing misunderstanding among people [46].

Media fact-checking also encounters challenges on social media due to the virality of disinformation and the algorithms that prioritize engagement over accuracy. Reinforcing beliefs despite corrections, the backfire effect further hinders the effectiveness of fact-checking [47].

2.5 Various news producers on YouTube

Social media has enabled diverse social organizations, even individuals who were previously overlooked as news producers, to participate in news production [48]. Individual actors can now independently create and directly distribute news and information through social media. Additionally, non-profit organizations and companies use social media channels for news production and distribution [49]. Governments also utilize social media for various purposes such as informing policies, delivering public services, collecting citizen opinions, and encouraging citizen participation in the policy-making process. As various news producers utilize social media to disseminate information, the literature has observed a significant shift in the manner of news consumption. On platforms such as YouTube, various news producers actively engage with and express interest in policy issues.

Deuze [50, 51] categorizes online journalism into four types, namely, mainstream news; index and category; meta and comment; and sharing and discussion sites. With emphases on interactivity, hypertextuality, and multimediality, the author distinguishes online journalism from traditional forms. Additionally, Deuze explores various strategies, such as annotative reporting and open-source journalism, to enhance the potential of online journalism. This typology, which is based on content and connectivity, further examines the impact of the Internet on journalism by elucidating the characteristics and potential influences of journalistic culture [50, 51].

This study is based on the classification of Deuze of online journalism and intends to assess the influence of producers of social media news on content control and user interaction. News media channels, particularly mainstream and independent Internet media, demonstrate high levels of editor control through professional news production and stringent editing systems. Established news organizations increasingly utilize YouTube to share news content to reach younger audiences and complement traditional formats [4], [51].

The lack of a professional news production system by individually operated social media channels could lead to unrestricted user expression. Given the abovementioned classification, these personal channels exhibit low levels of editor control but high levels of user involvement. In this manner, YouTube has become a pivotal platform for independent journalists and commentators in that it provides an avenue for underreported stories, on-the-ground reports, and alternative analyses that challenge mainstream narratives. Moreover, it empowers citizen journalists to share unfiltered perspectives and real-time coverage of events directly taken from various sources [42], [52].

Social media news producers are individuals or entities that create and disseminate news contents through social media platforms. This phenomenon indicates a significant shift from traditional news sources and exerts a profound effect on news production, distribution, and consumption.

In contrast to institutional media outlets, individual news producers offer unique perspectives and emotions on issues that are free from the norms of traditional news production. Their unconventional presentation of content on platforms, which differs from portal sites, may evoke distinct consumer responses. For example, previous research demonstrated that the continued exposure of subjects to news with opposing political tendencies, in fact, strengthened the existing political tendencies [52]. News on YouTube, which display uncontrolled levels of diversity compared with those of portal sites, renders users more likely to express violent reactions. Conversely, the trust of consumers in news tends to increase when the news source is clearly identified as an established media outlet. Thus, differences in user reactions may emerge on YouTube according to news producers. Against this background, the current study focuses on whether or not differences exist in user reactions dependent on news producers [53].

2.6 User engagement in social media-centered policy implementation process

This study examines the value judgments and interactions of users with news. In the social media era, a dynamic relationship exists between policy issues and user participation, which significantly transforms the engagement of individuals in and the impact of policy discussion.

- **Increased Accessibility and Engagement:** Social media platforms, such as X, Facebook, and Instagram, have decreased the barriers to participating in policy discussions. As such, users can easily access information, share opinions, and directly communicate with policymakers and other stakeholders [54].
- **Influence on Agenda Setting:** Emerging or overlooked policy issues can be highlighted by user-generated content on social media, which can influence agenda setting. Examples of such contents include hashtag campaigns, viral posts, and online petitions, which can bring attention to these issues in public and political discourses.

● **Policy Advocacy and Mobilization:** Social media facilitates policy advocacy and implementation efforts by mobilizing supporters, organizing protests, and lobbying policymakers. When necessary, this aspect includes the galvanization of opposition.

Views, comments, and recommendations characterize user engagement in YouTube, which is a key indicator of its influence on digital culture and content distribution. This form of participation highlights the popularity and extent of specific content and reflects the participatory nature of YouTube in which user interaction significantly contributes to the formation of the media environment [55, 56].

Various indicators can be used to gauge the interest of users in YouTube videos. For example, Yang et al. [56, 57] propose that the recommendation algorithm of YouTube influences user choices. In particular, the algorithm tends to recommend videos with high levels of user engagement such as those with large numbers of views, likes, and shares. Various studies report a strong correlation among views, comments, and likes. Users can assess these indicators prior to watching videos, which influences participation. Using an online survey, Khan [55] revealed the relationship between user participation motivation and involvement in YouTube and conceptualized it as active participation and passive content consumption, which is an interesting premise. The stronger the motive for entertainment, the more the users express likes and dislikes. Writing comments was closely related to the motivation for social interaction. In other words, the greater the motivation to provide information, the greater the likelihood of sharing. Lastly, the study demonstrated that reading comments is related to the motivation to seek information.

According to the abovementioned studies, user interaction with YouTube videos may trigger interest in such videos, while emotional reactions, such as the numbers of views, comments, and likes, may serve as important indicators.

2.7 Factors influencing the reactions of social media users

Aral stated that on Hype Machine, emotional expression with a storyline can lead to more active user engagement [24]. YouTube users were found to be influenced by content, such as video titles and thumbnail photos, instead of the reactions of other users when deciding to watch videos [58]. Based on these research results, we focused on the emotions expressed in video titles. Based on their perspective news producer tend to focus on topics that users are likely to be interested in, provide content, and attempt exert influence through interaction with users.

The results of studies that focused on emotions expressed in YouTube titles demonstrated that users trust the title and that the emotion in the title affect viewership ratings [59, 60]. Ntungila found that positive usernames and titles spread more widely than do negative usernames and titles on YouTube [60]. In other words, users feel more trustworthy and respond to positive titles.

Porreca, Scozzari, and Nocola conducted a YouTube study on changing sentiments toward the COVID-19 vaccine in Italy by analyzing sentiment encapsulated in video titles amid widespread information and discussion on social media [3]. The sentiments positively shifted after the vaccine campaign, which indicates that health information on social media can guide public behavior during policy implementation [61].

Previous research indicates that emotions in video titles impact user selection and behavior. The present study explores the correlation between emotions in the titles of YouTube videos and user reactions by categorizing titles as positive, negative, or neutral based on previous studies [53], [55], [57]. Specifically, we analyzed the sentiments of YouTube videos based on the presence of positive or negative words in titles.

2.8 Case description: Controversy over expansion of medical schools in Korea

Among the OECD countries, South Korea faces a shortage in doctors, especially in rural areas. The government intends to increase medical school enrollment, but critics argue that doing so may lower educational standards and fail to address the healthcare gaps in urban and rural areas. Medical associations and professors propose a collaborative approach, that is, improving the working conditions of doctors, expanding educational facilities, increasing faculty, and offering scholarships to attract more students. They emphasize that increasing medical school enrollment is vital for improving the healthcare system and ensuring public health in Korea. However, it must be thoughtfully considered to maintain quality and equity. However, addressing various concerns requires better communication and a policy approach that prioritizes public health and safety [62].

2.9 Research Question

[News producers, issues, and user engagement]
RQ1-1: Who are the influential news producers related to the controversy over the expansion of medical schools?
RQ1-2: What are the major issues related to the controversy over the expansion of medical schools?
RQ1-3: What are the sentiments of the headlines of YouTube videos related to the controversy over the expansion of medical schools

[Sentiment of news producers, public, issues, video headlines]
RQ2-1: Is there a difference in the news producers who exert influence on the expansion of medical schools in the process of developing policy issues?
RQ2-2: Do differences exist in the major issues related to increasing the number of medical schools in the process of developing policy issues?
RQ2-3: Do differences exist in the sentiments expressed in the headlines of YouTube videos regarding the expansion of medical schools with the development of policy issues?

[User reactions by news producer and issue]
RQ3-1: Do differences exist in user responses for each major issue related to the expansion of medical schools?

3. Materials and Methods: The Need for a New Approach for Various News Producers in Social Media

3.1 Development process of the issue

This study examined changes in the behavior of the public after the announcement of the South Korean government to increase medical school seats by 2,000. It divided the issue into two periods: before and after the announcement. The first period (from March 5 to March 19) witnessed a collective action by doctors. The second period (from March 20 to April 10) included the official announcement of the additional 2,000 seats. The study excluded data after April 11, due to the lack of new issues, while legislative conflict continued. The key events in the third period include the acceptance of the arbitration plan of the government' (April 19), the request of the Seoul High Court for data (April 30), and the rejection of the suspension of the expansion of medical schools (May 16). This scope was deemed sufficient for comprehensively explaining the issue.

3.2 Data collection methods

We used NodeXL to collect YouTube videos related to the expansion of medical schools. NodeXL is a program capable of collecting social media data from platforms such as YouTube, X, and Instagram [63]. The search term used was "medical school increase (의대 증원)," with a set collection target of 300 videos, and specific conditions were applied to extract highly relevant videos during the designated search periods. To ensure topical relevance, the data collection applied search conditions that targeted videos directly related to the expansion of medical schools. Only videos that explicitly addressed the policy discussion in their titles, descriptions, or tags were included in the dataset. Table 1 provides the properties of the network collected under these conditions. A total of 262, 264, and 296 videos were collected during the three periods, respectively.

3.3 Topics related to medical school expansion

Based on the content of YouTube videos, the study derived topics related to medical school expansion. Specifically, the topics were classified as academic affairs, medical vacancies, conflicts over policy, and changes in entrance exams such as promotion/allocation/application for expansion, medical gap measures, medical reform, legal complaints/license suspension, opposition group action, and postponement of semester start. Table 1 shows headline frame classification and coding standards related to your context (e.g., medical education gaps, collective backlash, or protests).

Table 1. Examples of frame in the headlines of YouTube videos

Frame	Example	Coding guideline
academic affairs	Government announces plan to increase medical school enrollment	Including terms such as confirmation application, step by step
medical vacancies	Policies introduced to reduce the medical gap between regions	Regional medical gaps, resolve the gap, and essential medical

changes in entrance exams	Medical school admissions to follow new exam rules	SAT, Reorganization of Admission, Garden Allocation Related
conflicts over policy	Ruling and opposition parties clash over medical reform bill	National Assembly, Conflict, Pass the bill
medical reform	Government seeks comprehensive reform of the medical system	In the case of the medical system reform in the context of medical system reform or health policy change.
legal complaints/license suspension	Opposition lawmakers file complaint against the health minister	Social, legal response, cancellation of license, discipline
opposition group action	Doctors collectively resign to protest the expansion policy	If collective backlash, protests, and strikes of doctors or related organizations. Are included
postponement of semester starts	Bachelor's degree holders face widening gap with medical graduates	If the gap between undergraduate and medical curriculum, and emphasize the educational gap between medical schools are included

3.4 YouTube video headline sentiment

Sentiments in the headlines of YouTube videos were categorized into positive, negative, and neutral. Emotional analysis was conducted at the sentence level. To compare the average sentiments across periods, sentiments were coded. In the first column in Table 1, negative denotes the use of expressions that convey unfavorable feelings and takes a value of 1. Neutral signifies reporting based on factual information without emotional expression and takes a value of 2. Meanwhile, positive indicates the use of expressions that convey favorable feelings toward the expansion of medical schools in the headlines and takes a value of 3. A high score out of 3 suggests a positive sentiment.

Table 2. Examples of sentiments in the headlines of YouTube videos

Sentiment	Example
Positive	Rental sales are all booming due to expansion of medical school quota, Seoul National University is an open door
Negative	Medical school education crisis, unreasonable expansion of quota,
	Medical school education crisis, unreasonable expansion of quota, Threats of license suspension, imminent catastrophe, foggy start date, increased number of medical schools without a solution, lawyer throwing a tantrum (at Vice Minister Park Min-soo's remarks)
	A chilling prediction of increased medical schools? YouTubers busy praising the expansion of medical schools, medical malpractice
Neutral	Distribution of 2,000 medical school students revealed today, meeting with representative of residents for 2 hours and 20 minutes

3.5 Content Analysis

Headline topics and their corresponding frames were identified through content analysis in a systematic and deductive manner, allowing for consistent classification based on predefined coding criteria. Two researchers Two researchers conducted a preliminary study from May 18 to May 21, 2024. After considering the results, the main study was conducted from May 26 to May 30, 2024. Intercoder reliability was measured using Holsti's coefficient with a reliability of .85 for topic and .80 for sentiment

3.6 YouTube

Although NodeXL allows data collection from multiple platforms, this study focuses solely on YouTube for two main reasons. First, YouTube has become a dominant platform in Korea for disseminating and debating policy issues, such as the expansion of medical schools, and it provides a rich context for examining user engagement through views, likes, and comments. Second, YouTube's distinctive features—its video-based format and algorithmic recommendation system—play a crucial role in shaping public discourse. These characteristics make YouTube particularly suitable for analyzing the dynamics of issue diffusion, as they influence not only how information is delivered but also how it spreads within society. Thus, YouTube aligns closely with the study's objectives and analytical framework.

4. Results

4.1 News producers, issues, and user involvement related to the controversy over medical school expansion

Figure 3 presents the results of the analysis of influential entities, key issues, and user reactions in the process of the social media-centered policy implementation regarding the expansion of medical schools. For media influence, broadcast videos ranked highest at 70.2% followed by personal videos at 13.7% and local broadcasts at 9.2%. In social media, individual and local broadcasters actively covered the news apart from national broadcasters. The study also noted various news producers, including the government promoting the expansion and entrance exam academies.

The analysis of issues related to medical school expansion revealed that the most prevalent concern was the intent of the government to increase seats in medical schools by 25.3% followed by opposition from medical school professors (22.1%). Other significant issues included government measures for addressing medical shortages (11%) and conflicts between doctors and the government (9%).

In terms of user engagement with these issues, analysis was conducted on the number of views and revealed that medical gap reached the highest level of involvement followed by legal complaints from the government and collective action against it.
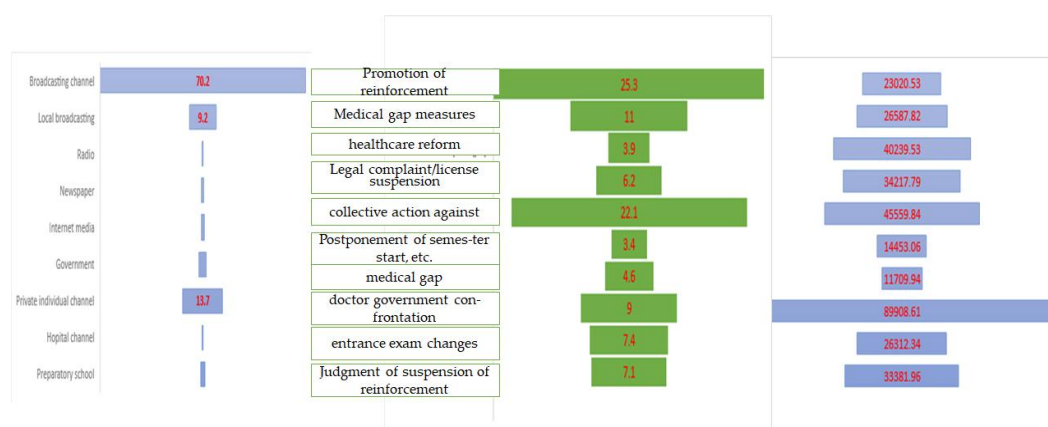
Figure 3. Major news producers (left), issues (medium), and user engagement (right) related to the controversy over medical school expansion

4.2 Sentiment analysis of news producers, public, issues, and video headlines according to the development of the issue on medical school expansion

4.2.1 Comparison of news producers

Analysis focused on the degrees of attention received by various news producers on social media in the process of spreading the issue of medical school expansion. Figure 4 depicts that broadcasting was the most popular (70.2%) followed by individuals (13.7%) and local broadcasting (9.2%) across the periods. In addition, videos from various news producers, including the government, entrance exam institutes, and Internet media and those related to security issues in medical schools, received attention. The study observed differences in news producers at each stage of the spread of the issue on medical school expansion, which were statistically significant ($\chi 2 = 31.889$, df = 16, $p < .05$).

Comparing news producers by period, the number of broadcasting videos increased with the development in the issues (first period: 65.5%, second period: 68.8%, third period: 76.3%). In comparison, personal channels and local broadcasting demonstrated a decrease in videos. The number of videos provided by entrance exam academies also increased with the increase in the number of medical schools. The results that broadcasts accounted for 70.2% of all YouTube videos

illustrates that mainstream media continues to play an important role as a provider of information on policy issues such as increasing enrollees in medical schools. The fact that the number of videos on personal channels and local broadcasting decreased as the issue unfolded can be interpreted as a phenomenon that occurred as YouTube users sought other reliable sources of information on important policy issues. In comparison, the increase in the number of videos from entrance exam academies indicate that increasing the number of enrollees in medical schools is an important concern related to entrance exams.
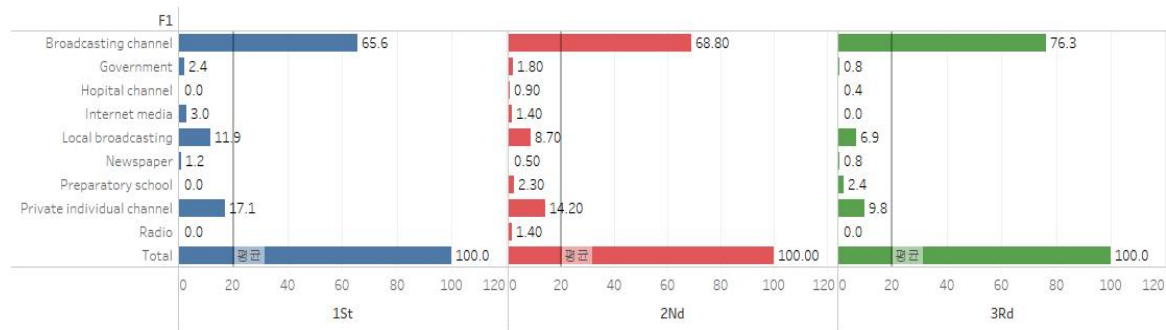
Figure 4. Comparison of number of news producer videos by period

4.2.2 Thematic cross-tabulation results

As the important policy issue of medical school expansion spreads on social media, we cross-analyzed the topic and which contents were disseminated. Figure 5 indicates that among the topics related to medical school expansion, those related to the "execution of expansion," such as the expansion promotion, allocation, and adjustment of the government and applications from local medical schools, were the most common ones (25.3%). Opposing collective actions, such as the mass resignation of medical school professors, accounted for 22.1%. Except for the fact that the push for increased troops and the collective action against it received similar attention, only a few issues stood out. In detail, the measures of the government for medical gaps, conflict over legislation, changes in entrance exams, legal decisions to increase staff, and legal complaint/license suspension reached 11.0%, 9.0%, 7.4%, 7.1%, and 6.2%, respectively. Issues, such as the medical gap due to conflicts between the government and doctors, improvement of the essential medical system, medical reform (e.g., public medical care), and academic disruption were overlooked as issues that could stem from the expansion of medical schools. No attention was given to the issue of patient harm that emerged in a previous public analysis. This difference was statistically significant ($\chi 2 = 218.297$, df = 18, $p < .001$).

The implementation of the increase in medical troop and collective action against it aroused the greatest controversy and interest in which the driving force of the policy and resistance to it emerged as major issues. This scenario demonstrates that they are at the center of the social conflict. In particular, the study observed that important issues, such as patient harm, improvement of the essential medical system, and public health reform, did not receive attention, which is a serious problem.
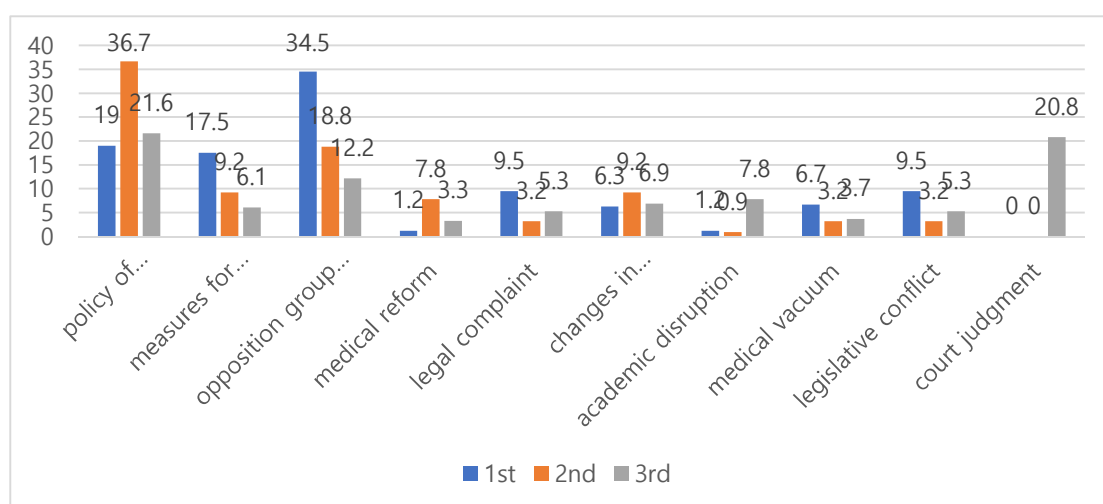
Figure 5. Comparison of issues by period

4.2.3 Results of average sentiment analysis of video headlines

As The average for all videos was 1.78. Figure 6 indicates that the issue that obtained a was higher sentiment value than the average was the change in entrance exams (2.02 points) followed by the policy to increase the number of students (1.94 points). In comparison, the sentiment value of videos related to medical gaps reached 1.27, which was lower than the average. A potential explanation for this result is that the issue of medical gaps is being addressed from a negative perspective. The sentiment value of videos related to legislative conflict was also lower than the average (1.56). Evidently, the conflict between doctors and the government was negatively reported. The sentiment value of videos related to opposing collective action was 1.67 points, which was also lower than the average, which can be interpreted as a negative contextualization of the voices of those that oppose the policy.
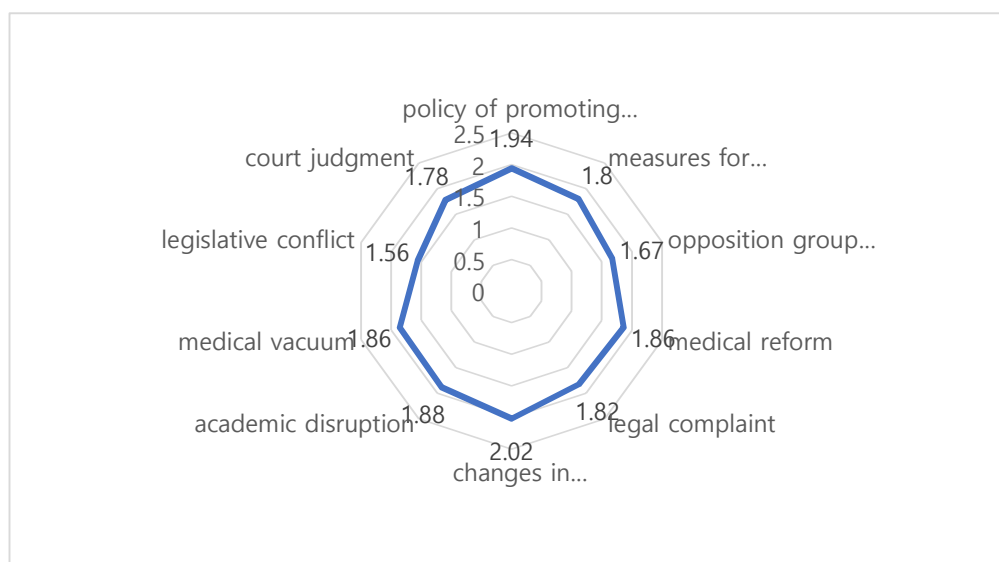
Figure 6. Comparison of average sentiment values of video headlines by issue related to medical school expansion

4.3 Analysis results of user responses by detailed topic related to medical school expansion

Figure 7 reveals that users displayed the greatest interest in the medical gap issue. The average number of views for related videos was the highest at 89,908.61 followed by those for opposing group actions such as government legal complaints and doctors' leave of absence. This result was followed by user reactions to the medical reform of the government and the legal judgment of the court. The average number of views for government policies, such as medical gap measures, policy to increase staff, and confrontation over legislation, were at a similar level. Conversely, changes in entrance exams and academic disruptions at universities obtained the highest average number of views. The number of likes was highest for medical gap at 2,608.33 followed by court judgment and group action against it at similarly high levels. The average number of views on the policy of the government to increase personnel was high. In terms of number of comments, medical gap obtained the most number at 546.97 followed by opposing group action with an average of 418.54 and legal complaints at 321.09. Users were actively involved in the medical gap issue and displayed interest in doctors' opposition group actions and the complaint of medical residents against the government.

Through analysis of user responses for each issue in medical school expansion, users demonstrated increased interest and participation in more in issues, which could directly impact their lives. The large number of views and participation in topics, such as medical gap, can be interpreted as users actually feeling the real impact. These results are useful for explaining user involvement according to the nature of issues in political communication research.

Figure 7. Average user response by agenda type (left: number of views, middle: likes, right: comments)

5. Discussion

The results provide important insights into the understanding of the role of various news producers and the patterns of change in the process of the dissemination of important social issues such as the issue of medical school expansion in Kora. Broadcasting continues to serve as a key information provider, and its importance increases as issues develop. Conversely, personal channels and local broadcasting received relatively less attention, but specialized information providers, such as entrance exam academies, received more attention.

With the development in issues, the change in the proportion of news producers reflects changes in the patterns of information consumption. In the early stages of an issue, information can be derived from various sources; however, as the issue develops and becomes increasingly significant, the public focuses on other reliable sources. This scenario illustrates that the information consumption behavior of the public varies according to the importance and credibility of issues.

Moreover, policy implementation and opposition actions emerged as major issues, whereas important detailed issues received relatively less attention. In particular, the fact that important issues, such as patient harm, have been overlooked points to an imbalance in policy discussions. This result emphasizes the need for balanced discussions that include diverse perspectives and highlight the important role of the media and the public.

Changes in the sentiments expressed in the headlines of videos related to the expansion of medical school admission gradually led to a gradual decrease in initial emotional reactions and an increase in neutral perspectives. In other words, news producers objectively deliver information, which enables readers to make judgments about the issue. can help you do it.

Sentiments expressed in the headlines of YouTube videos differ dependent on the issues related to medical school expansion. Headlines that emphasize positive emotions are mainly related to the expected effects of the policy, while those that highlight negative emotions are related to policy problems or conflict situations.

The emotional responses expressed by users through likes and comments indicate interest and emotional commitment to the issue, which implies that emotional responses play an important role in the participation of the public in the issue and the dissemination of information.

Figure 8 presents a social media-centered model for policy issue diffusion, which was modified on the basis of the analysis of various news producers, issues, and user responses. Unlike models that assume a unidirectional flow of information, the proposed model emphasizes the multifaceted interactions between news producers and users, illustrating a dynamic feedback structure in which issue salience and public perception are shaped. The policy agenda of the government regarding policy issues is spread through the government, media, individuals, and the public. In the process of information dissemination, media agendas that receive media attention and public agendas emphasized by the public on issues coexist. Users, who are the beneficiaries of policies, actively respond to topics of interest and send feedback to policy makers.

The social media-centered model of policy diffusion reflects a decentralized and interactive approach for spreading policy agendas. In this model, the policy messages of the government are shared through not only official channels but also various social media platforms such as Facebook, X, YouTube, and online forums. In this model, media agendas that attract attention from social media users and public agendas that gain traction through grassroots movements or viral contents coexist and dynamically interact.
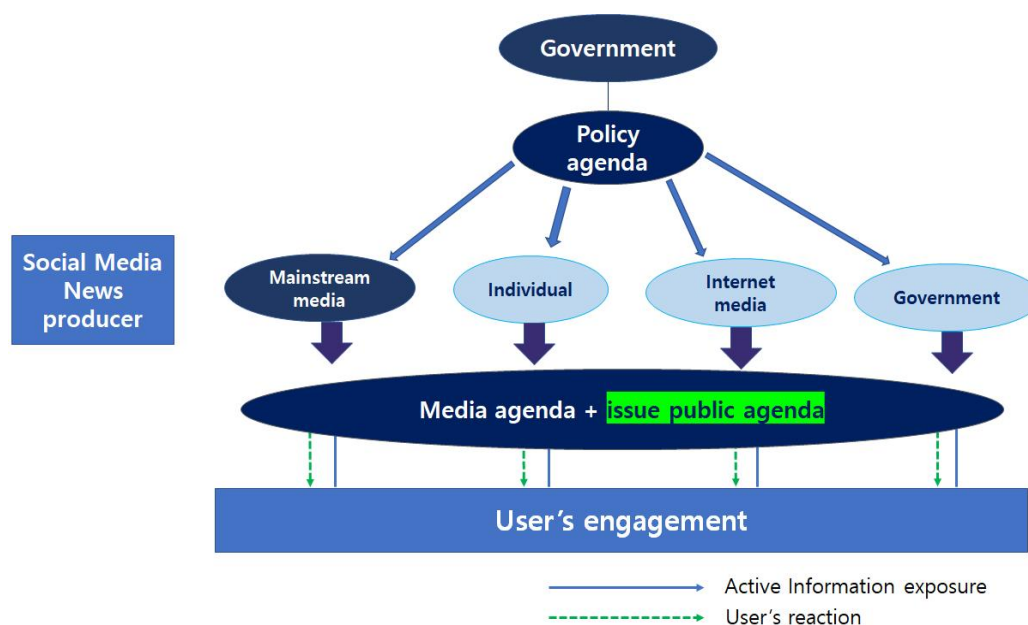
Figure 8. Model for correcting the spread of policy issues centered on social media

6. Conclusions

From the practical perspective, the government and policy makers can promote policies more effectively by understanding user reactions to practical issues such as the medical gap. In terms of increasing the number of medical schools, a message strategy that is clear and emotionally appealing can be designed for topics that arouse the interest of users.

Users, who are the direct beneficiaries of these policies, actively engage with and respond to topics of interest on social media. They share opinions, concerns, and experiences, which can influence public discourse and form policy outcomes. Feedback from users on social media platforms provides policymakers with real-time insights into public sentiments and preferences, which potentially influences policy adjustment or implementation.

The mass media-centered model emphasizes centralized communication and authority, while the social media-centered model highlights decentralized interaction, public engagement, and the potential for the rapid and widespread dissemination of policy-related information and sentiment.

This result highlights the evolving role of various news producers in disseminating significant social issues such as medical school expansion. Although traditional broadcasting remains a vital source of information, specialized providers, such as entrance exam academies, gain attention as issues continue. Early-stage issues have diverse sources of information, but public reliance shifts to other credible sources as issues mature. Emotional reactions expressed in news headlines decrease over time with the increase in neutral reporting, which aids objective public judgment. Emotional engagement through interaction in social media underscores the role of sentiment in issue participation and information dissemination. The findings advocate for balanced discussions that incorporate multiple perspectives and illustrate a decentralized, interactive model of policy diffusion in the digital age. Although only YouTube headlines were analyzed, the study's approach—using frame analysis and sentiment analysis—can inform the generalization of future research that includes full video content.

References

[1] J. T. Feezell, "Agenda setting through social media: the importance of incidental news exposure and social filtering in the digital era," Pol. Res. Q., vol. 71, no. 2, pp. 482-494, 2018, doi: https://doi.org/10.1177/1065912917744895.

[2] D. L. Protess and M. Mccombs, Agenda Setting: Readings on Media, Public Opinion, and Policymaking, Routledge, London, 2016, doi: https://doi.org/10.4324/9781315538389.

[3] A. Muna and A. Ausat, "The role of social media in shaping public opinion and its influence on economic decisions," technology and society, Perspectives (TACIT). vol. 1, no. 1, pp. 35-44, 2023, doi: https://doi.org/10.61100/tacit.v1i1.37.

[4] A. M. Alodat, L. F. Al-Qora'n, and M. Abu Hamoud, "Social media platforms and political participation: A study of Jordanian youth engagement," Soc. Sci., vol. 12, no. 7, p. 402, 2023, doi: https://doi.org/10.3390/socsci12070402.

[5] H. Shahbaznezhad, R. Dolan, and M. Rashidirad, "the role of social media content format and platform in users' engagement behavior," J. Interact. Mark., vol. 53, no. 1, pp. 47-65, 2021, https://doi.org/10.1016/j.intmar.2020.05.001.

[6] N. Nweman, The rise of Social Media and Its Impact on Mainstream Journalism, Reuters Institute for the Study of Journalism, Oxford, 2009. [Online] Available: https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2017-11/The%20rise%20of%20social%20media%20and%20its%20impact%20on%20mainstream%20journalism.pdf?utm_source=chatgpt.com

[7] K. C. Ng, J. Tang, and D. Lee, "The effect of platform intervention policies on fake news dissemination and survival: an empirical examination," J. Manag. Inf. Syst., vol. 38, no. 4, pp. 898-930, 2021, doi: https://doi.org/10.1080/07421222.2021.1990612.

[8] Korea Press Foundation, Korea Press Foundation Social Media User Survey, Korea Press Foundation, Seoul, Korea, pp. 78-79, 2021. [Online] Available: https://www.kpf.or.kr/front/research/consumerDetail.do?miv_pageNo=&miv_pageSize=&total_cnt=&LISTOP=&mode=W&seq=592324&link_g_topmenu_id=676f2f0f377b4b19840685a46f69a233&link_g_submenu_id=f193a96c92284493b56f35b5f0eb15e3&link_g_homepage=F&reg_stadt=&reg_enddt=&searchkey=all1&searchtxt=

[9] A. CeronFedra and N. Negri, "Public policy and social media: how sentiment analysis can support policy-makers across the policy cycle," Riv. Ital. Politiche Pubbliche., vol. 10, pp. 309-338, 2015, doi: https://doi.org/10.1483/81600.

[10] T. Nabatchi and L. B. Amsler, "Direct public engagement in Local Government," Am. Rev. Public Admin., vol. 44, no. 4_suppl, pp. 63S-88S, 2014, doi: https://doi.org/10.1177/0275074013519702.

[11] F. S. Berry and W. D. Berry, Innovation and diffusion models in policy research, in: C. M. Weible and P. A. Sabatier, (Eds.), Theories of the Policy Process, fourth ed., Westview Press, Boulder, pp. 253-297, 2018.

[12] R. Hoefer, "The surprising usefulness of the policy stages framework," J. Policy Pract. Res., vol. 2, pp. 141-145, 2021, doi: https://doi.org/10.1007/s42972-021-00041-2.

[13] C. R. Shipan and C. Volden, "The mechanisms of policy diffusion," Am. J. Pol. Sci., vol. 52, no. 4, pp. 840-857, 2008, doi: https://doi.org/10.1111/j.1540-5907.2008.00346.x.

[14] P. S. Tolbert and L. G. Zucker, "Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform, 1880-1935," Admin. Sci. Q., vol. 28, no. 1, pp. 22-39, 1983, doi: https://doi.org/10.2307/2392383.

[15] J. McNutt and R. Hoefer, Social Welfare Policy: Responding to a Changing World, second ed., Oxford University Press, Oxford, 2021.

[16] S. N. Soroka, "Issue attributes and agenda-setting by media, the public, and policymakers in Canada," Int. J. Public Opin. Res., vol. 14, no. 3, pp. 264-285, 2002, doi: https://doi.org/10.1093/ijpor/14.3.264.

[17] T. E. Cook, Governing with the News: the News Media as a Political Institution, second ed., The University of Chicago, Chicago, 2005.

[18] E. F. Fowler, L. M. Baum, C. L. Barry, J. Niederdeppe, and S. E. Gollust, "Media messages and perceptions of the affordable care act during the early phase of implementation," J. Health Pol. Policy Law, vol. 42, no. 1, pp. 167-195, 2017, doi: https://doi.org/10.1215/03616878-3702806.

[19] I. Vrselja, M. Pandžić, M. L. Rihtarić, and M. Ojala, "Media exposure to climate change information and pro-environmental behavior: the role of climate change risk judgment," BMC Psychol, vol. 12, p. 262, 2024, doi: https://doi.org/10.1186/s40359-024-01771-0.

[20] M. A. Wakefield, B. Loken, and R. C. Hornik, "use of mass media campaigns to change health behaviour," Lancet, vol. 376, no. 9748, pp. 1261-1271, 2010, doi: https://doi.org/10.1016/S0140-6736(10)60809-4.

[21] Eiropean Partnetship For Democracy, Sense and sensibility: the role of policy dialogue in the EU's new global agenda, 2021. [Online] Available: https://epd.eu/content/uploads/2023/08/Sense-and-sensibility-the-role-of-policy-dialogue-in-the-EUs-new-global-agenda.pdf

[22] M. Cardoso and R. Pereira, "Social media and the evolving dynamics of public policy formation and implementation," Policy Internet. vol. 7, pp. 265-280, 2015, doi: https://doi.org/10.1002/poi3.100.

[23] R. Effing, J. van Hillegersberg, and T. Huibers, "Socialmedia and political participation: are Facebook, X and YouTube democratizing our political systems?," in: Electronic Participation: Third IFIP WG 8.5 International Conference, ePart 2011, Delft, The Netherlands, August 29–September 1, 2011. Proceedings 3, Springer, Berlin, 2011.

[24] S. Aral, The End of Reality, In The Hype Machine, Penguin Random House L I, C., New York, 2020, in: S. S. Um, (Ed.), in Korean, Sa, & Parkers: Seoul, Korea, pp. 79-97, 2022.

[25] I. Mergel, "Social media and citizen engagement in public policy implementation," Public Admin. Rev., vol. 73, pp. 889-898, 2013, doi: https://doi.org/10.5772/intechopen.70982.

[26] M. Selepe, "The evaluation of public policy implementation failures and possible solutions," EUREKA, vol. 1, pp. 43-53, 2023, doi: https://doi.org/10.21303/2504-5571.2023.002736.

[27] S. Vosoughi, D. Roy, and S. Aral, "The spread of true and false news online," Science. vol. 359, no. 6380, pp. 1146-1151, 2018, doi: https://doi.org/10.1126/science.aap9559.

[28] D. V. McQueen, W. Wismar, V. Lin, C. M. Jones, and M. Davies, Intersectoral governance for health in all policies, World Health Organization European Observatory on Health Systems and Policies, 2012. [Online] Available: https://www.researchgate.net/publication/263672621_Intersectoral_Governance_for_Health_in_All_Policies_Structures_actions_and_experiences

[29] J. C. Bertot, P. T. Jaeger, and J. M. Grimes, "Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies," Gov. Inf. Q. vol. 27, no. 3, pp. 264-271, 2010, doi: https://doi.org/10.1016/j.giq.2010.03.001.

[30] D. A. Stone, "Causal Stories and the Formation of Policy Agendas," Political Science Quarterly. vol. 104, pp. 281-300, 1989, doi: https://doi.org/10.2307/2151589.

[31] D. Stone, Policy Paradox: The Art of Political Decision Making, third ed., W.W. Norton & Company, New York, 2012.

[32] N. Goyal and K. Iychettira, "Value Change, Value Conflict, and Policy Innovation: Understanding the Opposition to the Market-Based Economic Dispatch of Electricity Scheme in India Using the Multiple Streams Framework," Sci Eng Ethics., vol. 28, no. 58, 2022, doi: https://doi.org/10.1007/s11948-022-00402-4.

[33] M. Hill, The Public Policy Process, Fourth Edition, Pearson Education Limited, 2005. [Online] Available: http://lib.ysu.am/disciplines_bk/b60d14445b7c7786d4d18b094cdde87f.pdf

[34] D. M. Boyd and N. B. Ellison, "Social network sites: definition, history, and scholarship," J. Comput. Mediated Commun., vol. 13, no. 1, pp. 210-230, 2007, doi: https://doi.org/10.1111/j.1083-6101.2007.00393.x.

[35] A. M. Kaplan and M. Haenlein, "Users of the world, unite! The challenges and opportunities of Social Media," Bus. Horiz. vol. 53, no. 1, pp. 59-68, 2010, doi: https://doi.org/10.1016/j.bushor.2009.09.003.

[36] B. L. Neiger, R. Thackeray, S. A. Van Wagenen, C. L. Hanson, J. H. West, M. D. Barnes, and M. C. Fagen, "Use of social media in health promotion: Purposes, key performance indicators, and evaluation metrics," Health Promot. Pract., vol. 13, no. 2, pp. 159-164, 2012, doi: https://doi.org/10.1177/1524839911433467.

[37] J. van Dijck, The culture of connectivity: A critical history of social media, Oxford University Press, 2013.

[38] S.W. Oh and H.Y. Song, YouTube Recommendation Algorithm and Journalism, Korea Press Foundation, Korea, 2019. [Online] Available: https://www.kpf.or.kr/front/research/selfDetail.do?miv_pageNo=6&miv_pageSize=&total_cnt=&LISTOP=&mode=W&seq=575347&link_g_topmenu_id=676f2f0f377b4b19840685a46f69a233&link_g_submenu_id=a36215d6b1b6484eaa30d9aea34fb199&link_g_homepage=F&reg_stadt=&reg_enddt=&searchkey=all1&searchtxt=

[39] H. Jenkins, S. Ford, and J. Green, Spreadable Media: Creating Value and Meaning in a Networked Culture, New York University Press, New York, 2013.

[40] S. Peña-Fernández, K. M. Ayerdi, F. Zamith, and D. P. Graell, News in the Hybrid Media System, University of the Basque Country (UPV/EHU), Spain, 2023.

[41] W. Osman, F. Mohamed, M. Elhassan, and A. Shoufan, "Is YouTube a reliable source of health-related information? A systematic review," BMC Med. Educ., vol. 22, p. 382, 2022, doi: https://doi.org/10.1186/s12909-022-03446-z.

[42] G. Storking, V. K. Patrick, M. Barthel, M. A. Arthel, and M. Khuzam, A closer look at the channels producing news on YouTube – and the videos themselves, Pew Research Center, Washington DC, 2020. [Online] Available: https://www.pewresearch.org/journalism/2020/09/28/a-closer-look-at-the-channels-producing-news-on-youtube-and-the-videos-themselves/

[43] E. Aïmeur, S. Amri, and G. Brassard, "Fake news, disinformation and misinformation in social media: a review," Soc. Netw. Anal. Min., vol. 13, p. 30, 2023, doi: https://doi.org/10.1007/s13278-023-01028-5.

[44] J. Li and X. Chang, "combating misinformation by sharing the truth: a study on the spread of fact-checks on social media," Inf. Syst. Front. vol. 25, pp. 1479-1493, 2022, doi: https://doi.org/10.1007/s10796-022-10296-z.

[45] D. M. J. Lazer, M. A. Baum, Y. Benkler, A. J. Berinsky, K. M. Greenhill, F. Menczer, M. J. Metzger, B. Nyhan, G. Pennycook, D. Rothschild, M. Schudson, S. A. Sloman, C. R. Sunstein, E. A. Thorson, D. J. Watts, and J. L. Zittrain, "The science of fake news," Science, vol. 359, no. 6380, pp. 1094-1096, 2018, doi: https://doi.org/10.1126/science.aao2998.

[46] A. Zubiaga, A. Aker, K. Bontcheva, M. Liakata, and R. Procter, "Detection and resolution of rumours in social media: A survey," A.C.M. Comput. Surv., vol. 51, no. 2, pp. 1-36, 2019, doi: https://doi.org/10.1145/3161603.

[47] I. Bachmann and S. Valenzuela, "Studying the downstream effects of fact-checking on social media: experiments on correction formats, belief accuracy, and media trust," Soc. Media Soc., vol. 9, no. 2, 79694, 2023, doi: https://doi.org/10.1177/20563051231179694.

[48] J. Hong, "Network analysis of news spread on YouTube in Korea: focus on the death of Kim Jong-un," Int. J. Contents, vol. 20, no. 2, pp. 8-21, 2024, doi: https://doi.org/10.5392/IJoC.2024.20.2.008.

[49] J. Pulizzi, "The rise of storytelling as the new marketing," Publ. Res. Q., vol. 28, pp. 116-123, 2012, doi: https://doi.org/10.1007/s12109-012-9264-5.

[50] M. Deuze, "Online journalism: modelling the first generation of news media on the World Wide Web," First Monday, vol. 6, no. 10, 2001, doi: https://doi.org/10.5210/fm.v6i10.893.

[51] M. Deuze, "the web and its journalisms: considering the consequences of different types of news media online," New Media Soc. vol. 5, no. 2, pp. 203-230, 2003, doi: https://doi.org/10.1177/1461444803005002004.

[52] C. A. Bail, L. P. Argyle, T. W. Brown, J. P. Bumpus, H. Chen, M. B. F. Hunzaker, J. Lee, M. Mann, F. Merhout, and A. Volfovsky, "Exposure to opposing views on social media can increase political polarization," Proc. Natl. Acad. Sci. U. S. A., vol. 115, no. 37, pp. 9216-9221, 2018, doi: https://doi.org/10.1073/pnas.1804840115.

[53] G. Pennycook and D. G. Rand, "fighting misinformation on social media using crowdsourced judgments of news source quality," Proc. Natl. Acad. Sci. U. S. A., vol. 116, no. 7, pp. 2521-2526, 2019, doi: https://doi.org/10.1073/pnas.1806781116.

[54] J. Leavey, Social media and public policy: what is the evidence?, 2013. [Online] Available: https://apo.org.au/sites/default/files/resource-files/2013-09/apo-nid35864.pdf

[55] M. L. Khan, "Social media engagement: what motivates user participation and consumption on YouTube?," Comput. Hum. Behav., vol. 66, pp. 236-247, 2017, doi: https://doi.org/10.1016/j.chb.2016.09.024.

[56] G. Chatzopoulou, C. Sheng, and M. Faloutsos, "A first step towards understanding popularity in YouTube," in: 2010 INFOCOM IEEE Conference on Computer Communications Workshops, pp. 1-6, 2010, doi: https://doi.org/10.1109/INFCOMW.2010.5466701.

[57] S. Yang, D. Brossard, D. A. Scheufele, and M. A. Xenos, "The science of YouTube: what factors influence user engagement with online science videos?," PLOS ONE. vol. 17, no. 5, e0267697, 2022, doi: https://doi.org/10.1371/journal.pone.0267697.

[58] D. Foster, Factors Influencing the Popularity of Videos and Users' Decisions to Watch [doctoral thesis], University of Wolverhampton, Wolverhampton, 2020. [Online] Available: http://hdl.handle.net/2436/623742

[59] A. Porreca, F. Scozzari, and M. Di Nicola, "using text mining and sentiment analysis to analyze YouTube Italian videos concerning vaccination," BMC Public Health. vol. 20, p. 259, 2020, doi: https://doi.org/10.1186/s12889-020-8342-4.

[60] J. Ntungila, Sentiment analysis of social media usernames and titles on YouTube and twitch [Master's thesis], Medium, 2021. [Online] Available: https://www.researchgate.net/publication/356377410

[61] A. Porreca, F. Scozzari, and M. Di Nicola, "using text mining and sentiment analysis to analyze YouTube Italian videos concerning vaccination," BMC Public Health, vol. 20, p. 259, 2020, doi: https://doi.org/10.1186/s12889-020-8342-4.

[62] Dailyan, The Korean Medical Association announces a request that includes 're-discussion of increasing the number of medical schools'… "If accepted, vote to hold off on 18-day mass closure", Dailyan, 2024. [Online] Available: https://www.dailian.co.kr/news/view/1372299/?sc=Naver

[63] D. Hansen, B. Shneider, and M. A. Smith, Analyzing Social Media Networks with NodeXL: Insights from a Connected World, first ed., Morgan Kaufmann, Massachusetts, 2010.