



# Dominant voices in the time of a global disaster: Representation of science in online news reportage of the COVID-19 pandemic

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## ABSTRACT

With regard to global health crises, such as the current COVID-19 pandemic, when reliance on scientific information is crucial, it would be interesting to establish how much “voice” or space is given to scientists and their opinions or information in science news stories, which are the public’s main source of information. Anchored on Nisbet’s (2009) news framing theory, Goldemberg’s (1998) roles of science, and Druckman and Parkin’s (2005) measurement of space, this paper aims to analyse the coverage of two online news portals – *CNN Philippines* and *CNN International* – to uncover the news frames, roles of science, and dominant voices found in science news articles published from January to May 2020. The study analysed a total of 40 science news articles and identified their overarching messages, implied roles of science and spaces provided for attributions. Both news portal differed in terms of framing and portrayed roles of science; *CNN Philippines’* science news articles were generally framed as calls for precaution and directed at being involved in government while *CNN International’s* articles generally conveyed scientific uncertainty with the purpose of informing and educating. However, both news portals provided substantial space in their science news article for the voices of scientists and experts.

Keywords: **Science communication, COVID-19, pandemic, science news, news framing, attributions**

## INTRODUCTION

The importance of communicating science in addressing and controlling public health issues such as outbreaks is irrefutable. Recognising this, the World Health Organization (WHO) (2005) as the foremost international agency for public health leads in the development and dissemination of communication guidelines focused on building trust, providing early announcements, being transparent as well as enhancing public understanding and awareness. These aspirations were once again put to the test when at the end of 2019, the first outbreak of a novel coronavirus occurred in Wuhan, China.

This new coronavirus was later officially named by WHO as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease caused by the virus as coronavirus disease-2019 (COVID-19). The outbreak caught people and governments off-guard. What started as a mysterious health crisis in China later escalated into a global pandemic. Many countries closed their national borders and placed their cities on lockdown, but despite the measures, the number of infected aggressively rose. This resulted in chaos, fear, and devastating economic effects to various nations including the global superpowers.

In times like these, the media plays a vital role in disseminating reliable information such as government advisories, updates from health agencies, and other relevant information related to the control and management of the outbreak. However, this elaborate effort is often complicated by the proliferation of “fake news” – deliberate and targeted false claims guised as conventional news stories (Gelfert, 2018). The proliferation of mis/disinformation makes scientific information vulnerable and necessitates the need to bring mis/disinformation into discussions so that accurate information can be disseminated (Scheufele & Krause, 2019, as cited in Taddicken and Wolff, 2020). In fact, the effect of mis/disinformation on actual scientific information about COVID-19 has been widespread, so much so that WHO named this phenomenon as the COVID-19 “infodemic” — a trend that sensationalises scientific information, oversimplifies misinformation, and fails to recognise and address the issues that obscure effective communication about COVID-19 (Scheufele, Krause, Freiling, & Brossard, 2020).

Philippines was already suffering from the impacts of mis/disinformation even before COVID-19 hit the country. When cases of COVID-19 in the country rose, the amount of misconceptions also grew in tandem and ranged from false disinfection methods to unverified natural treatment and prevention that are even endorsed by top government officials (Cantiga, 2020; Madarang, 2020). The proliferation of fake information amid the pandemic is perceived to be as, if not more, dangerous than the coronavirus threat itself (Naughton, 2020; Cantiga, 2020). It is even more potent when the once exclusive authority of scientists as the dominant voice in public health crises, is now being shared with non-scientists such as politicians and government officials.

In light of the information crisis that grew as COVID-19 took its toll on countries, when reliability on scientific information was crucial and meant saving or losing lives, it would be interesting to determine the amount of “voice” given to scientists and the nature of their information in news stories, which are the public’s main access to information about the pandemic. Specifically, the present study focuses on the Philippines, a country that has been hit hard by both fake news and COVID-19, and compares it with the world in general.

Therefore, this paper analysed the media coverage of two online news portals — *CNN Philippines* ([www.cnnphilippines.com](http://www.cnnphilippines.com)) which represents Philippine’s local coverage, and *CNN International* ([edition.cnn.com](http://edition.cnn.com)) which represents global coverage — to uncover the dominant and marginal “voices” and the relative contributions of these voices to news stories. The science news articles from both online news portals were compared to expose

the critical textual choices that framed a story but otherwise remained submerged in an undifferentiated text. The analysis of their news coverage can deliver valuable insights into the way science news are framed in this time of the coronavirus. The insights can also be used to improve the science literacy of laypeople and help policymakers communicate important scientific information about COVID-19.

This analysis was guided by the question, “How was science portrayed in the online news reportage of two online news portals — *CNN Philippines (CNNPh)* and *CNN International (CNNI)* — during the COVID-19 pandemic?”

Specifically, it aims to answer the following questions:

1. What were the emergent frames of the articles based on their overarching messages?
2. What roles of science were implied in the articles based on their overarching messages?
3. Who were the dominant voices in the news articles based on the frequency and space (who said what, experts vs non-experts)?

To answer the questions above, the study was anchored on three key frameworks: Nisbet’s (2009) news frame typology, Goldemberg’s (1998) roles of science and Druckman and Parkin’s (2005) measurement of slant.

The analysis of news framing reveals the media’s ability to influence and form public opinion on various issues that are achieved through the presentation of content or through the utilisation of framing effects (Ting, Murudi, & Chua, 2020). Nisbet (2010) defined framing as “a concept, and an era of research which spans several social disciplines.” He also defined frames as “interpretive storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who might be responsible for it, and what should be done about it” (Nisbet, 2010). Moreover, Nisbet (2009) claimed that framing offers researchers a powerful theoretical tool that can help in understanding the dynamics in science communication and its connection to media coverage, public opinion and legislation. In this light, he came up with a frame typology of science.

**Table 1.** Nisbet’s (2009) news frame typology

Frame	Science issue defined as...
Social progress	Improving life, solving problems, master/harmony nature
Economic development	Market benefits/competitiveness
Pandora’s box/Runaway science & fatalism	Call for precaution in face of possible impacts/catastrophe; out-of-control monster; or action is futile, path is chosen
Morality/ethics	Right or wrong, crossing/respecting boundaries
Scientific uncertainty	What is known or unknown; evoking or undermining consensus, “sound science” peer- review
Public accountability	Responsible use or abuse of power, “politicisation,” citizen responsiveness
Third way/Alternative path	Compromise solution, middle way between opposing sides
Conflict/Strategy	Game among elites, battle of groups/personalities

The second framework was utilised to identify the roles of science observed in the science news articles. In times like these, where science holds the sole authority as a source of information, it is necessary to analyse how the media manifest the role of science in their stories.

In his study in developing countries, Goldemberg (1998) identified three roles of science:

1. help adopt technology to local circumstances,
2. incorporate new science into education, and
3. be involved in government.

This study looked at the depicted role of science in each article analysed in the study and identified how often Goldemberg's (1998) roles were observed.

The last framework adopted was the modified approach of Druckman and Parkin (2005) in measuring slant in news. One method used in this approach is the measurement of space occupied by a particular subject or topic in a news coverage as signified by the frequency of news written about a particular person or topic. The researchers adopted this approach and applied it at the micro-level, analysing the space given to experts and non-experts in a specific news article.

The findings of this study are deemed useful to science communicators/science news writers; they can learn from the insights and use them as a basic guidance in creating appropriate framing practices when writing science news. The research findings can also be used by the people in the academe especially those who are studying or teaching science communication. The results provide empirical evidence in explaining the way scientific information or concepts are delivered to local and international audiences. Moreover, this paper will also be helpful to policymakers and government officials who are the key decision makers in times of health crises. This will serve as a reference for them to consider how much importance should be given to the perspectives of scientists and health experts when making decisions and policies for the public.

## METHODOLOGY

The present study is a descriptive research that employed content analysis. It analysed the science news reportage of the COVID-19 pandemic in the online news portals of *CNNPh* and *CNNI*. The two online news portals were the chosen sources of data as both, being under the same news agency umbrella, were successful in establishing their online and social media presence — *CNNPh* as a local edition and *CNNI* as an international edition (“More news, faster”, n.d.; Cleary, Nashmi, Bloom, & North, 2014). These news portals can also provide a brief comparison between local Philippine science news articles and the global ones acquired by *CNNI*, which is a recognised “leading international news brand in Europe, Middle East, Africa, Asia, and Latin America” (New Global Survey, as cited in, Cleary et al., 2014).

A total of 40 science news articles written in English, were retrieved from the two news portals between January and May 2020 for analysis. The 40 articles, 20 from each news portal, were selected through an online raffle (random.org).

After the collection of articles, the selected articles underwent a thorough textual analysis. The content and frame analysis employed coding sheets in the form of thematic tables designed to examine the data collected. The researchers identified the framing of each article based on the typology of Nisbet (2009). The dominant roles of science observed in the articles were identified and classified based on Goldemberg's (1998) three roles of science. The dominant voices were identified by counting the attribution in terms of frequency of mention of personalities, agencies, and other stakeholders; and the spaces allotted to the attribution by counting the number of words of the quotes and attributions of the personalities/agencies/stakeholders. After coding, the researchers then mapped the emerging themes and patterns in tables using frequency and percentage count.

## RESULTS AND DISCUSSION

The results of the analysis on emergent news frames, roles of science implied and dominant voices in the online coverage of *CNNPh* and *CNNI* are presented and discussed in the following sections.

### *Emergent news frames*

Table 2 presents the comparative data on the emergent news frames observed in *CNNPh* and *CNNI*.

**Table 2.** Frequencies and percentages of emergent news frames in *CNNPh* and *CNNI*

FRAME	<i>CNNPh</i>		<i>CNNI</i>	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Social progress	4	20	3	15
Economic development	1	5	0	0
Pandora's box/Runaway science & fatalism	9	45	5	25
Morality/ethics	0	0	0	0
Scientific uncertainty	2	10	9	45
Public accountability	3	15	3	15
Third way/Alternative path	1	5	0	0
Conflict/Strategy	0	0	0	0
<b>TOTAL</b>	<b>20</b>	<b>100</b>	<b>20</b>	<b>100</b>

Of the 20 *CNNPh* articles, 9(45%) fell under *Pandora's box/runaway fatalism*, 4(20%) under *Social progress*, 3(15%) under *Public accountability*, 2(10%) under *Scientific uncertainty*, 1(5%) each under *The third way/alternative path* and *Economic development*, and none under *Morality/ethics* and *Conflict/strategy*. The results showed that most of the science news articles published by *CNNPh* from January to May 2020 were framed as a call for precaution ahead of a possible catastrophe.

As for the *CNNI* articles, the results revealed that *Scientific uncertainty* was the most emergent news frame during their COVID-19 pandemic coverage, which accounted for 9 of 20 articles (45%). It was followed by *Pandora's Box* with 5 articles (25%), and *Public accountability* and *Social progress* with 3 articles (15%) each. It should be noted that no article fell under *Economic development*, *Morality and ethics*, *Third way/alternative path*, and *Conflict/strategy*.

Both news agencies had common top news frames in *Pandora's box*, *Scientific uncertainty*, *Social progress*, and *Public accountability*; however, they differed in the framing that they used the most – *Pandora's box* for *CNNPh* while *Scientific uncertainty* for *CNNI*. This result corroborates with Church, Katigbak, and Del Prado's (2010) who claimed that people in selected Asian cultures endorse situationist or interactionist beliefs more than the Americans. This may explain why *CNNPh* articles were more precautionary. This might also be expected since at the time, COVID-19 was still emerging and very little was known about its nature or the availability of any cure or vaccine. Further, the rate of infection and number of resulting deaths also caused fear and concern among the public. On the other hand, lack of knowledge about the new virus may also have been the reason why the *CNNI* articles were generally framed as *Scientific uncertainty*, which focuses on establishing what is known and what is not about SARS-CoV-2. It should also be noted that both media outfits did not publish articles that were framed under *Conflict/strategy*

and *Morality and ethics*. *Economic development* and *third way/alternative path* were also not used as frames in *CNNI's* science news articles.

### Role of science

The results identified Goldemberg's three roles which were most prominently shown in the science news articles. In addition, the researchers identified another new role of science that was commonly portrayed in some of the news articles analysed. Table 3 shows the results for the roles of science implied in *CNNPh* and *CNNI* science news articles.

**Table 3.** Frequencies and percentages of the roles of science found in *CNNPh* and *CNNI* science news articles

FRAME	<i>CNNPh</i>		<i>CNNI</i>	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Help adapt technology to local circumstances	4	20	2	10
Incorporate new science into education	3	15	8	40
Be involved in the government	10	50	5	25
*Exercise caution on the wrong use of technology or information/ debunking myths and dubious beliefs and practices	3	15	5	25
<b>TOTAL</b>	<b>10</b>	<b>100</b>	<b>10</b>	<b>100</b>

\*Additional role observed by the researchers

Table 3 illustrates that the studied media agencies, *CNNPh* and *CNNI* perceive science as having different dominant roles. While *CNNPh* discerned that the role of science in the time of pandemic as being involved in government (50%), *CNNI* advocated that science should be incorporated into education (40%).

The identified dominant role of science in *CNNPh* articles shows that Filipinos see the importance of science-based policies and decision-making. In this regard, Goldemberg (1998) recognised the same and posited that “science and scientists are an important element in choices and decisions made by governments and can make a difference”. However, Waterstone (1992) countered that when it comes to the role of science in public affairs, scientists are seen as being more vulnerable to being used by the government rather than the other way around. This phenomenon was first observed in the country when the government showed reluctance in imposing a travel ban between Philippines and China so as not to adversely affect diplomatic relations even though SARS-Cov 2 had already started spreading to several countries (Peralta, 2020; Cepeda, 2020).

Unlike *CNNPh*, *CNNI's* science news focused on using or incorporating science as an education tool. This may be attributed to the fact that this disease was something new, thus, the need to study and understand it. This suggests that *CNNI* places a premium on newfound information about the coronavirus and the dissemination of this information to the public as a way of educating them.

It is also notable that an additional role of science was observed in the science news articles of *CNNPh* and *CNNI*. The new role identified was to “exercise caution on the wrong use of technology or information/debunking myths and dubious beliefs and practices” which was observed in 15% of *CNNPh* articles and 25% of *CNNI* articles. This new role is an apparent opposite of the first, which is the adoption of technology, as it aims to stop people from doing doubtful practices such as wearing masks and disinfection methods.

### *Dominant voice*

To determine the voices that were dominant in the articles published by *CNNPh* and *CNNI*, the length and frequency of attributions were measured in two ways: 1) frequency of attributions to scientists/experts and non-scientists, and 2) the amount of space occupied by these attributions. Table 4 shows the frequency of attribution given to experts and non-experts in the articles about COVID-19 published by *CNNPh* and *CNNI*.

**Table 4.** Frequencies and percentages of attributions in *CNNPh* and *CNNI* science news articles

Attribution	<i>CNNPh</i>			<i>CNNI</i>		
	Frequency	Percentage (%)	Average	Frequency	Percentage (%)	Average
Scientists/experts	190	86	9.5	110	100	5.5
Non-scientists	32	14	1.6	0	0	0
<b>TOTAL</b>	<b>222</b>	<b>100</b>		<b>110</b>	<b>100</b>	

\*Additional role observed by the researchers

Based on Table 4, the science news articles published by *CNNPh* during the study period attributed both scientists/experts (which include doctors, health-related agencies such as Department of Health, WHO, and other allied agencies) and non-science experts (such as politicians and other government officials). Out of the total 222 attributions found in the analysed articles that include direct and indirect quotations, 190 were attributed to scientists/experts and 32 were allotted to non-science experts. at an average of 9.5 and 1.6 attributions per article, respectively. This implies that scientists/experts were the dominant voice in the online science reportage of *CNNPh*. Nonetheless, politicians and government officials were also given space to air their opinions and perspectives.

Table 4 also shows that all 110 attributions in the 20 science news articles published by *CNNI* were allotted to scientists and experts and none were allotted to non-scientists/experts. This shows that *CNNI* places high importance on the views and opinions of scientists and experts whom they consider can make their science news stories accurate and reliable.

Based on the frequency of attribution, both news agencies allotted most of their attributions to scientists and health experts in their science news articles during the pandemic. Although it is very notable that *CNNI* did not have any non-expert/scientist attributed in their science news articles. As for *CNNPh*, 32 attributions from a total of 222 were from politicians/government officials. So, it can be deduced that *CNNPh* gives some value to politicians'/government officials' perspectives when presenting their science news articles.

Table 5 shows that in terms of length of attributions, each *CNNPh* article and *CNNI* article contained quoted words of scientists and/or experts in science, at 51% and 54%, respectively. However, *CNNPh* articles allocated 8%, or almost 1 word for every 10 words, to politicians and government officials; an act that could be seen as valuing the opinions of non-experts in the subject matter. This finding is similar to that of Boulianne and Belland (2019) who found that while scientists and academics were the most popular voice on the subject of science news articles, specifically climate change in scientific journals, government officials were just as popular, even if people distrust government sources.

**Table 5.** Percentage of space occupied by attributions of experts and non-experts in *CNNPh* and *CNNI* science news articles

Length of quote	<i>CNNPh</i> (%)	<i>CNNI</i> (%)
Scientists/experts	51	54
Non-scientists	8	0

### *Other observations and insights*

During data collection and initial analysis, the researchers observed several things about *CNNPh* and *CNNI* in terms of the number of articles gathered and their structure.

The researchers gathered only 22 COVID-19 science news articles from *CNNPh* and 85 from *CNNI*. The large number of published COVID-19-related science news articles in *CNNI* can be attributed to the multiple contributing bureaus of the news agency as it has an international coverage. The lower number of articles from *CNNPh* can also be interpreted as low production. This observation suggests that in a health crisis like this, *CNNPh* publishes less science news than hard news. This could be linked back to the country's relatively weak performance in science and technology (Cornell University, INSEAD, & World Intellectual Property Organization, 2019) and science news being less popular in the Philippines (Navarro & McKinnon, 2020). According to Navarro and McKinnon (2020), "challenges of accessibility and local attitudes to science were magnified within the Philippine context" which indicates the need for a locally specific science communication framework.

The researchers also observed that *CNNI* has a dedicated section for science news articles, something that is not present in *CNNPh*. This implies that *CNNI* has science news writers who specialise in this field. If such is the case, the absence of exclusive science news writers in *CNNPh* may be the reason why politicians and government officials were interviewed for their opinions, which is something that a regular news writer, especially those assigned to the political beat, would probably do.

During the structural analysis, another observation that emerged was that *CNNPh* articles were much longer (528 words/article) than those from *CNNI* (317 words/article). Taking into account the additional space given to the views of non-experts, the difference in the number of words between the two news agencies could be attributed to the amount allotted to non-expert attributions plus the writers' own words to complement the quotes.

Based on the results, the researchers derived some insights regarding the framing, roles of science, and dominant voices in the analysed science news articles. The framing of *CNNPh*'s science news articles, which was precautionary, may be linked to a couple of factors. The first factor is the generally perceived weakness of the Philippine healthcare system, which in the last couple of years suffered from unmet WHO standards for bed capacity, shortage in healthcare personnel, decreased allocation in the national budget, and budget cuts for government programmes to strengthen its healthcare system (Lim, 2020). Another factor is the influx of Chinese migrant workers in the country that started when the Philippine government positioned itself to create closer ties with China (Venzon, 2019). The entry of individuals from the country of origin of SARS-Cov-2 and the relatively weak national healthcare system could be major contributors to the anxiety and fear that the people feel with regard to the virus outbreak in the country. On the other hand, the framing of *CNNI*, which was scientific uncertainty, could obviously be linked to the need of understanding of the novel virus better to enable appropriate formulation of public health measures and actions.

The most dominant role of science as implied in *CNNPh* articles, which was to involve the government, could explain why the views of non-experts were included as policymaking and governance involves public servants. Although not the most dominant role as indicated

by either news agencies, the additional role observed by the researchers, which was “to exercise caution on the wrong use of technology or information/debunking myths and dubious beliefs and practices” is quite relevant. Naturally, science communication is a vital contribution of news agencies to the public in addressing the COVID-19 infodemic, which proliferated as soon as the pandemic gained global attention.

Experts are obviously the dominant voice in science news articles, for both *CNNPh* and *CNNI*, as more than half of each article, on average, contains information from this group. Nevertheless, *CNNPh*'s allotment of space for statements and opinions of politicians and government officials is also a reflection of its general framing which is to involve governance. This practice could be perceived as an effort by *CNNPh* to create an ecosystem where policies are influenced by science. Meanwhile, *CNNI*'s practice of not including the views of non-experts could be its way of presenting science as it is, untainted by politics, and with a clear portrayal of who the “authority” is in the subject matter

## CONCLUSION

The findings of this study reveal the culture of journalism of two media agencies. *CNNI* ensures that the science news that they publish carry the views and opinions of science and health experts and believes that a novel phenomenon like the COVID-19 pandemic should be studied well and introduced through education. On the other hand, while *CNNPh* is similar in its approach, it also gives space for the views of politicians. The findings also underscore the need for science to be incorporated in policymaking or governance; which implies that even if articles are considered science news, they are never completely free from being politicised. Despite this, the importance of science and its communication to the public by the online media is undeniable; thus, it needs to be studied further in the context of the pandemic that the world is experiencing.

This study is exploratory in nature, especially with regard to the journalism culture shown by *CNNPh*. Thus, a number of recommendations for future research are suggested. For example, future research should consider investigating more on the space provided to politicians in science news stories to analyse their thoughts and how they operate in the discourse. The effects of this phenomenon on science news consumers can also be an interesting topic for future investigations. Finally, future research should certainly further test whether the same findings could be observed in other news agencies in the country.

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