

Measuring Effectiveness of Bring Program to Online: Case Study of Museum Listrik dan Energi Baru Programs during Covid-19 Outbreak

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ABSTRACT

Museums were forced to shut down on account of preventing Covid-19 spread from March 2020. During that shutdown, the museum's public programs were held online, including Museum Listrik dan Energi Baru (MLEB). MLEB is one of the museums in Taman Mini Indonesia Indah. This museum is operated by Perusahaan Listrik Negara (PLN). Since the shutdown, their online programs were Instagram and Youtube. However, the audience that the museum has reached are relatively low. This research uses data videos that were posted on March 13 - August 19 2020, measuring how the videos performed. For analysis, we use three social media framing: consist of Marketing Frame, Inclusivity Frame, and Collaborative Frame. These research findings reveal the causes of low audience. Afterwards, this research gives suggestions to optimize Museum Listrik dan Energi Baru's contents through 3 social media framing. Also, to respond to the Covid-19 impact on the museum, these suggestions can accelerate the museum adaptation into the digital world to get more audiences.

Keywords: museum program, Covid-19 outbreak, social media optimization, online public program

1. INTRODUCTION

In the early 2020, the world experienced a highly contagious virus, Covid-19, that being a worldwide pandemic. As a response to prevent the virus spread, museums around the world were forced to shut down, and many of those museums transformed their public programs online. This transformation significantly accelerated the museum's online existence, especially in social media.

According to [1], during this shutdown, museums tend to use social media, a channel that appears on people's fingertips, rather than other technology, as happened on Italian state museums. On those museums, as in [1] stated that the state museums were using social media during lockdowns, measuring statistic through Facebook, Twitter, and Instagram. The contents vary, for example the fun fact of art pieces, virtual treasure hunts, quiz events, flash mob (interactively asking followers to post pictures), and others. Using these campaigns, it saw the increasing number of its followers, and this was their peak of growth. The follower numbers on their Facebook, Instagram, and Twitter, on average, rose by 7.2% between February and March 2020. The number climbed again by 8.4% between March and April 2020. Facebook followers also had steady growth, up by 5.1% between February and March. This growth followed by a further 3.6% between March and April. However, the numbers were lower for Twitter (up by 2.8% each month). Regarding this increase, this social media transformation

was drawn as an achievement on how museums create availability of cultural material in the social media. He also noted that audience visit was up only a few minutes, unlike physical visit that can be 1-3 hours long.

Another example in [1] about the Getty Museum, which takes part as a visual arts and cultural heritage center of Los Angeles that has making participatory conversations, such as public services. The focus was creating community through art by content that is capable of uplifting and inspiring the audience.

As for Instagram, Budge and Burness [3] use the case study of the Museum of Contemporary Art's Instagram. They stated that it is appropriate to explore the Instagram platform because of its visual quality and the corresponding visual nature of a museum, and its widespread use amongst US and Australian populations. It is the second-largest social media platform for the museum and a crucial part of the museum's communications strategy.

Aside from Italian states museums, Getty Museum, and Museum of Contemporary Art, there are plenty of museums worldwide which also shifted to social media. This paper specifies to Museum Listrik dan Energi Baru, which during the shutdown, they uploaded videos regularly to Instagram TV [13] and Youtube channel [14]

Museum Listrik dan Energi Baru (later abbreviated as MLEB) is one of museums in Taman Mini Indonesia Indah, Jakarta. This museum was founded on the

initiative of the Minister of Mines and Energy in 1990. Then it was only in 1992 that this museum was built in the TMII area. The construction of the museum took three years. On April 20, 1995, the museum was inaugurated by Indonesia's second president, Soeharto. MLEB has two main buildings. The atomic structure inspires the architecture of this building. The museum area consists of four zones based on the collection. The first zone is the Welcome Zone. In this zone, museum visitors will be welcomed by collections of electric vehicles that can be tried in person, museum icons, and a five-dimensional theatre. The second zone is the Historical Zone. In this zone, museum visitors will see a display of the history of electricity and renewable energy. Some of the other collections are the history of PLN, the history of electricity, and the experiments of scientists who played a role in finding and developing electricity. Furthermore, the third zone is named the Science and Technology Zone. In this zone, visitors can see and interact with museum collections such as Van De Graff Generator, Tesla Coin and Wimhurst machine. Last, Future Zone, where visitors can see new energy sources such as geothermal energy, solar energy, biomass energy, wind energy, oceanic energy, and nuclear energy. Besides the four zones, MLEB also has four-dimensional and five-dimensional theatre spaces and classrooms that are commonly used for learning activities and seminars, open spaces for outdoor activities, kids' corner, and a guest house. Today, MLEB is managed by PT. PLN and become one of the units under the Education and Training Center of PT. PLN.

Since the shutdown, their online programs were Instagram TV and Youtube educational videos. The videos uploaded are varying, from how the museum sterilized the building to how electricity tools work. Generally, the videos on the MLEB's Instagram and Youtube are uploaded regularly, about 1-3 videos each week. Despite their consistency to update, those videos got only low reach and view since the content was not optimized. As for statistic, on the Instagram, MLEB uploaded 19 videos with a total 1.638 views, which means 86 views per video on average. Whereas on Youtube, they uploaded 56 videos and got 1.795 views in total, which means 32 views per video on average. A thing to note, the MLEB's Instagram account has 1,956 followers, and Youtube account has 162 subscribers. It means the Instagram TV views in each video got a 4.5% maximum of Instagram total followers, while Youtube performed better statistically; they got views 19.7% maximum of Youtube total followers.

Currently, during the pandemic, the use of Instagram and Youtube increased. Referring to Business Insider [5], Instagram TV statistics increased by 70% in March 2020, the month when Covid-19 spread was first peaked. On YouTube, as data launched on Think with Google, the average view of video related to 'home school' has increased over 120% globally, as compared March 13 - 24, 2020, to January. 1 - March 12, 2020. The same source stated that global watch time of how-to videos

with 'at home' phrase in the title had increased more than 50% year over year (March 2020 compared with March 2019). Based on this trend, the MLEB videos indeed has a significant potential to reach more audience if they can optimize the video such as the phrases on the video title as mentioned on the earlier paragraph.

The social media's achievement usually measures based on their engagement. Budge and Burness [3] wrote that social media is central to informal learning, which means people preference on how they communicate and share their perspective and experience in the social media, especially on Instagram posts. Also, they said that the social element in social media makes participants connect with the learning context, and this leads to a more in-depth knowledge of the participants. Besides, Russon [10] wrote that social media are able to facilitate connection for the previously disconnected individuals and global communities of practice. By this statement, social media use should get wide traffic along with the platform. It was supported by Sawyer in Kidd [16] that said such a way to help the museum reach its visitors more; the museums can use social media, as long as the use is well-understood. Therefore, this research will refer to the Instagram view performance.

The fact that MLEB have not optimized their videos was a common problem in the museums. Museums most likely put no focus on digital services, contradict with the current need to expand digital services in account to adapt with rapid change [10]. For the museum itself, Russon [10] said that social media could support the museum to achieve innovative outcomes that contribute to social well-being and economic growth. He also stated an example to connect museums with the design community in order to extend partnerships and building capacity.

This paper uses content framing as explain by Sawyer in Kidd [16], which mentioned three kinds of frames for social media content, that will be used to classify the videos. The first is *Marketing Frame*, the frame which stands to promote the institution's values, such as the way the museum uses social media or things related to 'stigma', 'brand', or 'opinion' about the particular museum. The second is *Inclusivity Frame*, which concerns on real and online community, such as how it can connect the museum with community, how museum reach the community through the ambassador or their programs, how museum grow the community, and how the museum build participatory activity. The third is *Collaborative Frame*, that states the way museum use the social media to enable people to co-produce stories and the way the museum can encourage people to work creatively and create their articulation on the museum's content. This frame aims to assert assumptions where the interaction is to be taken; to labels context Sawyer in Kidd [16].

This research uses the list of videos uploaded and its total view on each platform. Then the videos will be classified into three frames and three categories; *Information*, *Branding*, and *Response to Covid-19*, and

one additional category for Youtube, *Museum Goes to School*. *Information* grouped the videos that inform the viewer about things the museum carried. *Branding* grouped videos that contain the PLN branding, outside the museum-thing. *Response to Covid-19* grouped videos about building sterilization, new safety protocol, and/or the museum services during the pandemic. From the video data, this research draws analysis to notice essential variables on the overall video's performance. After that, suggestions based on references are provided, aiming to optimize the video audience reach. *Museum Goes to School* contains the virtual guiding tour by MLEB.

2. MEASURING EFFECTIVENESS

This section exposed quantitative data of videos uploaded by MLEB in their Instagram account and YouTube channel. Regarding that, we drew some points to analyse it with social media framing concept by Sawyer in Kidd [16].

Table 1. MLEB Instagram Account [13]

Post Date	MLEB's Videos on Instagram		
	Title	Category	View
19-3-2020	Museum Manager Speech	Response to Covid-19	270
19-3-2020	Covid Prevention	Response to Covid-19	98
21-4-2020	Transformasi PLN: Tiara Andini Performance	Branding	85
21-4-2020	President Director of PT. PLN Speech	Branding	66
21-4-2020	Transformasi PLN: Didi Kempot Performance	Branding	65
21-4-2020	Officials Speech	Branding	39
23-4-2020	Work from Home in PLN	Branding	56
2-6-2020	New Normal in PLN	Branding	69
3-6-2020	Building Desenfiction	Response to Covid-19	192
19-6-2020	Film on Museum's Theatre	Information	9
20-6-2020	New Normal Protocol (Animated)	Response to Covid-19	207
23-6-2020	Static Electricity Demonstration	Information	8
26-6-2020	Museum guiding during New Normal	Response to Covid-19	70
5-7-2020	Explanation of Earth's Energy Resources	Information	13
13-7-2020	New Normal Protocol (Museum Clips)	Response to Covid-19	90
20-7-2020	Explanation of Biomass Energy	Information	126
7-8-2020	Building Strelizatio	Response to Covid-19	1
13-8-2020	Electricity in General	Information	23

With those numbers on Instagram, fundamental things to note are the upload frequency and the categories of all 18 videos. Since the third week of April, they posted the Instagram TV nearly every week. All those videos are categorized into three categories; *Response to Covid-19*, *PLN Branding*, and *Information*. *Response to*

Covid-19 contains videos related to how museum overcome the outbreak and what actions they have taken to prevent the virus spread. *PLN Branding* contains videos related to PT PLN itself, which manage this museum. *Information* contains videos related to any information people can find in the museum.

As for duration, it varies from 1 minute to 1 hour with all averaged at 13 minutes 39 seconds. Moreover, the museums got average 83 views per video, which means if it compared with the account's 1,973 followers (as accessed on August 15, 2020, at 05.22 PM, GMT+7), it only 4.2% followers that viewed the videos.

Table 2. MLEB's Videos on YouTube Channel [14]

Post Date	MLEB's Videos on Instagram		
	Title	Category	View
14-4-2020	Listrik Tenaga Surya	Information	42
18-4-2020	Mari Mengenal Energi Terbarukan	Information	50
18-4-2020	Video Profile of MLEB	Branding	32
18-4-2020	Theater 5D Facilities	Branding	5
22-4-2020	PLN Transformasi, Power Beyond Generation	Branding	15
28-4-2020	Listrik dari Buah	Branding	36
2-5-2020	Cara Kerja Kereta Listrik KRL	Information	8
26-5-2020	Pemandu Sigit Motor Listrik Sederhana	Information	11
27-5-2020	Teater 5 Dimensi , MUSEUM LISTRIK PLN	Branding	6
13-6-2020	PJU MLEB ONLINE	Information	19
14-6-2020	Kompor Surya Serbaguna	Information	34
14-6-2020	Energi dari Kincir Angin	Information	22
19-6-2020	Virtual MLEB	Information	307
20-6-2020	MIKRO HIDRO	Information	10
21-6-2020	GENERATOR VAN DE GRAAFF	Information	14
24-6-2020	ANDRE MARIE' AMPERE	Information	11
24-6-2020	ALESSANDRO VOLTA	Information	10
30-6-2020	I'm Live via Loola.tv	Branding	2
1-7-2020	ENERGI PANAS BUMI	Information	16
1-7-2020	THOMAS ALVA EDISON	Information	5
4-7-2020	Energi Biomassa - Sumber Energi Terbarukan	Information	10
5-7-2020	ENERGI SAMUDERA (OCEAN ENERGY)	Information	14
8-7-2020	Bijak Listrik	Information	24
9-7-2020	Tokoh Penemu Listrik Dunia	Information	8
10-7-2020	Sel Bahan Bakar (animasi)	Branding	6
12-7-2020	Protokol New Normal MLEB	Response to Covid-19	361
12-7-2020	ENERGI PRIMER (DI SEKITAR KITA)	Information	16
13-7-2020	Testimoni Mengenai MLEB oleh Manager UP2B	Branding	10

Post Date	MLEB's Videos on Instagram		
	Title	Category	View
14-7-2020	PRINSIP KERJA PLTP	Information	5
15-7-2020	Peta Potensi Energi Terbarukan	Information	21
16-7-2020	BAHAYA LISTRIK	Information	37
16-7-2020	PLTA CIRATA	Branding	27
18-7-2020	ENERGI MATAHARI	Information	10
19-7-2020	MAGNETO HIDRO DINAMIK	Information	10
20-7-2020	Prinsip Transformator	Information	5
25-7-2020	MENGENAL MUSEUM LISTRIK & ENERGI BARU	Branding	40
25-7-2020	ZONA SELAMAT DATANG	Branding	11
25-7-2020	ZONA SEJARAH KETENAGALISTRIKAN	Branding	6
25-7-2020	ZONA MASA DEPAN	Branding	5
25-7-2020	ZONA SAINS & TEKNOLOGI	Branding	5
29-7-2020	PLTS (Pembangkit Tenaga Surya)	Information	9
2-8-2020	MIKRO HIDRO	Information	3
3-8-2020	TOKOH PENEMU HUKUM OHM	Information	3
4-8-2020	Darimana Datangnya Aliran Listrik ?	Museum Goes to School	7
6-8-2020	Hukum Hukum Listrik (MLEB)	Information	8
6-8-2020	Reaktor Air Bertekanan (PWR), definisi dan cara kerjanya	Information	4
7-8-2020	MGS MINI JAKARTA	Museum Goes to School	58
7-8-2020	Energi Angin PLTB	Information	7
7-8-2020	Energi OTEC	Information	3
10-8-2020	MGS MIN13	Museum Goes to School	73
10-8-2020	Jenis-Jenis dari PWR (Reaktor air Bertekanan)	Information	
11-8-2020	MGS MIN 2 JAKARTA PUSAT	Museum Goes to School	12
11-8-2020	Record Live Zoom MGS Mleb with Smp Santa Theresia Jakarta Pusat	Museum Goes to School	81
12-8-2020	PLN UP MLEB MGS dengan MIN 3 JAKARTA (CIJANTUNG)	Museum Goes to School	39
12-8-2020	MGS SD SAMPURNA ACADEMY - SENTUL BOGOR	Museum Goes to School	39
13-8-2020	MGS MIN 4 JAKARTA	Museum Goes to School	126

While on Youtube, the museum uploaded many more videos than on Instagram; 56 Youtube videos and 18 Instagram videos, even though the Youtube account started later (April 14) than the Instagram (March 19).

We divided these videos into four categories; *Museum Goes to School*, *Response to Covid-19*, *PLN Branding*, and *Information*.

Some of the important points from Table 2 are the average view and duration. All 56 videos have 32 views per video in average, and the average duration is 14 minutes 16 seconds. If we compared it with the Youtube channel audience, which had 162 subscribers, we got a view rate of 19.75%, four times bigger than Instagram. This statistic showed that Youtube worked more effective than Instagram regarding the ratio between views and audience.

2.1 Videos Performance

From Instagram and Youtube data, it is evident that MLEB produced many videos and they posted it regularly. For the data spread, two pie charts below are supporting how the videos performed among users.

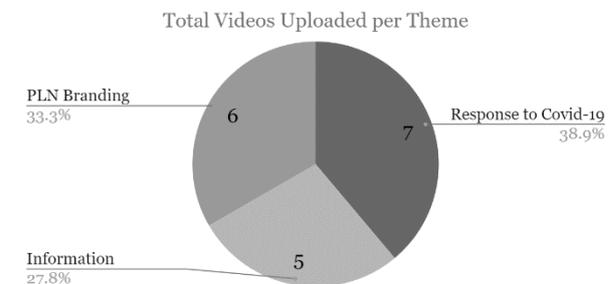


Figure 1 Total Videos Uploaded per category on MLEB's Instagram.

From Figure 1 above, the Instagram TV videos split around evenly among three categories; 7 videos concerning to *Response to Covid-19*, six videos concerning to *PLN Branding*, and five videos concerning to *Information*. Therefore, there is no tendency to one particular category.

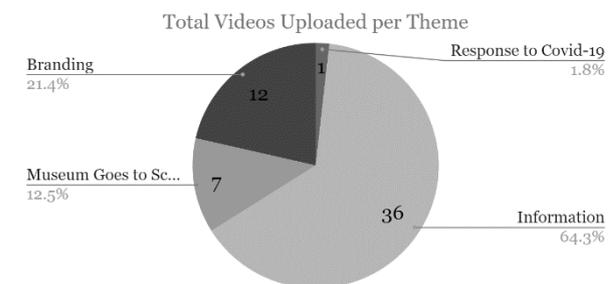


Figure 2 Total Videos Uploaded per category on MLEB Youtube Channel.

For the Youtube videos, *Information* took more than half of the total (36 from 56 videos). While the *PLN Branding* category took around one-fifth (12 videos), followed by *Museum Goes to School* (7 videos) and *Response to Covid-19* (1 video). This proportion is different from Instagram, which the videos categories tend to spread evenly, whereas the majority of Youtube videos concern on *Information* category. Figure 3 below

are the breakdown of view on each video presented on the bar chart and total view per category of all videos on the pie chart, both on Instagram and Youtube.

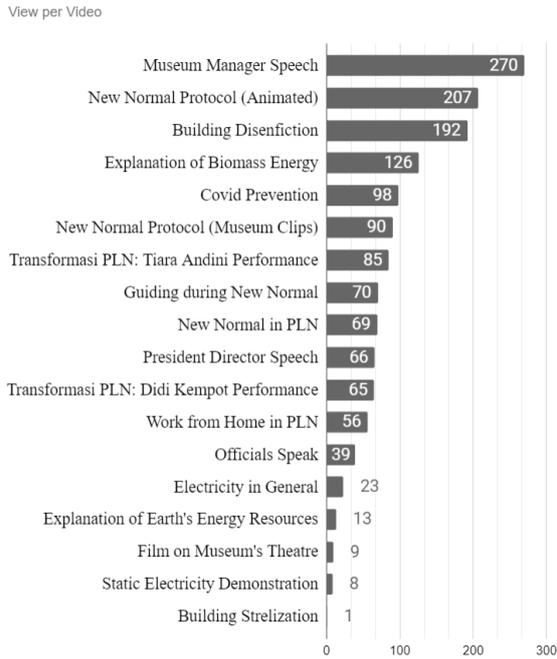


Figure 3 Total Views per Video in MLEB Instagram Account

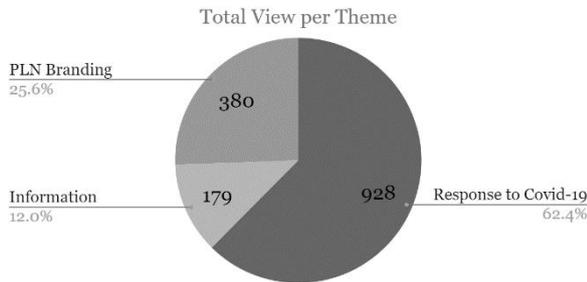


Figure 4 Total Views per category in MLEB Instagram Account

As for the Instagram total view, there is a dominant view on *Response to Covid-19* category (7 videos, average 132 views per video) up to 62.4% or 928 views, while the *PLN Branding* categories (6 videos, average 63 views per video) got about one-fourth or 380 views, and *Information* got only 12% or 179 views (5 videos, average 36 views per video). The *Response to Covid-19* tends to be popular if we refer to the bar charts, where it took 3 places on 5 most viewed videos, whereas the *Information* category.

View per Video



Figure 5 Total Views per Video in MLEB Youtube Channel

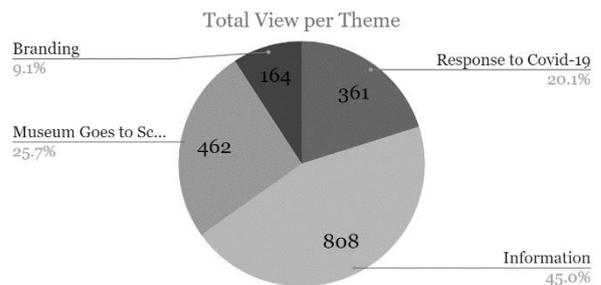


Figure 6 Total Views per category in MLEB Youtube Channel

For Youtube total view, the most view came from *Information* category with 45% of total view or 808 views, followed by *Museum Goes to School* with 25.7% of total view or 462 views, *Response to Covid-19* with 20.1% of total view or 361 views, and *Branding* with 9.1% of total view or 164 views.

However, if we point on the average view per video, the highest average is *Response to Covid-19* (361 views for only 1 video), followed with a big gap by *Museum Goes to School* (66 views on average for 7 videos), then *Information* (22 views on average for 36 videos) and *PLN Branding* (14 views on average for 12 videos).

Similar with the issue on Instagram TV, these videos reach more audience for *Response to Covid-19* category, while the museum core function is to educate people, which in this case, appeared as videos in *Information* category.

Speaking of audience reach on both platforms that showed the similar trend, namely tendency on *Response to Covid 19* than *Information*, while these videos should be addressed to what audience need the most from a museum, namely the content of MLEB itself, which showed here as *Information* category. This issue is explained further on the Social Media Framing in the next section.

2.2. Social Media Framing

For increasing engagement, the videos should put more concern on social media framing as stated on Sawyer in Kidd [16] The frames consist of *Marketing Frame*, *Inclusivity Frame*, and *Collaborative Frame* that explained earlier in the Introduction section. Regarding that, this section defines each frame with data served on tables and figures on the former part.

Marketing Frame can be seen on what MLEB has shown to their audience through videos, such as video naming, video opening, caption, and many more. This research will explain how *video naming*, *video opening*, and *caption*, can work better. In terms of *video naming*, it is clear that the museum named several videos with terms that might confuse the audience, such as *MGS* in Youtube that refers to '*Museum Goes to School*', which likely not a familiar term for the audience that they can catch the meaning on first seconds when they see the video. For Youtube video naming, the museum can refer to Wiers, Ashley [12] on her report at Think with Google that the current trend during the outbreak is the video with '*at home*' or '*home school*' in their title. Unfamiliarity can make the audience less engaged in the videos. Next, *video opening*, which stands as a core to hook viewers to keep watching until the video finishes, in this case, nearly all of the videos has no specific opening. Instead, it came with a vague opening that blended with the body content; therefore, the audiences will be unlikely hooked to the rest of the video. As for *video caption*, it appears with little information, whereas the caption should be more

descriptive and detail, so the caption can give deeper understanding to the audience.

Inclusivity Frame which concerns on real and online community, which in this case is what strategies that museum use to reach their audience. More particular, to define how they deliver the content that can get the most reach, such as at what hour and what day their audience open Instagram. The museum can analyze their peak hour and schedule to post at it.

Collaborative Frame which states how museum enables people to co-produce stories and create their articulation on the museum's content, can found in many places in this platform. For example, original features from Instagram and Youtube itself, such as comment and like button allow the audience to participate in two-way communication. Especially on Instagram, that has sticker featured in Instagram Story. The sticker can create a quick poll, open question, and multiple-choice question. The museum can use these stickers to create interactive content, that can be used as a gimmick to Instagram TV they are going to post. By engaging the audience in Instagram Stories, the audience will likely put their interest in anything that will be posted next; therefore, the view rate can be higher. Moreover, they can also use Instagram feed comment and Instagram direct message to connect easily to their audience. With these features, they can create online activity as a gimmick to draw audience's attention to the main post, namely Instagram TV. Thus, the video could get more views by more profound and more engage two-way communication that has been built before the video is posted. Another alternative, the museum could also create anecdotes along the way on any content they post in order to engage the audience with entertaining and less rigid content.

3. CONCLUSIONS

It could take many variables to comprehensively measuring effectiveness on these videos, but this paper in particular focus on the social media framing to measuring how effective the videos to MLEB audience during outbreak shutdown.

As an explanation in the analysis section, this research suggests for the museum to optimize the three social media frames according to the performance of their former videos. First, to maximize the *Marketing Frame*, the museum can prepare better video name based on the trend, create attractive video opening, and put more description and detail on their caption. Then, to maximize *Inclusivity Frame*, the museum can analyze their peak hour and schedule to post at it. Lastly, to maximize the *Collaborative Frame*, the museum can use free features on Instagram and Youtube to create interactive contents with anecdote and plan gimmicks to bring more audiences and put more attention to two-way communication. Those things can lead to higher views and broader audiences, refer to the statement of Sawyer, et. al, that the frames can bring better social media performance.

Suggestions to optimize MLEB content by social media framing analysis on their Instagram and Youtube will raising awareness and building more robust user engagement. If these suggestions applied to encourage the museum's digital visibility, the museum could reach potential audiences more than they reached offline participants. Each frame will tackle their particular function, and this will drive the content optimization to get a bigger number of views. In addition, as a quick respond to the Covid-19 impact on the museum, these suggestions able to accelerate the museum adaptation into the digital world. In particular, to reach their audience wider and make a more in-depth engagement on their content.

AUTHORS' CONTRIBUTIONS

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Prita Permatadinata and Danang Aryo Nugroho.

Prita Permatadinata: Methodology, Formal analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Supervision. Danang Aryo Nugroho: Conceptualization, Validation, Writing - Review and Editing, Visualization. All authors discussed the results and contributed to the final manuscript. All authors read and approved the final manuscript.

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