

Optimizing government communication on environmental issues: Visual strategies for public engagement

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ABSTRACT

Background: Visual elements in content play a crucial role in influencing user engagement on social media platforms. This study focuses on Instagram, a widely used social media platforms in Indonesia, using the official account of a government institution, that is the Instagram account of the Ministry of Environment and Forestry (MoEF) of the Republic of Indonesia for analysis. It is important to increase public awareness about environmental challenges, such as land degradation and the decline of animal populations, and to disseminate information about preserving Indonesia's native fauna and flora through conservation programs. **Purpose:** This study aims to analyze and compare the visual factors in each Instagram post of the MoEF, to evaluate user interaction with the account. Instagram was chosen because the institution is more active on this media platform compared to others. **Methods:** This study employed a quantitative content analysis, using one-way ANOVA analysis to review potential variations in user interaction across different visual factors. **Results:** The results revealed variation among categories in terms of content type ($F = 8.146$; $p = 0.001$), visual aesthetics ($F = 8.299$; $p = 0.004$), and presentation modality ($F = 4.341$; $p = 0.038$). This finding suggests that government Instagram accounts need to carefully consider visual factors to enhance user interaction. **Implications:** This study provides guidance for government institutions on enhancing environmental awareness through effective visual communication strategies on social media, particularly Instagram.

Keywords: Social media; visual factor; content analysis; government; environment

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INTRODUCTION

The International Union for Conservation of Nature (IUCN) reports that about 44,000 species worldwide are currently threatened with extinction (Nuswantoro, 2024). The destruction of forest and animal poaching are significant contributors to the decline in wildlife populations (Poor et al., 2019). To address this issue and minimized negative impacts in the future, strong public support is essential (Shaw et al., 2022; Qodriyatun, 2023; Wright et al., 2015) to the success of conservation efforts aimed at changing community behavior. It is therefore important to ensure that the messages communicated to the public are aligned with conservation objectives.

Social media platforms have shown significant growth in recent years (Perrin, 2015) and many organizations are increasingly using social media platforms to promote their activities and reach a wider audience. Indonesia has a total of 139 million social media users, which is 49.9% of the national population as of January 2024 (Annur, 2024). Hence, social media is a preferred platform for engaging with audiences and showcasing communicative performance to stakeholders. (Nurhaeni et al., 2021). The institution analyzed in this study is The Indonesian Ministry of Environment and Forestry (MoEF), which supervises other conservation organizations. Government institutions can enhance their communicative efforts via social media by prioritizing feedback

from the public, particularly on the Instagram (Gruzd et al., 2018).

Establishing an effective communication network between government institutions and the community is crucial for successfully achieving program objectives (Abdurahman, 2017). However, the level of interaction between government institutions and the public on social media remains inadequate suggesting that the government institutions have yet to fully leverage the potential of existing social media platforms (Hastrida, 2021; Neely & Collins, 2018).

As an institution overseeing various conservation units, the MoEF seeks to maximize the benefits of social media as a tool for public communication. The MoEF uses their Instagram account (@kementerianlhk) which, as of April 6, 2024, has amassed 424,000 followers and shared a total of 5,463 posts to actively disseminate information to the general public. Instagram was chosen due to its vast user base in Indonesia (Napoleoncat, 2024), with more than 88 million Instagram users. The MoEF does not have other platforms with similar numbers of following as Instagram. However, our initial observation of the MoEF's Instagram's content throughout 2023 reveals very low user interaction. Many posts receive few comments, with some receiving no response at all. This observation leads researchers to assume there may be issues in how information is managed and presented in the MoEF's Instagram account.

In a study conducted by Shaw et al. (2022) on Instagram accounts of animal conservation organizations in Australia, they identified a correlation between the characteristics of the images and the level of user interaction on these Instagram accounts. Similarly, Sumarah et al. (2023) examined the Indonesian Customs Instagram account and found that content type, visual aesthetics, and presentation were linked to user interaction. Both studies share similarities in their approach, focusing on institutional or organizational Instagram accounts and analyzing user interactions. However, there are notable differences in the aspects examined. Sumarah et al. (2023) explored user interactions through visual components, whereas Shaw et al. (2022) analyzed image-forming elements in wildlife-related content. A gap exists between these studies in terms of comparing visual factors. Previous research primarily described the factors influencing interaction without comparing them to determine which factors drive the highest user interaction. To address this gap, this study combines the frameworks of the two prior studies while introducing a new element—comparing visual factors.

This research differs from the previous studies in terms of the subjects studied, the methods, and data analysis technique. We focus specifically on visual aspects: content categories, visual aesthetics, and presentation modalities in each post. The purpose of this research is to compare the visual aspects in each post to identify which factors attract the most

user interaction. This study aims to provide valuable guidance for government agencies, particularly those focused on environmental issues, in effectively managing messages to be conveyed to the public.

RQ: What visual factors were utilized in the Instagram posts of the Indonesian Ministry of Environment and Forestry (MoEF) throughout 2023?

Instagram utilizes visual presentations to enhance user interaction (Aljukhadar et al., 2020). Visually appealing graphics are key factor for user interaction (Bhandari et al., 2019). The visual appeal of a post is largely determined by its content type, visual aesthetics, and presentation (Barreto & Ramalho, 2019; Bhandari et al., 2019; Huang et al., 2022). The term content type refers to the subject matter of a post, which may initiate conversation, provide information, offer entertainment, or serve other purposes (Chen et al., 2020). Visual aesthetics refers to the creative element related to the presentation of a message, with the purpose of capture the attention of the audiences (Greussing et al., 2018). Presentation modality refers to the visual format used to convey messages in a particular post (Burgoon et al., 2002).

Social media users engage with content through various actions, including consuming, liking, sharing, and commenting (Dolan et al., 2019). User engagement/User interaction is often used as metrics to measure the effectiveness of social media in reaching its target audience (Peñaflor, 2018). This study measured user

interaction by assessing the frequency of likes and comments on each institution's Instagram posts.

According to Depaula et al. (2017), most government agencies or institutions posted informative and symbolic messages. These messages often include various forms of official statements such as celebrations of national or international holidays, condolences, and non-political content. Such posts aim to not only inform the public, but also to foster an emotional connection with the audience through highlighting symbols and significant moments. This approach enables the government to maintain its relevancy in the digital public sphere while avoiding sensitive political issues, thus creating a neutral and inclusive impression.

Joo et al. (2018) and Soares et al. (2022) found that information eliciting an emotional response tends to generate significant user interaction. Therefore, creating content that emotionally resonates with the audience is essential. On the other hand, self-focused information has the lowest level of user interaction, as stated by Kusumasondjaja (2018). Content types of a Government Institutions in Indonesia can be categorized into three main classifications: symbolic messages, information, and achievements (Sumarah et al., 2023).

It can be said that individuals can choose to view content posted by the government institution's social media platforms based on their personal preferences (Katz et al., 1974).

The public may requires information about government services and initiatives, ongoing achievements, the latest regulations, etc. (Yavetz & Aharony, 2021). Posts related to services, programs, or regulations are coded under "information." In contrast, posts highlighting government actions and achievements (self-focused content) are categorized under "achievements." Posts celebrating holidays, congratulating awards, or similar content fall under the "symbolic messages" category. According to Joo et al. (2018), Soares et al. (2022), and Kusumasondjaja (2018), informational content tends to increase user interaction more than other types of content. Thus, we hypothesize that there are differences in user interaction across various types of content.

H1: There are differences in user interaction on each type of content on the Instagram account of the Indonesian Ministry of Environment and Forestry (MoEF).

Visual aesthetics on social media refer to the overall appeal of images and objects that motivate and engage users, encouraging them to view, save, or share a post (Aljukhadar et al., 2020). The visual appeal of social media can be categorized into two types of aesthetics: classical aesthetics and expressive aesthetics (Bhandari et al., 2019; Kusumasondjaja, 2018; Marmat, 2023). A content falls under the classical aesthetic category if it uses a straightforward, balanced, and structured format, with minimal elements, highlighting text, and limited colors

use. In contrast, the expressive aesthetics category features complex layouts, distinctive visual effects, diverse color combinations, and unique patterns in each post (Bhandari et al., 2019; Marmat, 2023).

Visual aesthetics on social media are often linked to tangible beauty, which can inspire and motivate users to interact with the content (Aljukhadar et al., 2020). Expressive aesthetics might have a more significant impact than classical aesthetics, particularly when social media posts emphasize visual appeal. However, each government account has its own unique characteristics, functions, and priorities, so classical aesthetics might also play a significant role in user interaction. Thus, we hypothesize that there will be a difference in user interaction between classical and expressive aesthetics on the Instagram account of the MoEF.

H2: There are differences in user interaction on the type of visual aesthetics in the Instagram on account of the Indonesian Ministry of Environment and Forestry.

Presentation modality refers to the delivery of messages through a combination of various communication methods (Burgoon et al., 2002). Within the context of content visualization on Instagram, two distinct modalities are identified: lean modality and rich modality. Lean modality refers to posts that use a single mode of visualization, such as static visuals or just images. In contrast, rich modality describe posts that incorporate multiple modes of visualizations, such as audiovisuals or videos

(Kusumasondjaja, 2020).

With the emergence of various social media platforms, each site offers a distinct style of content presentation tailored to its characteristics and audience in terms of format, duration, and communication style. Social media posts can generally be categorized into three types of posts: text-only, photos, and videos. Text-only and photos are categorized as having low media richness (lean) due to their single modality. In contrast, a combination of photos and audio and videos are considered rich modalities since they incorporate diverse sensory elements, that is visual and auditory components (Chen et al., 2020; Denктаş-şakar & Sürücü, 2018; Yue et al., 2019). However, there are few research on the impact of presentation methods on public interaction with government social media accounts (Chen et al., 2020). This may be attributed to the influence of various factors, such as the quality of the content or the nature of the message being conveyed.

The general public places significant value on the ability of government social media accounts to provide accurate information. Secondly, the use of extensive communication channels can lead to the dissemination of incomplete information (Chen et al., 2020); Thirdly, the effectiveness of media richness depends on its alignment with specific contexts and objectives (Daft et al., 1987). Given that the Ministry of Environment and Forestry primarily features rare animal species through videos on its Instagram account, the researcher

hypothesized that employing a diverse range of expressive features in government Instagram posts would lead to increased user interaction.

H3: There are differences in user interaction on the type of presentation modality in the Instagram account uploads of the Indonesian Ministry of Environment and Forestry.

RESEARCH METHOD

This study uses quantitative content analysis to thoroughly examine various modes of communication and interaction (Shi et al., 1998) on the official Instagram account of the Ministry of Environment and Forestry (MoEF), “@kementerianlhk”. The account is verified with a blue tick, confirming its official status. The research focuses on visual communication, specifically analyzing and evaluating messages conveyed through visual means (Riffe et al., 2024). The unit of analysis for this study is the total number of uploads made between January 1, 2023, and December 31, 2023. These uploads are analyzed for visual aspects such as content type, visual aesthetics, and presentation modality.

For data processing, the researchers utilized IBM SPSS software and dfreelon.org as supplementary tools. IBM SPSS is well-suited for handling large sets of quantitative data, offering user-friendly tools that facilitate efficient and effective analysis. The dfreelon.org tool streamlines inter-coder reliability

testing, producing Krippendorff’s Alpha values, which serve as key indicators of inter-coder consistency.

The population for this study consists of all Instagram uploads from the MoEF (@kementerianlhk), including both feed posts and reels, during the entire year of 2023. This population comprises a total of 311 content. In previous research by Sumarah et al. (2023), the full population generated over a year was used as the research sample. Following this approach, the researchers in this study also utilized the entire population obtained, employing a census sampling method. This method includes all individuals in the population for analysis (Riffe et al., 2024). (Riffe et al., 2024). The use of this technique aligns with the research objectives, which seek to determine variations in user interaction across different types of uploads based on their visual elements. As such, it is crucial to have accurate and representative data. All the process of data collection was completed in April 2024.

The analysis was conducted by two coders following a predefined coding book. This study examines four variables: three independent variables: content type, visual aesthetics, and presentation modality. The dependent variable, user interaction, measured by the number of likes and comments, and Further details on the operationalization of these variables are provided in Table 1.

For this research, two distinct analysis methodologies were employed. To address the

Table 1 Operationalization of Variables

Variables	Category	Operational Definition
User Interaction	Likes and comments	User interaction is measured through the number of likes and the number of comments on each post presented. The threshold limit of high or low interaction is seen from the average user interaction on each post.
Content Type	Symbolic Message	Instagram posts include cautionary or remarking sentiments along with symbolic messages to wish someone a happy holiday or to provide sympathy on national, religious, or other institution holidays. Additionally, posts that contain memes, quotes, or administrative queries for followers will be classified as symbolic communications.
	Information	Instagram postings that feature content pertaining to legislation, programs, animal updates, program sustainability, and information regarding animals and conservation. Information codes are utilized to categorize content that are focused on enhancing user understanding.
	Achievement	Instagram posts featuring direct interaction in activities with the Ministry of Environment and Forestry, explicitly highlighting the precise activities, locations, and outcomes achieved. The perspective of the individual responsible for the posts is self-centered.
Visual Aesthetics	Classical Aesthetics	An Instagram post including one or more objects exhibiting symmetrical or oriented patterns with simpler designs. The text solely employs a single font.
	Expressive Aesthetics	Instagram posts that feature an abundance of asymmetrical objects or a distinctive aesthetic characterized by the usage of several patterns or colors. There are posts that exhibit diverse styles and are not repetitive.
Presentation Modality	Lean Modality	Instagram posts are presented in a singular visual format, typically consisting of a static image.
	Rich Modality	Instagram postings are presented in several visual modes, including audio-visual and video.

Source: Sumarah, et al. 2023; Kusumasondjaja, 2020

research questions, descriptive analyses were conducted using frequency distribution tables to illustrate the quantities of different content types, visual aesthetics, and presentation modalities. Additionally, to validate the research hypothesis, a one-way ANOVA test was utilized.

According to Field (2018) the one-way ANOVA test is designed to compare the means of two or more groups and determine if the results can be generalized. If significant differences between group means are observed, these differences

can be considered representative of broader conditions.

As this study aims to examine variations and differences in user interactions based on content type, visual aesthetics, and presentation modality among MoEF followers on Instagram, the one-way ANOVA analysis is well-suited for this purpose.

Firstly, we conducted a normality and homogeneity tests to meet the assumptions required for one-way ANOVA. According to Field (2018) for studies with large sample sizes, normality can be assessed through Skewness and Kurtosis values, with an acceptable range of -1.96 to 1.96. In this study, the sample size was 311, which is considered large. Based on the results of statistical calculations, the Skewness value of the sample was -0.33, and the Kurtosis value was -1.17. Therefore, it can be concluded that the research sample satisfies the assumptions of the normality test Secondly, Homogeneity testing was also conducted, with the content type variable ($p = 0.134$), visual aesthetics ($p = 0.982$), and presentation modality ($p = 0.001$) each yielding p -values. The p -values for content type and visual aesthetics exceeded 0.05, indicating homogeneity in these variables, while the presentation modality variable did not meet the homogeneity assumption.

According to Field (2018), the homogeneity test is not an absolute requirement for one-way ANOVA analysis. Therefore, the test can proceed even if one variable does not meet the homogeneity assumption.

RESULTS AND DISCUSSION

The first step in data analysis for this study was conducting an inter-coder reliability test to ensure the results were reliable and acceptable. This study utilized the formula proposed by Riffe et al. (2024) to determine the appropriate sample size for the reliability test based on the obtained population.

$$n = \frac{(N - 1)(SE)^2 + PQN}{(N - 1)(SE)^2 + PQ}$$

Description:

n = Reliability sample size

N = Population size

$SE = 0.03$ (confidence level 5%, level of agreement 95%)

P = Level of agreement (95%)

$Q = (1 - P)$

Based on the calculations, the initial sample size for the reliability test was twenty-four. However, we decided to increase it to thirty to simplify the calculation process. This study involved two coders: the first author, referred to as Coder 1, and a Communication Science student, referred to as Coder 2. Prior to coding, both coders underwent training using a specifically designed coding guide to standardize their understanding and eliminate any uncertainty. This training ensured that Coder 1 and Coder 2 shared a consistent framework regarding the variables tested in this study.

Table 2 Reliability Test Results

Variable	%A	Scott's Pi	Cohen's Kappa	Krippendorff's Alpha	NA	ND	NC
Content Type	96.7%	0.93	0.93	0.93	29	1	30
Visual Aesthetics	93.3%	0.87	0.87	0.87	28	2	30
Presentation Modality	100%	1	1	1	30	0	30

Note: %A = percent agreements; NA = N agreements; ND = N disagreements; NC = N cases

Source: Authors' analysis, 2024

The coders were provided with matrices or coding sheets containing links, the number of likes and comments, and the coding for each variable. The variables—content type, visual aesthetics, and presentation modality—were completed by the coders based on the corresponding categories and codes for the content viewed. Following Krippendorff (2019) the reliability coefficient was set at 0.80 or higher to ensure strong inter-coder reliability. For this reliability test, the researchers utilized the online tool dfreelon.org, which facilitates the calculation of reliability metrics. This platform generates several reliability measures, including Krippendorff's Alpha and Cohen's Kappa (Freelon, 2010).

According to Krippendorff (2019) criteria, a minimum Alpha value of 0.80 is sufficient to make valid inferences using triangulation based on the tested data. As shown in Table 2, the variables—content type ($\alpha = 0.93$), visual aesthetics ($\alpha = 0.87$), and presentation modality ($\alpha = 1$)—all have Krippendorff's Alpha values exceeding 0.80, indicating that the inter-coder

measurements are reliable. Since all variables have been deemed reliable, no additional inter-coder training was necessary. The research proceeded with each coder analyzing every post included in the research sample.

Following the coding process, the data was first analyzed using descriptive analysis to identify the distribution of visual factors in each post on the MoEF Instagram account throughout 2023. The results of this analysis are summarized in Table 3, which presents the frequency distribution. This table addresses the research question posed in this study.

Each post on the Instagram account of the MoEF utilized all the available dimensional factors. The account primarily uploads posts in the information content category ($N = 174$). As a government institution, the MoEF is obliged to provide services to the public by providing information that aligns with the public needs (Yavetz & Aharony, 2021).

The most frequently used visual aesthetic by the MoEF Instagram account in 2023 was the classical aesthetic type ($N = 159$). The

Table 3 Frequency Distribution of Research Variables

Variables	Category	f	%
Content Type	Symbolic Message	73	23.5
	Information	174	55.9
	Achievement	64	20.6
Visual Aesthetics	Classical Aesthetics	159	51.1
	Expressive Aesthetics	152	48.9
	Lean Modality	113	36.3
Presentation Modality	Rich Modality	198	63.7

Source: Authors' analysis, 2024

content is presented in a straightforward and clear style while maintaining high artistic standards. Each visual element and message are carefully crafted to reflect both simplicity and deep creativity, resulting in visuals that are both aesthetically pleasing and effective in conveying information.

Despite the minimalist graphics, the posts remain engaging and non-monotonous. The data reveals that 63.7% of the uploads consisted of creatively arranged and dynamic audio-visual content, commonly referred to as reels. This rich presentation modality adds diversity and vibrancy to the account, ensuring it remains engaging and far from tedious.

Each dimension of visual factors offers its own strengths within each category. On the Instagram account of the Indonesian Ministry of Environment and Forestry (MoEF), informational content types dominate, characterized by classic visual aesthetics and video-based uploads.

Next, this study uses One-way ANOVA analysis to see whether there are variations in user interaction across different visual factors. Table 3 shows that MoEF Instagram account oconsistently uploads more informative content. This is reflected in a total of 174 posts that focus on delivering information to the public, such as education on environmental conservation, government policies related to forestry, and important campaigns related to environmental issues. This significant number of posts confirms the ministry's commitment to utilizing social media as an effective communication tool to disseminate important information and increase public awareness of environmental issues.

The most prominent visual style on the account is the classic aesthetic type ($N = 159$), with video content being the leading format. Consequently, the account mostly utilizes rich modality as its dominant presentation style, appearing in a total of 198 instances. This raises an important question: are there significant differences in user interaction based on the specific visual factors used in the posts? To addres this question, the results of the data processing are shown in Table 4, which provides a detailed overview of the variation in user interaction with various visual elements. These findings will help identify which visual elements are most effective in increasing interaction on social media platforms.

The content type variable ($F = 8.146$; $p = 0.001$) comprises three categories: symbolic messages ($M = 1.89$; $SD = 0.774$), information

Table 4 One-Way Anova Analysis Results

Dependent Variabel	Independent Variabel	Category	M	SD	F	Sig.
Interaction User	Content Type	Symbolic Message	1.89	.774	8.146	.001*
		Information	2.15	.791		
		Achievement	1.70	.849		
	Visual Aesthetics	Classical Aesthetics	2.13	.809	8.299	.004*
		Expressive Aesthetics	1.86	.806		
		Lean Modality	2.12	.721		
	Presentation Modality		1.92	.860	4.341	.038*

Source: Author's analysis, 2024; Note: * Significance level at 5% (.05)

(M = 2.15; SD = 0.791), and achievements (M = 1.70; SD = 0.849). The data shows significant variation in the average number of posts across these categories, with information being the most frequent content type.

The one-way ANOVA analysis yielded a significant result ($p = 0.001 < 0.05$), and the F test result ($F = 8.146$) exceeded the critical value in the F table. Based on these results, it can be concluded that there are significant variations in user interaction across different content types on the MoEF Instagram account. Thus, hypothesis 1 is confirmed in this study.

The findings of this study are in line with the results of research conducted by Yavetz & Aharony (2021), who also emphasized the importance of informative content in attracting individual attention. They underline that information relating to relevant services, laws, and activities or programs is significant in increasing user interest and engagement. Such

content not only provides useful insights to the audience, but also acts as a credible and reliable source of information. Therefore, both this research and Yavetz & Aharony (2021) study show that content that provides educational and informative value has a greater impact in building more meaningful interactions on social media.

Furthermore, when analyzed through the lens of the Uses and Gratification theory, individuals who follow the Instagram account are likely to engage with content that aligns with their particular preferences, specifically information (Katz et al., 1974). This suggests that the use of informational content on government agency accounts can effectively increase user interaction and facilitate the broad dissemination of information. Based on the data, it is evident that this approach successfully enhances user engagement on the Instagram account.

In addition, the visual aesthetics variable ($F = 8.299$; $p = 0.004$) is divided into two categories: classical aesthetics ($M = 2.13$; $SD = 0.809$) and expressive aesthetics ($M = 1.86$; $SD = 0.806$). The analysis reveals that the majority of posts on the MoEF Instagram account are dominated by the use of a classical aesthetic style. This style is characterized by an elegant and simple visual approach that emphasizes compositional harmony and balance among visual elements (Bhandari et al., 2019; Marmat, 2023). The use of neutral colors and a clean design creates a professional and calming impression while maintaining high artistic value. This classic aesthetic style allows the account to effectively convey its messages without sacrificing visual appeal, making the content accessible to a broad audience who appreciate traditional yet relevant aesthetics. The concise format of posts is particularly noteworthy, as the majority of the content highlights plant and animal life. By employing a minimalist design, the intricate features of flora and fauna are more easily discernible, with the absence of excessive embellishments reducing potential distractions.

The results of the one-way ANOVA analysis support this claim, yielding a significant result ($p = 0.004$, less than 0.05) and an F test value of 8.299, which exceeds the critical value in the F table. These findings indicate that variations in user interaction are influenced by the visual aesthetics of the MoEF's Instagram posts. Thus, hypothesis 2 in this study is confirmed.

Contrary to prior research conducted by

Sumarah et al. (2023), which suggests that expressive aesthetics have the greatest impact on user interaction on the Instagram account of Indonesian Customs, this study highlights the differing priorities of ministerial institutions. The Indonesian Customs account emphasizes creative and engaging presentations, often using infographics to convey information. In contrast, the Ministry of Environment and Forestry (MoEF) account focuses on the visual appeal of natural typography and showcasing the uniqueness and detailed imagery of animals and plants.

As such, the MoEF Instagram account prioritizes providing clear and concise information about wildlife while avoiding an excessive focus on specific details of the animals and plants. This approach aligns with its goal of delivering educational content in an accessible and visually appealing manner.

The presentation modality variable ($F = 4.341$; $p = 0.038$) consisted of two categories: lean modality ($M = 2.12$; $SD = 0.721$) and rich modality ($M = 1.92$; $SD = 0.860$). While the mean differences between the two modalities are minimal, rich modality was the most frequently used, as indicated in Table 3. The Instagram account of the Ministry of Environment and Forestry (MoEF) predominantly featured engaging video content, particularly animal videos, which consistently demonstrated the highest levels of user interaction.



Source: Instagram Account of @kementerianlhk, 2023

Figure 1 Example of Post with Information Content Type, Classical Aesthetic, and Rich Modality

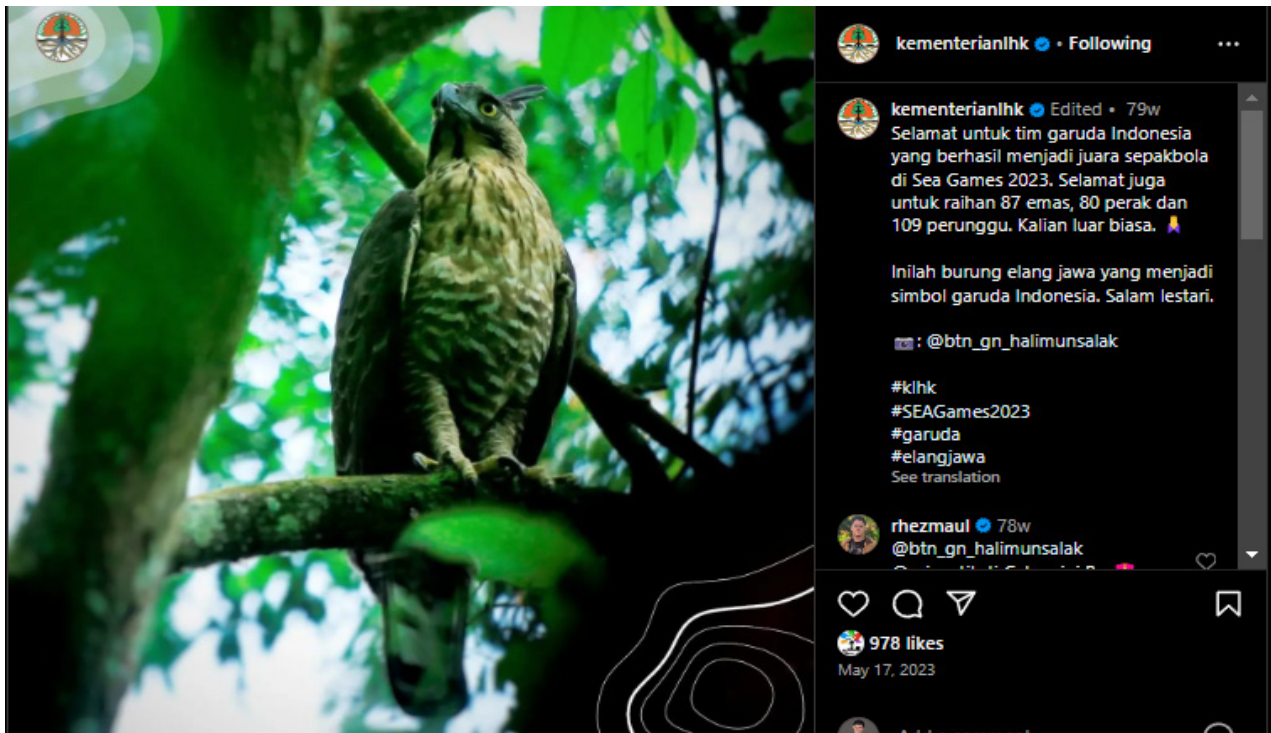
The one-way ANOVA analysis yielded a significant result ($p = 0.038$, less than 0.05), with an F-test value of 4.341 that exceeds the critical value in the F-table. These findings indicate variations in user interaction based on the presentation modality used in MoEF's Instagram posts. Thus, hypothesis 3 of this study is confirmed.

Users tend to prefer rich presentation methods on government agency accounts, as observed in prior research by Sumarah et al. (2023). Both the Customs and MoEF Instagram accounts prioritize delivering information through static images while achieving higher interaction rates on video uploads. Based on the findings, it can be said that government agency Instagram accounts should create content

aligned with the organization's visual aesthetics and adopt a concise presentation style to ensure information is delivered quickly and effectively.

To validate the findings, we compared the results with specific uploads on the MoEF Instagram account, as shown in Figure 1. This particular content, uploaded on May 4, 2023, garnered 23,384 likes and 1,390 comments. Upon analysis, the post was categorized as informational content with a classic aesthetic style, presented in the form of a video or rich modality. Additionally, we also compared this with the content shown in Figure 2, which was uploaded on May 17, 2023, to further examine the trends and variations in user interaction.

The content in Figure 2 is categorized as symbolic message content with expressive



Source: Instagram Account of @kementerianlhk, 2023

Figure 2 Example of Post with Symbolic Message Content Type, Expressive Aesthetic, and Lean Modality

visual aesthetics and presented in a lean modality format. This post generated 978 likes and 7 comments. The comparison in user interaction between Figure 1 and Figure 2 is quite significant, confirming that the research findings align with the observed data.

While this study identified differences in user interaction across categories for each variable, it does not conclusively establish that visual aesthetics are the primary determinant of increased user interaction. Other factors, such as video quality, user preferences, trending topics, and the actors featured in the content, remain unanalyzed. For instance, in terms of user preferences, classic aesthetics might be expected to have lower interaction rates, as audiences often gravitate toward more expressive content.

CONCLUSION

Effective communication from government agencies to the public is essential, particularly for institutions that depend on public support for funding, advocacy, campaigns, and other initiatives. This is especially relevant for the Ministry of Environment and Forestry (MoEF), which oversees conservation units across Indonesia—a responsibility that requires substantial government and public backing.

The MoEF maintains an active presence on Instagram, where it has garnered a significant following of 424,000 users. The account regularly shares posts about conservation activities. However, despite this large audience, user interaction remains relatively low,

highlighting a gap in engagement strategies.

This research examines the extent of user interaction with visual factors, focusing on content type, visual aesthetic quality, and presentation modality. The MoEF primarily employs informational content categories, classic visual aesthetics, and rich presentation modalities in its posts.

The findings indicate variations in user interaction across the different visual factors. Informational content consistently generates the highest interaction among content types, while classic aesthetics achieve the highest engagement within the visual aesthetics category. Similarly, posts utilizing rich modalities, such as videos, attract the most user interaction in terms of presentation format.

The analysis confirms that not all content types increase user engagement. Additionally, the study reveals that each government agency account exhibits unique characteristics in its content strategy, reflecting the diverse approaches to engaging audiences on social media.

This research is particularly valuable for the government institutions that rely on social media to document their activities and garner public support. It provides actionable guidance for designing effective visual communication strategies to raise environmental awareness. By examining user interactions, they can formulate more impactful communication strategies in the future.

From the results of this study, we recommend that the government institutions focus on creating informative content with classic aesthetics tailored to their organizational objectives. Additionally, the use of rich presentation modalities is encouraged to facilitate higher engagement and more frequent uploads. While light modalities can diversify content, the government institutions should carefully evaluate their audience's response to ensure these formats remain effective.

For the Ministry of Environment and Forestry (MoEF), this study offers insight that can be used in the evaluation process that can be used as basis for the enhancement of its social media performance. The MoEF can prioritize uploading informational content that is attractively packaged using rich modalities and classic visual aesthetics, ensuring that visuals content is not overwhelming for the audience. These adjustments can help the MoEF better engage with the public and fulfill its communication goals.

The findings of this research also hold theoretical value, serving as a learning resource about the intersection of visual factors and user interaction in government social media. This study provide a framework for future studies aiming to evaluate visual strategies in social media communication by the government or any other public institutions.

One limitation of this study is its focus on visual aspects, without a thorough examination of the substantive content or writing within the

posts. Factors such as video quality, the message conveyed, and the actors featured in the content can also influence user interaction. Future researchers are encouraged to explore these elements, analyzing the quality of the uploads, the message content, and the involvement of key actors to provide a more comprehensive understanding of social media content and user interaction.

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REFERENCES

- Abdurahman, B. (2017). Authoritative agency for tourism zone: An innovative instrument for destination development? *Jurnal Bina Praja*, 9(1), 15–27. <https://doi.org/10.21787/jbp.09.2017.15-27>
- Aljukhadar, M., Bériault Poirier, A., & Senecal, S. (2020). Imagery makes social media captivating! Aesthetic value in a consumer-as-value-maximizer framework. *Journal of Research in Interactive Marketing*, 14(3), 285–303. <https://doi.org/10.1108/JRIM-10-2018-0136>
- Annur, C. M. (2024). *Ini media sosial paling banyak digunakan di Indonesia awal 2024*. Accessed from: [https://databoks.katadata.co.id/datapublish/2024/03/01/ini-media-sosial-paling-banyak-digunakan-di-indonesia-awal-2024#:~:text=Secara keseluruhan%2C We Are Social,9%25 dari total populasi nasional](https://databoks.katadata.co.id/datapublish/2024/03/01/ini-media-sosial-paling-banyak-digunakan-di-indonesia-awal-2024#:~:text=Secara%20keseluruhan%2C%20We%20Are%20Social,9%25%20dari%20total%20populasi%20nasional.).
- Barreto, A. M., & Ramalho, D. (2019). The impact of involvement on engagement with brand posts. *Journal of Research in Interactive Marketing*, 13(3), 277–301. <https://doi.org/10.1108/JRIM-01-2018-0013>
- Bhandari, U., Chang, K., & Neben, T. (2019). Understanding the impact of perceived visual aesthetics on user evaluations: An emotional perspective. *Information and Management*, 56(1), 85–93. <https://doi.org/10.1016/j.im.2018.07.003>
- Burgoon, J. K., Bonito, J. A., Ramirez, A., Dunbar, N. E., Kam, K., & Fischer, J. (2002). Testing the interactivity principle: Effects of mediation, propinquity, and verbal and nonverbal modalities in interpersonal interaction. *Journal of Communication*, 52(3), 657–677. <https://doi.org/10.1111/j.1460-2466.2002.tb02567.x>
- Chen, Q., Min, C., Zhang, W., Wang, G., Ma, X., & Evans, R. (2020). Computers in human behavior unpacking the black box: How to promote citizen engagement through government social media during the COVID-19 crisis. *Computers in Human Behavior*, 110, 106380. <https://doi.org/10.1016/j.chb.2020.106380>
- Daft, R. L., Lengel, R. H., & Trevino, L. K. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly*, 11(3), 355. <https://doi.org/10.2307/248682>
- Denktaş-şakar, G., & Sürücü, E. (2018). Stakeholder engagement via social media: an analysis of third-party logistics companies. *The Service Industries Journal*, 40(11–12), 866–889. <https://doi.org/10.1080/02642069.2018.1561874>
- Depaula, N., Dincelli, E., & Harrison, T. M. (2017). Toward a typology of government

- social media communication: Democratic goals , symbolic acts and self-presentation. *Government Information Quarterly*, 35(1), 98–108. <https://doi.org/10.1016/j.giq.2017.10.003>
- Dolan, R., Conduit, J., Frethey-Bentham, C., Fahy, J., & Goodman, S. (2019). Social media engagement behavior: A framework for engaging customers through social media content. *European Journal of Marketing*, 53(10), 2213–2243. <https://doi.org/10.1108/EJM-03-2017-0182>
- Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). SAGE Publications Ltd.
- Freelon, D. (2010). ReCal: Intercoder reliability calculation as a web service. *International Journal of Internet Science*, 5(1), 20–33. https://dfreelon.org/publications/2010_ReCal_intercoder_reliability_calculation_as_a_web_service.pdf
- Greussing, E., Boomgaarden, H. G., Greussing, E., & Boomgaarden, H. G. (2018). Simply Bells and Whistles? Simply Bells and Whistles? Cognitive Effects of Visual Aesthetics in Digital Longforms. *Digital Journalism*, 7(2), 273–293. <https://doi.org/10.1080/21670811.2018.1488598>
- Gruzd, A., Lannigan, J., & Quigley, K. (2018). Examining government cross-platform engagement in social media: Instagram vs Twitter and the big lift project. *Government Information Quarterly*, 35(4), 579–587. <https://doi.org/10.1016/j.giq.2018.09.005>
- Hastrida, A. (2021). Proses pengelolaan media sosial pemerintah: Manfaat dan risiko. *Jurnal Penelitian Komunikasi Dan Opini Publik*, 25(2), 149–165. <https://doi.org/https://dx.doi.org/10.33299/jpkop.25.2.3920>
- Huang, F., Chen, Q., Ma, W., & Evans, R. (2022). Promoting public engagement with household waste separation through government social media: A case study of Shanghai. *Journal of Environmental Management*, 320(2), 115825. <https://doi.org/10.1016/j.jenvman.2022.115825>
- Joo, S., Choi, N., & Baek, T. H. (2018). Library marketing via social media The relationships between Facebook content. *Online Information Review*, 42(6), 940–955. <https://doi.org/10.1108/OIR-10-2017-0288>
- Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of Mass Communication by the Individual. In *The Uses of Mass Communications: Current Perspectives on Gratifications Research* (pp. 19–32). Sage Publication, Inc.
- Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (4th ed.). SAGE Publications, Inc.
- Kusumasondjaja, S. (2018). The roles of message appeals and orientation on social media brand communication effectiveness An evidence from Indonesia. *Asia Pacific Journal of Marketing and Logistics*, 30(4), 1135–1158. <https://doi.org/10.1108/APJML-10-2017-0267>
- Kusumasondjaja, S. (2020). Exploring the role of visual aesthetics and presentation modality in luxury fashion brand communication on Instagram. *Journal of FashionMarketing and Management: An International Journal*, 24(1), 15–31. <https://doi.org/10.1108/JFMM-02-2019-0019>
- Marmat, G. (2023). Influence of aesthetics attributes of brand Web pages on customer brand engagement. *Global Knowledge, Memory and Communication*, 72(4/5), 484–505. <https://doi.org/10.1108/GKMC-07-2021-0126>
- NapoleonCat. (2024). *Instagram users in Indonesia*. Accessed from: <https://napoleoncat.com/stats/instagram-users-in-indonesia/2024/02/>
- Neely, S. R., & Collins, M. (2018). Social media and crisis communications: A survey of local governments in Florida. *Journal of Homeland Security and Emergency Management*, 15(1), 1–13. <https://doi.org/10.1515/jhsem-2016-0067>
- Nurhaeni, I. D. A., Anggreni, L. S., Kusumawati, N. S., Permitasari, D., & Putri, I. S. (2021). Internationalization of higher education: A case study on media utilization, policies consistency and stakeholders' insights in Indonesia. *Jurnal Bina Praja*, 13(2), 207–218. <https://doi.org/10.21787/>

jbp.13.2021.207-218

- Nuswantoro. (2024). *Daftar spesies punah IUCN sepanjang 2023*. Accessed from: <https://www.mongabay.co.id/2024/01/03/daftar-spesies-punah-iucn-sepanjang-2023/>
- Peñaflor, J. (2018). Beyond “Likes”: An assessment of user engagement in Facebook among Philippine academic libraries. *Library Management*, 39(1–2), 59–65. <https://doi.org/10.1108/LM-12-2016-0100>
- Perrin, A. (2015). *Social Media Usage: 2005-2015*. Accessed from: www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/.
- Poor, E. E., Jati, V. I. M., Imron, M. A., & Kelly, M. J. (2019). The road to deforestation: Edge effects in an endemic ecosystem in Sumatra, Indonesia. *PLoS ONE*, 14(7), 1–13. <https://doi.org/10.1371/journal.pone.0217540>
- Qodriyatun, S. N. (2023). *Pendanaan konservasi keanekaragaman hayati dan pengaturannya*. Accessed from: https://berkas.dpr.go.id/puslit/files/info_singkat/Info_Singkat-XV-2-II-P3DI-Januari-2023-189.pdf
- Riffe, D., Lacy, S., Watson, B. R., & Lovejoy, J. (2024). *Analyzing media messages: Using Quantitative Content Analysis in Research*. New York: Routledge.
- Shaw, M. N., Borrie, W. T., McLeod, E. M., & Miller, K. K. (2022). Wildlife photos on social media: A quantitative content analysis of conservation organisations' instagram images. *Animals*, 12(14), 1–16. <https://doi.org/10.3390/ani12141787>
- Shi, Y. L., Liu, J., David, V. J., Zhuang, J. C., & Ma, L. (1998). Application of mechanical and statistical models to the study of seismicity of synthetic earthquakes and the prediction of natural ones. *Acta Seismologica Sinica English Edition*, 11(4), 421–430. <https://doi.org/10.1007/s11589-998-0087-6>
- Soares, J. C., Limongi, R., & Cohen, E. D. (2022). Engagement in a social media: An analysis in higher education institutions. *Online Information Review*, 46(2), 256–284. <https://doi.org/10.1108/OIR-06-2020-0242>
- Sumarah, D. J., Pawito, P., & Naini, A. M. I. (2023). Engagement declining on indonesian customs Instagram: A content analysis of visual factor. *Journal of Social and Political Sciences*, 6(1), 81–93. <https://doi.org/10.31014/aior.1991.06.01.395>
- Wright, A. J., Verissimo, D., Pilfold, K., Parsons, E. C. M., Ventre, K., Cousins, J., Jefferson, R., Koldewey, H., Llewellyn, F., & McKinley, E. (2015). Competitive outreach in the 21st century: Why we need conservation marketing. *Ocean and Coastal Management*, 115, 41–48. <https://doi.org/10.1016/j.ocecoaman.2015.06.029>
- Yavetz, G., & Aharony, N. (2021). Social media for government information dissemination: content, characteristics and civic engagement. *Aslib Journal of Information Management*, 73(3), 473–496. <https://doi.org/10.1108/AJIM-07-2020-0201>
- Yue, C. A., Thelen, P., Robinson, K., & Men, L. R. (2019). How do CEOs communicate on Twitter ? A comparative study between Fortune 200 companies and top startup companies. *Corporate Communications: An International Journal*, 24(3), 532–552. <https://doi.org/10.1108/CCIJ-03-2019-003>