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Visual Culture Analysis in Campaign of Covid-19

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Abstract

In the contemporary context, the significance of utilizing online media as an information portal cannot be overstated. This importance is particularly pronounced during the Covid-19 pandemic, as people actively seek information through online platforms to meet their informational requirements. The primary objective of this research is to investigate the visual elements employed in Covid-19 campaigns, with each element carrying meaningful representations. To accomplish this, the researcher employs visual culture studies to analyze Covid-19 campaigns from a neurophysiological perspective. The methodology involves employing a semantic differential scale and principal components analysis (PCA) with the participation of 22 respondents, who assess 12 binary paired adjective concepts. The analysis centers on four images sourced from the online media platform www.covid19.go.id. The findings indicate that people perceive visual objects influenced by technology in a manner that involves recognition. Each visual element serves as a representation of knowledge and is linked to specific ideas. From a modern neurophysiological standpoint, technology-mediated visual elements lead to logical and constructive outcomes while exhibiting unique affordabilities. These research findings impart valuable insights to the Government of Indonesia, underscoring the importance of considering physiological, affective, and aesthetic aspects of visual elements in formulating their pandemic campaign policies.

Keywords: *Visual Culture; Covid-19 Campaign; Semantic Differential; Neurophysiology; Principal Components Analysis (PCA)*

Background

The visual components presented in the Covid-19 campaign's visual objects are highly intriguing. During the pandemic, previously unexplored spaces have gained increasing exposure in online media. These visuals encompass snapshots of clear skies, serene street traffic, vacant cinema seats, images promoting the use of masks and hand sanitizers, as well as illustrations depicting social distancing in crowded places. The creative ingenuity manifested in these visual elements effectively conveys rhetoric that instills specific ideas and knowledge. Furthermore, the pandemic has not only impacted individuals' physical and mental well-being but has also brought about significant changes in the overall lifestyle. The visual elements serve as a conduit for accessing genuine information in a user-friendly manner. Presently, visual elements are favored in people's culture. With ease and advancements in technology, individuals find it more convenient to assimilate information amidst the challenges posed by the pandemic.

The ubiquitous adoption of the internet as an intelligent technology has become increasingly prevalent. The internet possesses the capability to discern our behavior, preferences, and aspirations, which, during its initial stages of development, may have left us astounded. As all devices become interconnected, data traffic management is established. This allows us to monitor traffic congestion, access recommendations for favorite foods, stay informed about accident locations, receive notifications regarding desired products, and obtain health-related information, such as Covid data updates, distribution points, and patient health monitoring.

Delicado and Rowland (2021) conducted a study in which their study sheds light on the unique visualizations that have emerged through various media during the pandemic. It aims to identify the messages conveyed through visual representations, encompassing a range of subjects, starting from how the virus itself is depicted, images of medical personnel donning complete protective gear, deserted streets and closed shops, pictures of individuals wearing masks, and illustrations depicting the virus's spread across different regions. The images were sourced from official government websites and various online media channels. The collected visualizations were then categorized into three distinct types, namely those related to science, medicine, and social aspects. A particularly interesting finding from the study is related to the photographs of desolate street scenes, which have become a focal point of online debates among scientists concerning the pandemic's social impacts. These impacts include concerns such as rising unemployment rates, dwindling purchasing power among people, and the effects on education.

Widiatmojo and Nasvian (2021) conducted a noteworthy study on visualizing the pandemic issue. The research included various photos as data sources, such as images depicting pillow craftsmen continuing to work amidst the stay-at-home orders due to social distancing policies, volunteers donning robot costumes to promote social distancing, and pictures capturing funeral processions for Covid-19 victims. The research findings highlight that recorded photos primarily portray events and their coverage, as opposed to portrait photos that capture facial emotions. Despite the visual impact of portrait photos, the extensive reach of the pandemic has compelled individuals to confront the stark reality. Moreover, portrait photos may appear constructed and tend to offer limited news value as they lead to specific characterizations. Portrait photos may be influential in one area due to the presence of certain figures but are very likely to contain weak news value in other areas (Widiatmojo & Nasvian, 2021).

Previous studies indicate that technology-supported reporting and information dissemination results in highly diverse content, with each aspect embedding representations of specific resources (Nikolopoulos et al., 2011). The Covid-19 campaign, presented through specific visualizations, aims to enhance the value of its message. Furthermore, considering the pandemic's wide-ranging impact on society's psychological aspects, the conveyed messages must be mindful of this influence. The plethora of information during a pandemic is closely connected to how the campaign messages are delivered in online media, whether through words or visual representations. Given this context, the current study seeks to identify the meanings conveyed by the Government's campaign messages through visual elements, from a neurophysiological perspective. Understanding the underlying meanings can facilitate the use of potential stimuli in intelligently designed campaigns, supporting various essential actions required during this period.

Literature Review

The issue of reliability is paramount in visual communication. When an object's authenticity and truthfulness are called into question, it engenders doubt, feelings of insecurity, uncertainty, and conflicts for the subject or audience receiving the information (Kress & Leeuwen, 2021). However, when visualizations are framed using technological devices, the presented objects transcend mere visual perceptions and necessitate a specific context that involves physiological and neurological aspects (Schirato & Webb, 2004).

In the realm of visual imagery, perspective refers to the arrangement and relative size of objects, aligning with the eyewitness principle, and thereby rendering the overall image contingent upon the viewer's point of view (Schirato & Webb, 2004). This perspective finds confirmation in modern neurophysiology, which elucidates that half of the brain is dedicated to processing visual information, and what we see and how we perceive it are closely related to our physiological structures (Schirato & Webb, 2004). When we encounter something that truly exists, our perception is intricately linked to the way we perceive it. In neurophysiological terms, something that exists and is seemingly simple can give rise to various possibilities (Schirato & Webb, 2004). This condition is inherently connected to the construction of the eye and the physiology of vision. Unlike imaging technology, where images can be captured effortlessly and held in focus for extended periods, the human brain must synthesize images from constantly changing cues, such as lines and signs, as the eye continuously moves.

However, as stated by Hoffman (1998), perception is influenced by grammar, meaning what we see is constructed based on a set of rules. Our perceptions are influenced by our personal feelings of closeness to the subject and how well it aligns with our social and cognitive frameworks. Therefore, the interpretation of what the eye sees is not solely determined by the physiology of vision or the functioning of the nervous system, but it is also intertwined with cultural elements and individual experiences. This interpretation involves a person's "habitus," which encompasses their background, preferences, tendencies, character, physical abilities, and social status (Schirato & Webb, 2004). In the context of visual culture, technology-mediated visual images have profound consequences. Firstly, there are social implications, wherein human interactions are increasingly dominated by visual images, leading to the transformation of real-life activities into visual or virtual experiences, such as games. Additionally, technology-mediated visual images have epistemological consequences, as the question of knowledge and truth becomes uncertain when signs can be easily edited, moved, and manipulated. Furthermore, visual images also give rise to psychological consequences, as the conveyed messages provide satisfaction and enjoyment to the users. Lastly, moral-ethical consequences arise with visual objects, as they allow for the creation of unstable representations of meaning, raising questions of morality, appropriateness, and ethical considerations (Piliang, 2018).

Previous research conducted by Tahir et al. (2020) in the context of Covid-19 explored how the Government of Malaysia disseminated guidelines and standard operating procedures to the public for controlling the spread of the virus and managing infected citizens. The study found that messages conveyed through visual communication elements were effective in reducing citizen panic amid the high rate of Covid-19 transmission in Malaysia. Subsequent research by Delicado & Rowland (2021) revealed that the pandemic's uniqueness was

manifested through various visualizations displayed in different media. The study highlighted that visual communication not only represents factual conditions but also conveys its own rhetoric. While previous studies focused on analyzing visual elements, this study adopts a novel approach by incorporating a modern neurophysiological perspective. Data is analyzed by integrating visual elements with technology, as visual images function as texts that are understood by readers within specific environments of production and consumption. As cultural products, each text can be explored using various interpretive tools or disciplines (methods) to decode their meanings (Cavallaro, 2001).

Method

In this study, the researcher employs the semantic differential method, which was initially introduced by Charles Osgood in 1952. This method is utilized to gauge individuals' attitudes towards something based on its affective or psychological aspects. It involves employing a scale consisting of a standard set of paired oppositional adjectives. Osgood identified three dimensions for analyzing meaning from the perspective of sign users, which encompass evaluative adjectives focused on the value of objects, adjectives indicating the potential or strength of an object, and adjectives representing the activity or dynamics of an object (Rosenberg, 2017). The semantic differential method delves into how individuals comprehend concepts, wherein each concept possesses both connotative and denotative meanings (Chráska, 2016). By measuring opposite adjectives on a numerical scale, this method enables the researcher to reveal hidden meanings based on the characteristics of the concepts under examination (Divilova, 2016).

The initial framework put forth by Osgood et al. (1957) consisted of three dimensions: Evaluation, Potency, and Activity. In this study, the researcher developed a factor design comprising seven differential semantic scales, each consisting of paired adjectives, to assess visual objects. The scales are as follows:

1. Evaluative dimensions: ugly-beautiful, dishonest-honest, unbiased-biased, unusual-normal
2. Potential dimensions: inefficient-efficient, weak-strong, instinctive-logical, unintelligent-intelligent
3. Activity dimensions: aimless-motivated, calm-excitable, unemotional-emotional, tense-relaxed

The researcher employed factor analysis as a data analysis method, which facilitates the simplification of complex data sets by examining correlations between variables (Sytsma, 2006). For the extraction of factors, the researchers utilized principal component analysis (PCA) as another data analysis technique. PCA was applied to the semantic differentials to explore correlations between sets of responses to binary pairs. Through this analysis, the semantic differences were condensed into a small number of components representing subsets of paired adjectives (Sytsma, 2006).

The research focused on four images obtained from the online media source www.covid19.go.id. In the evaluation process, 22 respondents participated in assessing these four visual objects using 12 binary paired adjective concepts. To ensure the adequacy of the sampling, the researcher conducted the Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test, as suggested by Ciabuca (2015). For the KMO test, a value greater than 0.6 is considered suitable, while for Bartlett's sphericity test, a significance value less than 0.05 is indicative of adequacy (Tabachnik, 2001). To ensure the reliability of the study, Cronbach's alpha coefficient was utilized,

and a value greater than 0.6 was deemed acceptable (Divilova, 2016). Additionally, for construct validity, Principal Component Analysis (PCA) with orthogonal rotation (Varimax) was employed for both measurement points. Factors with eigenvalues greater than one, as proposed by Kaiser (1960), were selected for further analysis.

Result and Discussion

The study analyzed four visual objects (Figure 1) using 12 adjective pairs that correspond to the three dimensions proposed by Osgood. Firstly, the evaluative dimension was represented by the following paired adjectives: ugly-beautiful, dishonest-honest, unbiased-biased, and unusual-usual. Secondly, the potential dimensions were expressed through the following opposing adjective pairs: inefficient-efficient, weak-strong, instinctive-logical, and unintelligent-intelligent. Lastly, the activity dimensions were captured through the following opposing adjective pairs: aimless-motivated, calm-excitable, unemotional-emotional, and tense-relaxed.

Figure 1
Visual Objects

Source: www.covid19.go.id

Based on Cronbach's Alpha test, the first object has a value of 0.896; the second object has a value of 0.919; the third object has a value of 0.920; the fourth object has a value of 0.782. Hence the four objects have met the reliability test. Meanwhile, based on the Kaiser Meyer Olkin (KMO) and Bartlett's Test of Sphericity tests, the KMO value was 0.692 and the Bartlett's test of sphericity (significance) was 0.000 <0.05. Thus the 12 adjective concepts that were tested on 22 respondents were considered to fulfill the requirements and deserve to be analyzed by factor analysis (table 1).

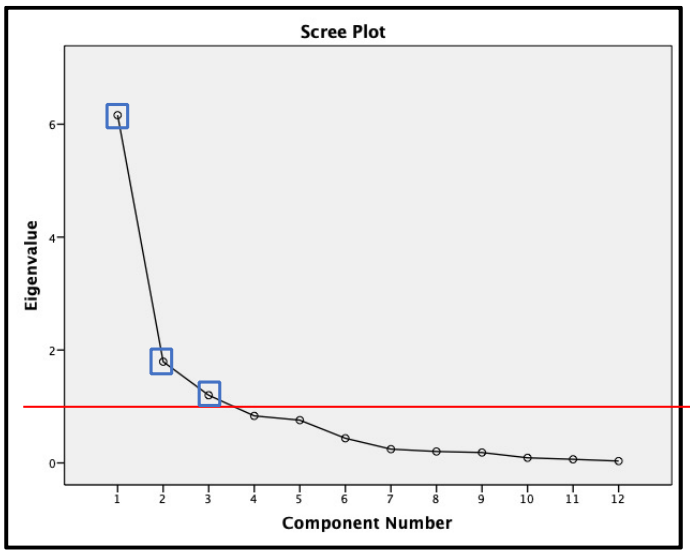
Table 1
KMO and Bartlett's Test of Sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.692
Bartlett's Test of Sphericity	Approx. Chi-Square	193.195
	df	66
	Sig.	.000

Source: Data Analysis Using SPSS

Figure 2
Scree Plot



Source: Data Analysis Using SPSS

Furthermore, construct validity based on the Scree Plot (figure 2), with an Eigenvalue > 1, it appears that there are 3 component points. Thus, in this study there are 3 factors that are formed from the evaluation of various visual images through 12 adjectives. The Table of Rotated Component Matrix shows more details regarding the formation of 12 adjectives that have a strong correlation in each factor (table 2).

- First Factor, there are 5 correlated adjectives, namely dishonest-honest, unusual-normal, unintelligent-intelligent, aimless-motivated, and tense-relaxed.
- Second Factor, there are 4 correlated adjectives, namely inefficient-efficient, weak-strong, calm-excitable, unemotional-emotional.
- Third Factor, there are 3 correlated adjectives, namely ugly-beautiful, unbiased-biased, and instinctive-logical.

Table 2
Rotated Component Matrix

Rotated Component Matrix[a]

	Component		
	1	2	3
Ugly-Beautiful	.576	.124	.647
Dishonest-Honest	.760	.492	-.203
Unbiased-Biased	-.301	.200	.722
Unusual-Normal	.841	.135	.102
Inefficient- Efficient	.534	.600	.468
Weak-Strong	.412	.596	.461
Instinctive-Logical	.100	.122	.637
Unintelligent-Intelligent	.637	.520	.402
Aimless-Motivated	.606	.203	.601
Calm-Excitable	.177	.869	.339
Unemotional-Emotional	.047	.895	.055
Tense-Relaxed	.888	.048	.027

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Source: Data Analysis Using SPSS

The data findings revealed that the paired oppositional adjectives, originally derived from Osgood's proposed three dimensions, have been distributed to establish a novel relationship and form a distinct factor. This newly identified factor, referred to as the First Factor, comprises five paired adjectives: dishonest-honest, unusual-normal, unintelligent-intelligent, aimless-motivated, and tense-relaxed. It is noteworthy that these five adjectives encompass dimensions of evaluation, potential, and activity. The formation of the First Factor is not solely based on the object's intrinsic value, such as its authenticity, honesty, similarity to the norm, or general visual appearance. Rather, it is also associated with the element of creativity and how an object can serve as a motivational stimulus for individuals. In simpler terms, the set correlation established within the First Factor indicates that if the visual elements within an object are perceived as honest, tending towards the norm and intelligence, then the visual object is likely to inspire people and be positively correlated with feelings of relaxation. Considering these distinctive characteristics, the researcher has named this First Factor as "action validation."

Moreover, the Second Factor is comprised of 4 paired adjectives: inefficient-efficient, weak-strong, calm-excitable, and unemotional-emotional. These four adjectives originate from the potential and activity dimensions. Notably, upon observing the Table of Communalities (Table 3), it becomes evident that the extraction values for 'calm-excitable' and 'unemotional-emotional' are the highest, signifying their significant role in explaining the Second Factor. The concepts of calm-excitable and unemotional-emotional pertain to the dimensions of an object's activity or dynamics. Given their highest extraction values, these concepts validate that a visual object that portrays its message in a calming, uplifting manner and is capable of eliciting emotional responses has the potential to stimulate a person's psychological aspects. Based on these prominent attributes, the researcher has designated the Second Factor as "emotional judgment."

Table 3
Communalities

Communalities

	Initial	Extraction
Ugly–Beautiful	1.000	.766
Dishonest–Honest	1.000	.861
Unbiased–Biased	1.000	.652
Unusual–Normal	1.000	.736
Inefficient– Efficient	1.000	.864
Weak–Strong	1.000	.738
Instinctive–Logical	1.000	.430
Unintelligent–Intelligent	1.000	.837
Aimless–Motivated	1.000	.769
Calm–Excitable	1.000	.901
Unemotional–Emotional	1.000	.807
Tense–Relaxed	1.000	.791

Extraction Method: Principal Component Analysis.

Source: Data Analysis Using SPSS

Regarding the Third Factor, there are 3 pairs of correlated adjectives: ugly-beautiful, unbiased-biased, and instinctive-logical. These three adjectives are derived from the evaluative and potential dimensions. However, it is noteworthy that the potential dimension obtained from the instinctive-logical adjective concept has a relatively small extraction value below 0.50, specifically 0.430 (see Table 3). This indicates that instinctive-logical adjectives are not significant in explaining factor formation. In other words, only the evaluative dimensions of ugly-beautiful and unbiased-biased can be employed to elucidate the factors. The evaluative dimensions, especially those derived from the two adjectives, reveal that respondents tend to assess the quality or value of objects based on their beauty. When an object is perceived as beautiful, the visual representation is deemed unbiased. Conversely, objects that are considered not beautiful, dull, or unclear are associated with biased perceptions. As this relationship pertains to one's perspective on beauty, the researcher identifies the Third Factor as "aesthetic consciousness."

Viewed from a neurophysiological standpoint, the process of perception is intricately connected to the way we interpret visual stimuli. This indicates that even simple and existing visual objects can evoke a multitude of possibilities in our minds. In this study, the researcher identified three interrelated factors that emerge when individuals respond to visual objects related to Covid on online media. These factors are termed as action validation, emotional judgment, and aesthetic consciousness. The researcher has formulated these three factors as follows:

1. Aesthetic consciousness is a factor that influences a person by paying attention to the beauty element of the visual image.

2. Emotional Judgment is a factor that affects a person, where the emotional aspects are attached to the visual image.
3. Action validation is a factor that affects a person when a visual image is interpreted authentically, the message can be received honestly, and creates a sense of trust so that it encourages someone to act in accordance with the message contained in the visual image.

These three factors are inherently interconnected. When an individual perceives an object, it is inseparable from the context or other surrounding elements (not as isolated entities). Although perception involves a psychological process, it necessitates the presence of the object being perceived. The perceived object exists within the consciousness of the person responding to it (Van Eymeren, 2014). Smith (2005) also emphasizes that the visual elements of an object possess power, not merely in their visible attributes but also encompassing ideas, expressions, and individual judgments. Visual elements that are observed, imagined, and expressed have an impact on how individuals respond to one another as interdependent organisms in a dynamic life process. Thus, as cultural products, each visual element tested in the Covid-19 campaign has diverse interpretations and represents its unique realm of meaning (Cavallaro, 2001).

Integration becomes more powerful when facilitated by technology. Various visual symbols can be used to represent specific meanings. Visual elements can be freely exchanged, edited, manipulated, or enhanced to ensure they are easily consumable and understandable by people. In this context, visual culture issues introduce a new level of reliability in how these visual elements convey their representations (Kress & Leeuwen, 2021). A stable visual element with a certain meaning can be creatively altered to create an entirely different domain of meaning. For instance, a stable symbol of mourning can be associated with an ambulance to evoke a sense of fear. Similarly, the use of the color black on a map signifies the outbreak of Covid-19 cases, which also symbolizes grief that is widely recognized by the public. Another intriguing visual object is that of a little girl washing her hands, which is perceived as more genuine and emotionally engaging in conveying its meaning. On the other hand, photos of women on objects representing the policy of Imposing Restrictions on Community Activities (PPKM) may convey a sense of 'weakness' and 'bias' from the perspective of the community (see figure 1). The visual elements related to the Covid-19 pandemic campaign are intended to encourage people to comply with government policies. The interplay of social relations, the order of life, and technological advancements introduces visual elements that carry social, epistemological, psychological, and moral-ethical consequences. This finding closely aligns with what Piliang (2018) conveyed, where social, epistemological, psychological, and moral-ethical consequences are inseparable aspects of the domain of meaning representation in visual objects influenced by technology.

Essentially, the perception of visual objects that undergo technological intervention inherently involves recognition, specifically the identification of objects through data. Schirato & Webb (2004) expound on the perspective of modern neurophysiology, positing that what we see is linked to our individuality, emotional proximity, and alignment with our mental and social context. Consequently, the process of interpreting visual stimuli extends beyond physiological and nervous system functions, encompassing cultural and experiential elements. Notably, prior research by Widiatmojo & Nasvian (2021) underscores the crucial role of content

creators in comprehending visual ethics in the digital age. It is emphasized that images possess the capacity to sway people's thoughts, emotions, meaning attribution, and conduct, thereby offering the potential to reshape viewpoints and mitigate concerns related to the Covid-19 pandemic. As such, the deliberate selection of subject matter, location, theme, execution, and visual approach can wield significant influence.

Despite a decline in pandemic cases, a considerable number of individuals remain concerned about the potential emergence of new virus variants. Some individuals continue to encounter challenges in adopting a healthier lifestyle. It is essential to acknowledge that effectively managing a pandemic requires the active involvement of all stakeholders. As such, the Government of Indonesia must develop intelligently crafted information for dissemination. Regarding the logical implications of incorporating visual elements within technology, the results of this study hold considerable importance. Individuals not only possess the ability to recognize and interpret messages conveyed through visual objects, but they can also validate their actions to align with the conveyed messages within the visual content (action validation).

The result of this study aligns with previous research conducted by Tahir et al. (2020) and Delicado & Rowland (2021), which also emphasize that visual elements possess their own rhetoric, conveying specific meanings. However, due to the exceptional circumstances of the Covid-19 Pandemic, it is essential for the government to consider the habits of the community (Schirato & Webb, 2004) and promote the internalization of a healthy lifestyle within the population. In the Covid-19 campaign, visual elements should take into account and evoke physiological, affective, and aesthetic aspects. The purpose of these visual objects goes beyond information updates; they should also create a sense of security, calmness, and trust among people. Hoffman (1998) refers to this as adhering to a set of rules based on the community's thinking and social framework to ensure that the perceived messages align with the campaign's objectives. Hence, it is crucial for Covid-19 campaigns on online media to incorporate elements of message beauty (aesthetic consciousness) while embedding emotional aspects (emotional judgment). It is assumed that this approach will lead individuals who receive the information to develop a long-term internalized awareness.

Conclusion

This research delves into the visual elements of the Covid-19 campaign on online media, examining it through the lens of visual culture. The researcher places emphasis on the perspective of modern neurophysiology, asserting that visually existing objects not only involve physiological structures but also encompass relational aspects that influence how individuals perceive them. Moreover, visual objects altered by technology can lead to various consequences.

To analyze the data, the study employs semantic differential with principal component analysis (PCA). The assessment involves 22 respondents who rate 12 binary paired adjectives. The researcher identifies three factors that correlate with how individuals respond to visual objects associated with the Covid-19 campaign: action validation, emotional judgment, and aesthetic consciousness. Based on these findings, the study suggests that, in extraordinary circumstances like the Covid-19 pandemic, the Government should consider physiological, affective, and aesthetic aspects when crafting visual elements for policy campaigns.

However, it is worth noting that this study's limitation lies in the absence of multimodal analysis. Future research could delve into visual image modes and connectivity in the digital age. Such exploration may unveil the significance of visual elements that appeal to individuals' emotional aspects and are supported by high connectivity, leading to effective internalization of messages and encouraging proactive action.

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