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Analysis of Tiktok @Pandawaragroup Social Media Content as Educational Content Environment

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ABSTRACT

The Pandawara Group is a group of young people from Bandung who have gained popularity on the social media platform Tiktok for their content focused on cleanliness. They aim to educate and encourage the public to be more aware of environmental cleanliness. This research seeks to examine how the TikTok content of @Pandawaragroup, posted between September 1 and 29, 2023, serves as environmental education using environmental communication theory. The indicators used in this study are the dimensions of environmental education: knowledge, attitude, and behavior. The research employs a quantitative approach with content analysis, using video as the unit of analysis, which includes 33 texts, 46 images, and 22 audio elements. Two individuals performed coding to ensure objective results. The data obtained were analyzed descriptively and presented in the form of frequency and percentage tables. Additionally, the agreement between coders was calculated using Holsti's formula, and reliability was assessed using Scott's formula. The results show that the TikTok content of @Pandawaragroup contains environmental education elements, with text posts at 90.90%, images at 93.47%, and audio at 86.36%. Reliability testing indicates the highest reliability values were found in audio, text, and image units. Based on these findings, the study concludes that the TikTok content of @Pandawaragroup can be characterized as environmental education content.

Keywords: Environmental education; TikTok content; Pandawara Group

Analisis Isi Media Sosial TikTok @Pandawaragroup sebagai Konten Edukasi Lingkungan

ABSTRAK

Pandawara Group merupakan sekelompok pemuda asal Bandung yang populer di media sosial TikTok dengan konten bersih-bersih guna memberikan edukasi serta ajakan kepada masyarakat agar memiliki kesadaran akan kebersihan lingkungan. Penelitian ini bertujuan untuk melihat penggambaran konten media sosial TikTok @Pandawaragroup yang diunggah pada tanggal 1 s.d 29 September 2023 sebagai konten edukasi lingkungan dengan menggunakan teori komunikasi lingkungan. Indikator yang digunakan dalam penelitan ini berupa indikator dimensi edukasi lingkungan, yaitu pengetahuan, sikap, dan perilaku. Pendekatan dalam penelitian ini adalah pendekatan kuantitatif metode analisis isi dengan unit analisis video yang terdiri dari 33 teks, 46 gambar, dan 22 audio. Untuk mendapatkan hasil penelitian yang objektif, koding dilakukan oleh dua orang. Hasil data yang telah didapatkan, dianalisis secara deskriptif, dan disajikan dalam bentuk tabulasi frekuensi dan persentase. Setelah itu, menghitung nilai kesepakatan antarkoder menggunakan rumus Holsty dan menghitung nilai reliabilitas mengguna rumus Scott. Hasil penelitian menunjukkan konten TikTok @Pandawaragroup mengandung edukasi lingkungan, yaitu pada unggahan teks sebesar 90.90%, gambar sebesar 93.47%, dan audio sebesar 86.36%. Kemudian, hasil uji reliabilitas menunjukkan nilai reliabilitas tertinggi terdapat pada unit analisis audio, teks, dan gambar. Berdasarkan hasil penelitian, kesimpulan dalam penelitian ini adalah unggahan konten TikTok @Pandawaragroup dapat digambarkan sebagai konten edukasi lingkungan.

Kata-kata Kunci: *Edukasi lingkungan; Konten Tiktok; Pandawara Group*

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INTRODUCTION

Waste in Indonesia is a serious problem. Inadequate waste management leads to the accumulation of waste and causes environmental pollution. The National Waste Management Information System (SIPSN) data 2022, Kementerian Lingkungan Hidup dan Kehutanan (KLHK) reported that the national waste accumulation across 202 districts and cities in Indonesia reached 21.1 million tons. Of this, 65.71%, or 13.9 million tons were managed effectively, while the remaining 34.29%, or 7.2 million tons were not well-managed (Kemenkopmk, 2023). Poor waste management is evident from the continued presence of trash around roads, drainage systems, rivers, and even in the sea. Dispersed waste creates unsightly and unpleasant scenes. Improperly managed waste decomposes, emitting unpleasant odors and contaminating the environment. Decomposing waste produces methane or greenhouse gases, which contribute to global climate change. Another significant impact of household waste is water pollution. Contaminated water cannot be used for daily activities (Utami et al., 2023).

Proper regulations and management are necessary to reduce waste production and environmental damage caused by waste. The United Nations General Assembly 2015 introduced the 2030 Agenda for Sustainable Development Goals (SDGs), which commits globally and nationally to pursuing sustainable environmental development due to waste's health and climate change impacts. Sustainable waste management is one of the indicators in the SDGs related to responsible consumption and production (SDGs Indonesia, 2023). Law No. 18 of 2008 about waste management states that waste is a national issue, requiring comprehensive and integrated management to provide economic benefits, promote public health, ensure environmental safety, and influence community behavior (Kurniawati et al., 2023).

Various approaches are employed to educate the public on proper waste management to prevent environmental harm. One method includes socialization or campaigns about the 3R waste management program: Reduce, Reuse, and Recycle. However, these efforts have not been entirely successful. The public still believes that improper waste disposal has no significant impact (Marasabessy & Rumodar, 2022). This attitude of underestimating the environmental damage caused by waste needs to be changed through alternative communication methods. This is because the community plays a crucial role in maintaining the environment, which is their living space and will be inherited by future generations.

One communication method is to use social media to educate the public about environmental issues. Social media can reach a broad audience quickly and without barriers. According to We Are Social data from January 2023, there are 4.76 billion active social media users out of a global population of 8.01 billion. TikTok is currently the most popular social media platform worldwide. Since 2022, TikTok has seen a rise in active users, with Indonesia being the second-largest user base after the United States, with a total of 113 million users as of April 2023 (We Are Social Indonesia, 2023).

Previous study verified that the popularity of the social media platform TikTok has led various social groups to use it as a tool for environmental education. The results of the study show that TikTok social media has an effect on producing effects for its users. Media effects include cognitive, affective, and conative effects ranging from providing information about the environment, generating emotional stimulation of concern, to prosocial behavior involved in maintaining cleanliness (Putri et al., 2024). TikTok has also been proven to be

able to be used to disseminate educational content (Zhahira & Mutiaz, 2023). TikTok can be a powerful platform for spreading positive and helpful messages, supporting research that persuasive communication effectively influences audience behaviour (Septiyani et al., 2024).

The novelty of this research focused on environmental issues is the Pandawara Group (@pandawaragroup). Pandawara Group has become an agent of change on social media, encouraging people to maintain environmental cleanliness through their posts. Their content educates and urges the public to be aware that their environment must be kept clean and not damaged by their actions.

While many young people typically create content about their daily lives, Pandawara produces unique content that involves cleaning up litter in rivers and inviting their followers, particularly TikTok users, to join them in these cleanup efforts. This distinctive approach has garnered a positive response from the Indonesian public. Pandawara's success is evident from their 8.4 million followers and 154.1 million likes on TikTok. Within less than a year, their TikTok account was also verified. Pandawara's commitment to environmental cleanliness earned them three awards at the TikTok Awards Indonesia 2023: Creators of the Year, Rising Stars of the Year, and Change Makers of the Year.

The actions of Pandawara Group align with environmental communication practices. Environmental communication involves conveying messages about environmental conservation using communication techniques, principles, and approaches for managing and protecting the environment. Its focus is on raising awareness of environmental issues, influencing policies, changing behaviors, and engaging the public in actions (Atmaja & Dirgantara, 2022).

Pandawara's initiative of cleaning up litter and challenging the community to join them is a novel and rare approach, as most environmental advocates on TikTok usually promote environmental care verbally. In contrast, Pandawara invites people to participate directly in cleanups. This research aims to examine and analyze the environmental education content on TikTok @pandawaragroup.

RESEARCH METHOD

The research conducted from September 2023 to June 2024 uses quantitative content analysis with the aim of systematically identifying the actual content of communication using symbols or text in certain media (Martono, 2016). Quantitative content analysis is conducted objectively to provide an accurate representation of the content as it is. The approach used in this research is descriptive quantitative content analysis. Examining the apparent meanings in the symbols and text of each Pandawara Group post. These meanings analyze and interprete descriptively based on the format of the short video content on TikTok @pandawaragroup. The object of this study is the TikTok content from @pandawaragroup posted between September 1 and 29, 2023. During this period, Pandawara posted a total of 12 video posts. Evaluating unit of analysis in the videos based on elements such as text, scenes, and audio. The consideration in selecting the boundaries of TikTok posts by @pandawaragroup in September 2023 is due to time constraints in completing the research, so the author only chose content uploaded in September 2023.

The unit of analysis used in this study is based on the elements of video as a learning medium, namely text, scenes, and audio (Retnawati et al., 2023). The reason is that TikTok

content packaged in video form is not only utilized as entertainment media and a means to enhance self-existence, but TikTok can also be beneficial as an educational medium (Rahmana et al., 2022). In the TikTok content of @Pandawaragroup, the units of analysis used are text, scenes, and videos that demonstrate environmental education. For example, the scenes in the Pandawara Group video display dramatic visuals before and after the cleaning action. This will have an emotional and visual impact on the audience about the importance of the actions taken by Pandawara in maintaining environmental cleanliness. Next, the text that appears in the video, such as brief facts about environmental damage or calls to care for the environment, can strengthen the educational message by delivering easily digestible information. Then, the audio analysis unit that will be used is a voice-over in the form of a narration that can create an emotional atmosphere, making the message more memorable to the audience (Retnawati et al., 2023). Through these three units of analysis, the author will examine the TikTok content of @Pandawaragroup as environmental.

Data collection in this study uses coding sheets for Coder 1 and Coder 2 to ensure accuracy, consistency, and reliability. Employing two coders helps prevent bias in data analysis and simplifies the final data results (Eriyanto, 2011). The data that has been obtained is then analyzed using descriptive quantitative content analysis techniques with the following stages:

1. The operationalization of the formulated concept is then entered into the coding sheet.
2. Provide training to the coders who will assess and measure the content. At this stage, the author also tests the reliability until the reliability figure obtained is high.
3. Tabulate the coding sheet based on the operationalization of the determined concept.
4. Data obtained from the coding sheet are arranged into frequency distribution and percentage forms.
5. Calculate the agreement value from the coding results obtained between coders using the Holsty formula.

$$\text{CR} = \frac{2M}{N1 + N2}$$

Explanation :

- CR = *coefficient reliability*
- M = the same amount of coding
- N1 = numbers of coding by coder 1
- N2 = numbers of coding by coder 2

6. Determine the agreement category based on the Guilford scale (1965).

Table 1. Guilford Scale (1965)

Parameter	Reliable Category
$0.8 < r_{xy} < 1.00$	Very High
$0.6 < r_{xy} < 0.8$	High
$0.4 < r_{xy} < 0.6$	Fair
$0.2 < r_{xy} < 0.4$	Low
$0.0 < r_{xy} < 0.2$	Very Low

Source: Procced by researcher

7. Testing reliability using intercoder reliability to see the level of agreement of the coding used by the author with other coders. If the results of the coding findings of the two coders are the same, then the results of the coding guidelines or coded symbols can be said to be reliable because they are not ambiguous and both coders have an understanding of the coding guidelines and symbols (Martono, 2016). To measure the reliability value of the similarity between coders, you can use Scott's formula.

$$\textit{Intercoder reliability} = \frac{\%\ \boldsymbol{observed\ agreement} - \%\ \boldsymbol{expected\ agreement}}{\mathbf{1} - \%\ \boldsymbol{expected\ agreement}}$$

Explanation :

- Observed agreement = the total number of agreements between coders
- Expected agreement = the sum of the squared proportions of each category

RESULT

The analysis of environmental education in TikTok content from @Pandawaragroup involves three dimensions: knowledge, skills, and attitudes. In the knowledge (cognitive) dimension, the aim is to provide individuals with information and understanding about environmental issues. In the attitude (affective) dimension, the goal is to motivate individuals to change their attitudes toward helping preserve the environment.

In the skills (psychomotor) dimension, the focus is on enabling individuals to take action and develop skills useful for addressing environmental issues (Sulastri, 2019). These actions and attitudes of caring for the environment are the same as someone showing a sense of responsibility to preserve nature and trying to repair the environmental damage that has occurred (Putra & Rocmaniah, 2024), each dimension of environmental education is conveyed through various units of analysis in the videos, including text, images, and audio. The results and discussion of the study are as follows:

1. Text

The percentage of text units based on the assessment of both coders shows that 90.90% (or 30 texts) of the p text in the videos contains environmental education. In contrast, 9.10% (or 3 texts) do not contain environmental education. The intercoder agreement value for text units, using Holsti's formula, is 0.96 or 96%, which is categorized as very high on Guilford's scale. Text refers to a sequence of words with a structured language arranged to form meaningful writing (Retnawati et al., 2023). One example of a text containing environmental education is *"Tempat bermain sepak bola terburuk yang pernah ada" in* Scene 1, Text 1 of the content "Tempat Bermain Sepak Bola Terburuk yang Pernah Ada Versi Pandawara Group" This sentence highlights that, in Indonesia, there are still places that should not be used for waste disposal but are instead used as dumping grounds. The text aims to inform and raise awareness about current environmental issues. The amount of waste shown in the video should encourage people to reduce waste production and engage

in recycling to prevent accumulation. The involvement of the Indonesian government in the *Sustainable Development Goals (SDGs)* related to sustainable environmental development also supports the coders' agreement that the text contains a knowledge dimension in environmental education. This is because sustainable waste management is a key indicator in the *SDGs* for responsible consumption and production (SDGs Indonesia, 2023).

The marginal value obtained for the text unit analysis in TikTok videos from @Pandawaragroup predominantly falls under the knowledge category. This indicates that most of the text in Pandawara's content provides environmental education focused on knowledge and understanding of environmental issues. This is evidenced by the inclusion of information in the texts, such as the importance of maintaining environmental cleanliness and the consequences of littering. After calculating the marginal values and proportion indices, the reliability value for the text unit analysis using Scott's formula is 0.93. According to Guilford's scale, this result is categorized as very high. Therefore, the text unit analysis in TikTok videos from @Pandawaragroup is considered highly reliable as a measurement tool in this research.

2. Scene

The percentage of scene units based on the assessment of both coders shows that 93.47% (or 43 scenes) of the total scenes in the videos contain environmental The intercoder agreement value for scene units, using Holsti's formula, is 0.93 or 93%, which is categorized as very high on Guilford's scale. A scene is a short segment of the overall video that depicts a continuous sequence connected by space, time, content, theme, and characters (Retnawati et al., 2023). One example of a scene agreed upon by both coders as containing environmental education in the knowledge dimension is Scene 1 of the content "Pandawara's Visit to SMP 5 Bandung."

Figure 1. Scene 1 Content: 'Pandawara's Visit to SMP 5 Bandung'
Source : TikTok @Pandawaragroup, 2024

Scene 1 shows that in addition to educating about the environment through social media, Pandawara also provides education through school visits, offering material on proper waste management to prevent environmental damage. Schools are not only places for learning but also play a role in shaping student behavior. The visits and socialization provided by Pandawara on waste management can enhance students' knowledge and understanding of maintaining a clean environment through proper waste sorting and management via the 3R movement (*Reuse, Reduce, Recycle*) (Widiasih, 2024). The actions

and socialization carried out by Pandawara, it is hoped that it can move the hearts of the community to be aware that the waste they throw away carelessly will pile up and have an impact on the environment such as flooding (Taufiqurrahman et al., 2024). If a flood occurs, it will have a bad impact on the aquatic ecosystem and the community will also experience a lot of losses (Djawaria Pare et al., 2023). Therefore, both coders agree that the activities conducted by Pandawara in this scene have an educational dimension related to environmental knowledge.

The acquisition of the highest marginal educational value for the scene analysis unit falls under knowledge or cognitive. This result is characterized by the numerous scenes displayed by Pandawara, such as rivers and beaches littered with trash. These scenes can help the public become aware of and recognize the currently concerning state of the environment. After calculating the marginal value and index proportions, the reliability value for the scene analysis unit is determined using Scott's formula. Based on the results obtained, the reliability value for the scene analysis unit is 0.88, which is categorized as very high according to Guildford's scale. Therefore, the scene analysis unit in the TikTok video @Pandawaragroup is considered highly reliable as a measurement tool in research.

3. Audio

The overall percentage of the audio analysis unit from the total audio in the video, based on the evaluation of both coders, is 86.36% or 19 audio segments containing environmental education. In contrast, the audio segments that do not contain environmental education account for 13.63% or 3 segments. The agreement value obtained from the text analysis unit using Holsti's formula is 0.96 or 96%, which is categorized as very high according to Guilford's scale. Audio refers to the sound or noise produced by the vibration of objects. In the video, the audio used is a *voice-over*, which consists of verbal messages or spoken words (Retnawati et al., 2023). One audio segment agreed upon by both coders contains the attitude dimension of environmental education, specifically: “We will never tire of moving the hearts of thousands because we believe that what we do determines the state of the environment in the future,” found in audio 2, scene 6, of the content “Pandawara’s Effort to Achieve *Big on The Small Screen (BOSS).*” Social media now plays a crucial role in shaping public opinion and influencing attitudes towards environmental cleanliness. TikTok, as a popular audiovisual platform, is widely used by environmental advocates to interact with the public (Eryc, 2023). Based on this audio, both coders agreed that the attitude dimension of environmental education is present, as Pandawara’s statement can motivate the public and influence their responsibility towards maintaining the cleanliness of their environment. Actions taken to preserve the environment now will impact the future (Pudjiastuti et al., 2021).

The highest marginal value obtained in the audio analysis unit is in the category of knowledge or cognitive. This is indicated by the information provided to educate the public on the importance of being responsible for environmental preservation to ensure that future generations can still enjoy the natural beauty of today. After calculating the marginal values and index proportions, the reliability of the audio analysis unit is determined using Scott's formula. The results show a reliability value of 1, which is categorized as very high according to Guilford's scale. Therefore, the audio analysis unit in the TikTok video @Pandawaragroup is considered highly reliable as a measurement tool in research.

DISCUSSION

Based on the research data, it can be concluded that the content of TikTok @Pandawaragroup depicts environmental education. This conclusion is supported by the results obtained from frequency distribution and percentage calculations, agreement values, reliability tests, and the very high category from Guilford's scale, indicating that the text, scenes, and audio in Pandawara's content contain environmental education. The use of social media, particularly TikTok, as a channel for Pandawara to campaign and spread environmental information has proven effective in educating and persuading the public to care about environmental cleanliness. This finding is in line with previous research that states that the social media platform TikTok has an influence in generating effects for its users. The effects of the media include cognitive, affective, and conative effects, ranging from providing information about the environment, generating emotional stimuli of concern, to prosocial behaviors involved in maintaining cleanliness (Putri et al., 2024). Social media has become an extraordinary revolution in communication technology that allows humans to exchange data and information from all kinds of applications at high speed. The use of social media is utilized to reach the wider community and spread information messages quickly without any obstacles (Ibrahim & Iriantara, 2017). This is also consistent with other previous research that states TikTok has been proven to be used for disseminating educational content (Zhahira & Mutiaz, 2023).

TikTok's algorithm prioritizes popular content that is liked by many people, making it more accessible and prominent on users' For You Pages (FYP). This greatly helps Pandawara to quickly gain broad recognition. Pandawara's consistency in uploading content and producing unique content is able to attract public attention. The challenges Pandawara presents to its followers, such as calls to clean up specific areas, have created interactions that foster high engagement. Pandawara has achieved its popularity through the content and interactions it creates with its TikTok followers. TikTok, as an audiovisual-based social media platform, greatly assists the public in understanding the content uploaded by Pandawara. The visual scenes presented in each of Pandawara's posts are clarified by the audio, which translates the intended message of each upload. Not only that, users can also play video content repeatedly in certain parts until they understand the meaning or information provided in the video (Huda & Ardi, 2021). This effectively helps align public perception with the message aims to convey through its content uploads (Suyanto, 2023). The research findings obtained currently align with previous studies that state TikTok can be a powerful platform for spreading positive and beneficial messages, supporting the research that persuasive communication effectively influences audience behavior (Septiyani et al., 2024).

The use of TikTok as an environmental communication medium by Pandawara in this study represents a novel finding for environmental communication theory. Previous theories, such as those by Robert Cox, an expert in environmental communication from the United States, have not fully explored TikTok's potential as a channel for environmental education. Therefore, this research contributes to and complements Cox's theory by demonstrating how social media, particularly TikTok, can effectively disseminate environmental education messages. The study, titled "Content Analysis of TikTok @Pandawaragroup as Environmental Education Content," enriches Cox's environmental communication theory and highlights its relevance and adaptability for different situations, aligning with current environmental and technological changes.

CONCLUSION

The TikTok content of @Pandawaragroup, uploaded from September 1 to 29, 2023, has been assessed through video analysis units—text, scenes, and audio—and evaluated by both coders based on the fulfillment of environmental education concepts such as knowledge, skills, and attitudes. The results of the content analysis of TikTok @Pandawaragroup indicate that Pandawara's videos can be described as environmental education content. This content effectively provides learning and motivation for environmental conservation through knowledge, attitudes, and skills, presented through practical examples and experiences in the videos. This shows that the content of Pandawara aligns with environmental communication theory, which focuses on educating the public about environmental issues. Applying environmental communication theory in this research demonstrates the need for scientific and theoretical approaches in evaluating content to ensure that claims about the environmental education value of Pandawara's content are well-supported. Using environmental communication theory to assess content relevance enhances the validity and credibility of TikTok @Pandawaragroup as environmental education material. In each upload, Pandawara aims to persuade its followers to raise awareness about environmental issues. Thus, environmental communication theory is crucial in ensuring and proving that content considered educational by the public genuinely has a positive impact on public awareness and behavior regarding environmental conservation. The new findings in this study also contribute to the development of previous communication theories, showing that TikTok, as used by Pandawara, can be an effective communication medium for persuading and educating the public about environmental issues.

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