

The Effectiveness of Social Media Campaigns in Raising Awareness about Climate Change among Indonesian Gen Z

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Abstract. Indonesia is dominated by generation Z who are closely related to social media. With the advantages of social media, it can be used as a way to campaign for climate change awareness in Indonesia. But how effective are social media campaigns in increasing awareness of climate change for Gen Z in Indonesia? This study evaluates the effectiveness of social media campaigns in increasing awareness about climate change among Indonesian gen Z using a meta-analysis literature review method. This report reviews existing literature on climate change-related social media campaigns in Indonesia and analyzes studies to determine the overall effectiveness of such campaigns. The results show that social media campaigns can be an effective way to increase awareness about climate change among Indonesia's Generation Z, because the campaign has a positive impact on their attitudes and behavior towards the issue.

Keywords: Social media, climate change, gen z, Indonesia

1 Introduction

One of the most destructive environmental threats is climate change [1]. Climate change, in accordance with Article 1 of Act No. 32 of 2009 on the Protection and Management of the Living Environment, refers to changes in the global composition of the atmosphere caused by human activity, either directly or indirectly, resulting in changes in natural climate variability over a comparable period of time [2]. That will affect different sectors of life. One of the predicted impacts will be an annual rise in air temperature of 0.014°C [4]. The next generation will experience the greater impact of climate change. Therefore, efforts are needed to raise public awareness of climate change, especially among younger generations, as it will affect and affect their future.

According to the 2020 BPS census data, Generation Z or commonly known as the Z gene is the majority composition of the Indonesian population. 27.94% of the Indonesian population is a Z gene or 74.93 million people [5]. Gen Z is meant to be a population born in 1997-2012 or currently in the age range of 11-26 years. Not all Z genes are in the productive age, but about

four years from now the entire Z gene is in the reproductive age [6]. With the Z gene becoming the most composed as the population of Indonesia, Gen Z as a majority will be the successor and leader of the nation in the future and will face one of the big hands, namely climate change. As the generation with the largest population in Indonesia, Generation Z has a crucial role to play in shaping new habits to support environmental sustainability (Widyati et al., 2022). , [16]. Increasing awareness and understanding of climate change can influence individual behavioural changes to take the necessary action to reduce greenhouse gas emissions [8]. Efforts to raise the Z gene awareness of climate change can be done in a variety of ways, including using ways that follow the times, such as social media campaigns.

Digital social media has grown so rapidly in recent decades. By 2023, Indonesia had recorded 167 million social media users and 153 of them were users of social media over the age of 18, which is 79.5% of the total Indonesian population [9]. Social media like Instagram, Facebook, X, Telegram, Tiktok and so on are considered effective for delivering messages because they have features that are easily accessible anywhere, anytime, by anyone and in real time [10]. Nowadays, campaign activities are very easily found on social media, ranging from the use of images, animations, pop-up ads, to people who are considered capable of influencing social media or commonly referred to as “influencers”.

The Z gene attachment to social media could be a container for a campaign to raise awareness about climate change. Raising awareness is an early step towards tackling climate change. Sustainable awareness is the basis for an individual to change his behavior in tackling climate change [11]. Through cultural cultivation, public awareness of the environment can be achieved if continuously pursued from the earliest [12]. Therefore, the campaign should be carried out as soon as possible as an attempt to raise public awareness of climate change. Campaign action for climate change mitigation can be carried out by the Z-gen that is considered to have the urgency of future climate changes as key actors and actors in the future [13].

A campaign or promotion is a means of providing information, persuading, or reminding the target recipient of a campaign message with the aim of raising attention, interest, desire, or encouraging action [14]. It is often abbreviated as AIDA (Attention, Interest, Desire, Action) which are all stages of the purpose of the campaign or promotions whose primary objective is the purchase decision in marketing or action in the campaign [10].

With the Indonesian population dominated by the Z gene accompanied by the rapidly expanding social media where the Z genes are very attached to social media, then with the surplus of social media that is easily accessible anywhere, anytime, by anyone in real time can be a way for climate change awareness campaigns in Indonesia. But how effective are social media campaigns to raise awareness of climate change for the Z gene in Indonesia? This article will discuss the effectiveness of social media campaigns in raising awareness about climate change among Indonesian Z genes.

2 Method

This article was written using the meta-analysis method of the literature review. Literature review is an integrated analysis of scientific writings directly related to research questions [15]. Through the review of literature, it is expected to be possible to produce answers to a research

question that is not obtained by other methods. The author carried out a literature review focusing on journal articles and media coverage articles published in the last six years between 2018 and 2023. In the process, the author reads, records, analyzes, and processes various relevant research materials. However, the author restricts the literature content only to the topic of raising climate change awareness by Generation Z through social media and tries to analyze it comprehensively in various aspects.

The literature sources are used to discuss issues related to climate change, with a focus on raising public awareness, especially in the generation Z through the media. Publication results were obtained from the Google Scholar site with the help of Publish or Perish (PoP) and VOSviewer software, using keywords like “campaigns”, “social media,” “climate change,” “environment,” “generation Z,” and “Indonesia.” Articles that meet the criteria are then collected and systematically checked. After that, the data source is selected, presented, and analyzed using descriptive methods, in order to be concise and systematic in its presentation.

3 Results

After conducting a search, 15 articles were found that met the criteria set. Details of the findings and searches can be found in Table 1.

Table 1. Journal article findings. Various studies on raising public awareness of Generation Z on climate change with social media

No	Researcher	Publication year	Title	Research result
1.	Liswandi & ImanPermana	2021	Increased Generation Z Awareness of ClimateChange in Indonesia	The results of the activity show that the participants of this webinar are quite satisfied with the webinar on climate change and mangrove because it opens the minds of the participants.
2.	Arsya Yanuar Widyati, Yanuar Luqman, dan Muhammad Bayu Widagdo	2022	The impact of the No Plastic Straw Campaign and the level of environmental awareness on reduction behavior	The results show that the level of environmental awareness influences the behaviour of reducing the use of plastic injections in generation Z.
3.	Ester Sinarto	2021	Greta Thunberg's effortsin raising global public awareness through social media related to climate change issues	The results of this study show that Greta Thunberg has successfully leveraged the use of Twitter and Instagram as a supportive factor in raising global public awareness of climate change issues.

Table 1. (Continued) Journal article findings. Various studies on raising public awareness of Generation Z on climate change with social media

No	Researcher	Publication year	Title	Research result
4.	Yusril Sahendra, Shinta Riski, Amanda, Ramadhani, Shanti Aulia, Faradela, Yuhdi Fahrimal, dan Asmaul Husna.	2023	Revitalizing the role of youth in the social movement cares about climate change in the digital age.	The output of the library highlights the important role of young generations as successors and contributors in building a country and addressing social problems. The younger generation, with its social media capabilities, is seen as a very effective tool in promoting global climate change control efforts. Social movements with a contemporary appearance are expected to be more attractive to younger generations, thereby enhancing the success of joint efforts in tackling climate changes and driving positive change in societies.
5.	Mukhammad Fatkhullah, Iwed Mulyani, Armoni Suci Dewi, Muhammad Alhada Fuadilah Habib, dan Audina Reihan.	2022	Communication strategies in tackling climate change through community engagement.	The results of the study conclude that low public participation in climate change action programs is due to the fact that the information provided is still formal and less continuous.
6.	Angga Ariestya, Gracia Paramitha, dan Maria Advenita Gita Elmada.	2022	Climate Change Awareness of Gen Z: The Influence of Frame and Jargon in Online News.	The results of this study show that online news discussing climate change can influence the consciousness of Generation Z compared to jargon. Although Generation Z is aware of climate change, the correlation between cognitive and connative consciousness is still low. Internal factors such as a lack of role models and external factors such as lack of involvement in policy can be factors contributing to low cognitive awareness.
7.	Ghina Shabrina Ulfa & Anna Fatchiya	2018	Effectiveness of Instagram "Earth Hour Bogor" as an Environmental Campaign Media	The results of this study show that Instagram social media through the @ehbogor account has proven effective in stimulating the attention of followers.

Table 1. (Continued) Journal article findings. Various studies on raising public awareness of Generation Z on climate change with social media

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				Furthermore, the campaign is able to arouse interest to learn more, stimulate the desire to participate, as well as encourage followers to follow the campaign activities organized and invite others to actively join.
8.	Edi Pranoto, DesyDiana and Eka Sally Moreta	2020	The Effectiveness of Social Media Versus Electrical Media in Implementing Information Dissemination of Dangerous Plastic Bags	The result of this study is that the dissemination of news about the dangers of using plastic bags on socialmedia platforms has a significantimpact on improving eco-literacy. Meanwhile, there is no evidence tosuggest that sharing news through Radio, TV, government websites, or other electronic media has the same impact.
9.	Siti Maryam, Pandu Prasetyo,Vina Mahdalena	2021	Digital Media Literacy onthe Greenpeace Id Campaign on Social Media Instagram in Changing Public Behavior	It was found that the Greenpeace Id Instagram account was able to effectively influence and change the behavior of its followers to reduce the use of plastic by encouraging them to bring personal shopping bags, use tumblers or personal food containers, avoid unnecessary dumping of garbage, and participate in tree planting activities.
10.	Maudy Noor Fadhlia	2022	Greenpeace Campaign in Preventing Oil DrillingActivities by Shell and Finland in the Arctic	The study found that Greenpeace's campaign on social media was highly effective in raising awareness and knowledge about environmental issues, gathering support, until Shell finally stopped ice-breaking activities in the Arctic.
11.	Ajril Fadli & Hasan Sazali	2023	The Role of Social Media Instagram@Greenpea ceidas a Campaign Media in Environmental Protection	The results of this research show that the @greenpeaceid Instagram account plays a crucial role as a medium for environmental conservation campaigns. This Instagram account has effectively disseminated information to the public about environmental issues and has had a positive impact, evident in the form of numerous "likes" and supportive comments. It contributes to increased awareness of environmental protection.

Table 1. (Continued) Journal article findings. Various studies on raising public awareness of Generation Z on climate change with social media

No	Researcher	Publication year	Title	Research result
12.	Abdul Hakim Siswanto, Iriana Bakti, Teddy Kurnia Wirakusumah.	2022	Media Management Environmental Ambassador Campaign in Reducing Plastic Waste on #GenZheTikYuk Program!	The result of this research is the management of the Environmental Ambassador's campaign to reduce plastic waste through the #GenZheTikYuk program! It's done in a variety of ways, from mass media like general mass media, conventional/traditional to social media. Of all those, social media is the most effective in this socialization activity.
13.	Muhammad AmriNasution	2018	Efektifitas Iklan Tumbler Day Di Media Sosial Di Starbucks Coffee HermesMedan	The research resulted in the finding that Line's use of social media was more effective in Starbucks' Tumbler Day campaigns compared to Instagram's. This is evident from the higher demand of respondents to receive messages delivered through the social media Line.
14.	Angga Ariestya, Lukman S. Waluyo, dan Azelia Faramita	2020	Influencer Size Effecting Climate Change Discourse: A Study on Indonesian Twitter	The results of this research provide new insights into future climate change communication that incorporate interpersonal communication, mass communication, the development of journalism, and new communication media, especially social media.
15.	Rismi Juliadi, Endah Murwani, dan Angga Ariestya	2021	A Netnography Study of the Social Media Influencers on Creating Netizens' Climate Change Awareness on Instagram	The results of this study found that there was a lack of interaction between influencers and netizens because the level of influencer involvement is still below the industry average, so they need to increase interaction, discussion, and engagement with netizens of the generation Y and Z. Interactions between social media influencer and netizen can create climate change awareness on Instagram. However, the number of influence status is very small. Most influencers don't make impressive status on Instagram. To attract netizen engagement, they must be occupied by quality photos, videos, visual storytelling, headlines, and interesting hashtags related to climate change issues.

After conducting a search for journal articles, six media coverages in Indonesia were found that met the established criteria. Details of the findings and searches can be found in Table 2.

Table 2. News or mass media coverage findings. Various Indonesian media coverage on raising public awareness especially of generation Z about climate change with social media

No	Writer	Publication year	Title	Contents of media coverage
1.	Nunu Anugrah	2021	The Important Role of the Younger Generation in the Climate Change Agenda	The younger generation plays an important role in reducing greenhouse gas emissions (GHGs) and promoting clean energy. Environment Minister Siti Nurbaya appreciated their role in a webinar highlighting the importance of climate change control in accordance with UUD 1945. Efforts in the forest sector include sustainable forest management and mangrove rehabilitation. In the energy sector, transformation into new and renewable energy is the focus. The webinar aims to educate younger generations about climate change and clean energy issues and encourage their participation in the climate control agenda.
2.	Tim Redaksi Trijaya	2023	The media can play an active role in raising the issue of climate change.	Discuss the impact of climate change in the world and in Indonesia, emphasizing that climate changes affect various sectors. Surveys show that the younger generation, especially the Z generation, is very concerned about climate change, with a high level of awareness. This demonstrates the need to increase media capacity in covering climate issues, especially since access to information and expertise on the issue is still limited. The importance of education and environmental awareness, especially for the younger generation, as well as media strategies in communicating climate change issues.
3.	Sudarsono & Sigit Budi Riyanto	2023	Gen Z discusses climate crisis with international experts	Dr. Zulkifli explains the impact of climate change caused by greenhouse gases and particles like sulphur dioxide. The Z generation is believed to have an important role in promoting a low-carbon lifestyle.

Table 2. (Continued) News or mass media coverage findings. Various Indonesian media coverage on raising public awareness especially of generation Z about climate change with social media

No	Writer	Publication year	Title	Contents of media coverage
				Super Hero Cleaning 37, a group of Z genes, is a real example of keeping the environment clean-up in various locations. They stressed the importance of protecting the environment as a form of self-care and a shared responsibility.
4.	Atalya Puspa	2023	79% of Generation Z are aware that climate change is a serious problem	Generation Z is becoming increasingly aware of the importance of climate change. They feel responsible and willing to pay more for environmentally friendly products. They have an important role to play in achieving zero waste emission targets by 2030.
5.	Fahri Nur Muharom	2019	How the media can help the youth movement in climate protests	The importance of involving the younger generation in the discussion and action on climate change. The younger generation needs news that is relevant to their daily lives and focus on solutions that they can run. The media should also support their perspective and provide a platform for their voices. That means, system change and climate change need to be more open language and engaged by the younger generation.
6.	Inkana Izatifiqa R Putri	2023	The first Millennials & Generation Z to become climate change agents through this event.	This article discusses the importance of climate change and its impact. Climate change affects the environment and human life. Millennials and the Z-gen can play an important role in mitigating climate change with sustainable lifestyles and supporting renewable energy.

4 Discussion

Based on the results of the search and review of the above articles, it is found that Generation Z has an important role as a driver in raising awareness and involvement of all parties in tackling the impact of climate change and achieving sustainable development [16]. With the link between Generation X and social media making campaigns caring for the environment with the aim of raising consciousness about climate changes proved very effective. For example, the real actions taken by Greta Thunberg as Generation Z in raising public awareness by raising the issue of climate change on her personal social media platforms like Twitter and Instagram, to raise global

climate-related Awareness. As a result, the action was successful in raising the awareness of the global community, so that they participated in the various campaigns promoted by Greta Thunberg [17].

Research conducted by Ulfa & Fatchiya [10] found that social media also played an important role in environmental campaigns. The use of social media in environmental campaigns can arouse interest and participation. In particular, when influencers talk about climate change on their social media, then people are more likely to listen and engage in raising climate awareness [18]. In order to increase engagement, influencers need to focus on creating engaging content around climate changes [19].

Specifically in a study in Indonesia conducted by Pranoto dkk [20] found that the dissemination of news about the dangers of using plastic bags on social media platforms has a significant influence in improving eco-literacy. Meanwhile, there is no evidence that sharing news through Radio, TV, government websites, or other electronic media has the same impact. The same thing was also found specifically on Instagram's social media account @ehbogor, which campaigns for Bogor's Earth Hour and proves that the campaign via Instagram social media has proven to be effective in stimulating the attention of the followers of the account. Furthermore, the campaign is able to arouse interest in learning more, arouse the desire to participate, as well as follow the campaign activities organized and invite others to actively join [10].

On the social media, there is one of the large public-private agency accounts, Greenpeace, which often carries out environmental campaigns on social media. It is easy to find research that examines the effectiveness of the greenpeace social media campaigns. The research that investigates the Greenpeace social media accounts proves that the campaign carried out by Green Peace on social networks is considered to be effective because it is able to move and change the behavior of its followers to reduce the use of plastic by carrying private shopping bags, bringing tumbler or personal food supplies, not disposing of garbage, and planting trees in Indonesia, has succeeded in advocating information to the public about environmental issues and has produced a visible positive impact in the form of positive responses, such as a large number of "likes" and supporting comments, to the extent that on a global scale it is capable of raising awareness and knowledge about the issues of environmental knowledge, collecting support, until Shell finally stopped the activities in the eastern Arctic observers [21], [3].

The role of social media can be a tool for socialization and messaging campaigns, such as the #GenZheTikYuk! program aimed at reducing plastic garbage [24]. In line with Starbucks' efforts to reduce the use of plastic waste by campaigning Tumbler Day through social media Instagram and Line which has received positive feedback from netizens [25]. The point of importance in campaigning for this climate change action is to provide as much information as possible and consistently [26]. Regardless of the social media platforms used, these studies describe the potential of social media in influencing environmental awareness and public behavior, as well as promoting environmental conservation campaigns.

It is not difficult to find scientific research and media coverage whose findings give positive expectations to Generation Z as a group deemed to have a high level of concern for environmental issues, such as climate change [27]. Current Indonesian media coverage highlights the importance of generation Z involvement in climate change and environmental sustainability [28]–[32]. In addition, media coverage also discusses the benefits of social media that can be used to campaign for concern about climate change. Though social media campaigns

seem trivial, they can raise awareness of everybody. The younger generation needs news that is relevant to their daily lives and focus on solutions that they can run. The media should also support their perspectives and provide a platform for their voices [33]. Therefore, it is important for the younger generation to use their social media capabilities in this digital age to carry out social movements concerned about climate change [34].

Although Generation Z has a level of awareness of climate change, the correlation between cognitive awareness and action consciousness seems low [18]. Further factors are the lack of leadership and limited policy involvement. Moreover, the refusal of Generation Z to take real action, such as using social media to campaign for content about climate change, is also a cause [13]. Generation Z is very vulnerable to trends, and this can be a solution to encouraging them to create trends on environmental issues (Putri et al., 2019). A way like this is thought to be effective in bringing the Z generation more conscious and caring about the environment they live in.

5 Conclusion

The campaign using social media to raise climate change awareness to Generation Z in Indonesia has proven effective. The entire research and news article reports that have been reviewed prove that social media has a significant influence in raising Indonesian public awareness of climate change. Though social media campaigns seem trivial, they can raise awareness of everybody. With an interesting and consistent delivery of information, people are able to be influenced to follow trends of environmental concern. Despite the different social media platforms used, influence on environmental awareness and public behavior, as well as efforts in promoting environmental conservation campaigns, can still be achieved when content is interesting. Overall, the campaign on climate change on social media has been successful and proved effective in raising attention, interest, and desire, but not too significant to encourage action. (Action).

6 Impact and suggestion

This article is expected to be able to contribute to policy makers, content creators, motivating groups, to individuals. The goal is to make social media campaigns more interesting, innovative, needs-based and desirable. Target targets also need to be taken into account so that the campaign's goals can be achieved effectively and highly efficiently.

With the wise use of social media, Generation Z is expected to be able to pioneer trends and leverage their influence to engage others in environmental conservation efforts. However, to this goal, the support of stronger leadership figures and policies is needed. Policy involvement, such as the approval of tighter environmental laws, will encourage Generation Z to be more proactive in tackling climate change. Delivering campaign messages in conventional ways, such as using security tools, door-to-door socialization, social movements and so on, remains accompanied by social media campaigns.

For further research can develop research experimental models that measure and focus on psychological variables so that the results obtained are more comprehensive. The development

of an intervention model is also needed to fill the gap in this article's findings that social media campaigns are already very effective in raising awareness, interest and desire, but have not been able to encourage action significantly. In addition, it is also expected to be able to dig variables or other subject characteristics so that knowledge of climate change awareness can increase and contribute to climate prevention.

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