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Environmental Communication on Social Media: Environmental Non- Governmental Organizations (NGOs) and The Public. A Comparison between South Korea and Norway

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International Environmental Studies

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Declaration

I, Darae Kim, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged, and a reference list has been appended. This work has not previously been previously submitted to any other university for the award or any type of academic degree.

Signature: Darae Kim

Date: 06.06.2023

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Abstract

Along with the emphasis on environmental communication, this thesis examines how environmental groups and the public communicate through social media in Norway and South Korea. Environmental communication plays a key role in navigating how we understand the imminent climate change and environmental issues, and achieve a transition to a sustainable future. However, environmental communication is a complex process because it involves various stakeholders and their own interests. Thus, setting appropriate environmental communication is a task that conveys information and encourages various stakeholders to take relevant actions to solve the problem. Specifically, environmental NGOs have been dedicated to serving as intermediaries between the public and other groups including scientists and politicians by bridging each other, who is to be engaged in environmental issues. Meanwhile, the rise of social media use has dramatically transformed the landscape of this environmental communication by fostering abundant networks across different spheres, both environmental groups and the public. Consequently, social media tools are currently used to disseminate environmental advocacy by environmental NGOs (Non-governmental Organizations), as well as to learn about the issues of individuals. Therefore, this thesis presents the interaction between environmental NGOs and public individuals using social media and compares Norwegian and Korean cases. This thesis aims to detect environmental communication gaps among all those distinct spheres, including cultural differences, and provide empirical details capturing valuable implications based on the linked findings.

Accordingly, this thesis is organized as a case study based on in-depth interviews using qualitative research methods. The interviews were conducted with selected environmental NGOs and individuals from Norway and Korea. The NGOs and individual participants were investigated for how NGOs disseminate their agenda using social media, and how individuals perceive environmental information of NGOs and become motivated to take action, respectively. In addition, Agenda-Setting theory and the Theory of Planned Behavior are mainly used to analyze and discuss the findings of results, linking this study to established hypotheses. The discussion focuses on connecting respective findings across the spheres investigated.

The results of this thesis generally confirm the principles of environmental communication, but also identify some gaps in investigated spheres across the levels. The findings show gaps between the communication strategies of NGOs and public perception, individual attitude-behavior gaps, and disparities between Norwegian and Korean groups. These differences encompass framing and perceiving the environmental issue salience, message tones, targeted scale of mitigation efforts, implementation of pro-environmental behaviors, and relationships with relevant stakeholders. This thesis portrays various intersections in the current environmental communication ecosystem and sheds light on the relationship between cultural context and environmental communication.

Keywords: *environmental communication; social media; environmental NGOs; public perception; agenda-setting theory; theory of planned behavior; Norway; South Korea; case studies.*

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1. Introduction

“Can effective science communication save the world?”

<*Don't Look Up* (2021)> is a satire film about two scientists who discover an impending asteroid approaching Earth, which can destroy the whole humanity. Those scientists struggle with disseminating the discovery to people and making them listen to all the information they researched and take it seriously, through all possible means – mostly the media. However, literally every that can do bad happens around the one message, ‘look up the sky’, does go wrong by various obstacles such as indifference, skepticism and denial among the public, political manipulation, and pursuit of business profits. Those impediments are what scientists often face when conveying scientific information to the public outside the film. That is, this film reflects how difficult it is to convey scientific information to the public and to mobilize appropriate actions in the current time (Steenstrup-Duch, 2022).

This study is sparked by the message that the film addresses, which highlights the importance of effective communication between the expert and the public. Simulating reality, instead of the asteroid catastrophe, climate change and ecological collapses are the imminent threat to humanity. In parallel with the film, environmental and climate scientists are often struggling to convey urgency and uncertainty of their findings regarding climate change to the public (Simpson, 2011). Meanwhile, (re)actions from people outside science are as varied as their views about these issues and circumstances. The world's response to environmental challenges encompasses a spectrum of perspectives. While a segment of the population lends their ears to these pressing issues, others may fail to acknowledge their gravity. In the face of this complexity, confusion can arise among those unsure of the most effective course of action, prompting criticism of those who remain passive. The weight of discouraging news can instill fear in some, contrasting with the optimism shared by those who report advancements in mitigating environmental problems. Furthermore, divergent opinions exist regarding prioritizing renewable energy versus the continued development of new oilfields. That is, both experts and the public have their own concerns over environmental affairs. These variations thus, cast some questions such as, “why is it this difficult to talk about the problem?” or “so how can we overcome the threat and what should we do to survive from the environmental crisis?”

1.1 Problem Statement

The field of environmental communication has been stressed across various research areas along with the growth of environmental research (Cox, 2013; Klöckner, 2015), answering the questions raised in the previous section. Environmental communication is premised on the idea that the way of understanding of nature and human actions toward the environment relies not only on experts but on public engagement, media, the Internet, and even normal dialogue in daily life (Cox, 2013). That is, appropriate communication between different stakeholders is necessitated to successfully

tackle environmental affairs and facilitate larger engagement in problem mitigation in real-life (Uusi-Rauva & Heikkurinen, 2013).

Climate change is a complex phenomenon involving a wide range of uncertainty that has potential to trigger another unfavorable phenomenon. Despite the consensus on the importance of communication, it remains a tricky mission for environmental groups as communicators to convey their information to various stakeholders as they initially intended (Merkel et al., 2020; Martin & MacDonald, 2020). As a result, there are various studies on communication strategies for disseminating climate change and environmental issues and encouraging people to take action.

For example, we all have seen media content showing how horrible our future will be due to global warming or how miserable polar bears were earning a living on sea ice, which is intended to inspire individual climate action. It was once prevalent for environmental groups to use fear-based information to attract public attention to environmental issues and influence decision-making. Fear may influence attitudes toward an issue but not necessarily lead to behavioral engagement, and rather provoke psychological tension (Moser, 2007; Simpson, 2011). Furthermore, fear-based strategies are often reported as bringing even detrimental effects on motivating pro-environmental behavior depending on environmental issue scale (Merkel et al., 2020).

Similarly, new terms, such as ‘*climate depression*’ or ‘*climate anxiety*’, have recently emerged as a social phenomenon, which indicating the negative emotional response to awareness of climate change and environmental degradation (Clayton, 2020; 2023; Kalmus, 2021). It is noteworthy that this array of negative emotions, such as anxiety, hopelessness, and grief, do not only occur amongst people who have directly experienced climate change impacts but also those who indirectly perceive the threat through news media or personal social networks (Clayton, 2020). Although the extent of its motivating effect on environmentally conscious behaviors is varied, there is a consensus that climate anxiety is a psychological stressor that is likely to involve mental health problems (Whitmarsh et al., 2022; Clayton, 2020; 2023).

Having reported various consequences and phenomenon entailed by environmental communication, including the psychological pressure, researchers pay attention to seeking out how process should be carried out and what makes more people engaged in environmental issues. In particular, media has been historically positioned as the space where the public discuss the issues and initiate intent to solve problems (Zhou et al., 2022). Thus, the following section thus reviews the literature on environmental communication, and provides an overview of what has been established so far, and what remains to be explored.

1.2 Research Domain: Environmental Communication

The concept of environmental communication

At first glance, environmental communication is conceived as talking about all environmental topics, which can be numerously varied by discussion subjects, study fields, or nature-human

views. According to The International Environmental Communication Association (2015), the term refers to “an interdisciplinary field of study that examines the role, techniques, and influence of communication in environmental affairs”. We can also see examples in sociology, where environmental communication means constructing the environmental knowledge shared in social practices, and influencing individuals’ environmentally conscious behavior via social agents. Further, environmental governance understands it as the process of securing political support for environmental regulations (Klößner, 2015). Taking a psychological approach, Klößner (2015) refers to environmental communication as “a process where the meaning of the environment and environmental problems are exchanged between individuals through a system of common symbols, signs, and behavior. It includes verbal and non-verbal communication activities” (p. 18).

J. Robert Cox (2013), one of the most renowned scholars in environmental communication studies, defines environmental communication as “the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world; it is the symbolic medium that we use in constructing environmental problems and in negotiating society’s different response to them” (p. 19). In other words, environmental communication covers both instrumental means of educating and assisting people in solving environmental problems, as well as a perceptual understanding of nature through awareness of these issues.

Given the current study shares the same problem statement and topic areas with Cox’s book, *<Environmental Communication and the Public Spheres>* (2013), his phrase of environmental communication is generally applied, but with a few slight refinements in this thesis to narrow down the scope of research. Therefore, environmental communication here refers to *a process by which people disseminate and share environmental information and influence each other’s mindset and behavior towards more sustainable lifestyles.*

Effective environmental communication is important to tackle the imminent, but also a wide range of ecological problems as not everyone is on the same page in terms of recognizing the crisis and taking action for it. While some advocate for reducing nature degradation or stopping the use of fossil fuels, other groups are launching new oilfields or generally opposing the green transition, side by side. Those groups could be either aware of, or separated from each other and these current issues. Furthermore, perceptions of nature are as varied as individuals’ relationships with these issues, which are also likely to be shaped by the society they belong to (Cox, 2013). These disagreements or disconnections hinder larger populations from being channeled to solve these impending threats and secure a sustainable future. Therefore, the study field of environmental communication has been growing with environmental interventions while encompassing various stakeholders including the public, media, politicians, and business into the discussion beyond the scientific spheres (Cox, 2013; Klößner, 2015; Schäfer, 2012).

In addition to the need for proper insight, there are also uncertainties that needs to be addressed. In particular, it is often debated that communication-oriented strategies alone are not enough to make a big change regarding individuals’ pro-environmental behavior. Steg and Vlek (2009) claim that informational strategies in themselves, which aim to the internal changes such as awareness, perceptions, motivations and norms, hardly lead to actual pro-environmental behaviors, especially

unless the behavior is easy and not very costly to perform. Along this, they suggest that structural strategies, which aim to set up external circumstances around pro-environmental behaviors such as reward and punishment, can be effective and efficient to bring environmentally friendly engagement, as well as perceptual change. Developing infrastructure such as public transport, supporting financial cost such as subsidies, or regulating laws such as fines for pollution are examples of structural strategies based on rewards and punishments. In this aspect, a combination of those strategies, both information and structure, will therefore be required depending on the specific obstacles to hinder individuals' pro-environmental choice (Steg & Vlek, 2009; Klöckner, 2015).

Key trends in environmental communication studies: social media

Environmental communication studies have placed particular emphasis on the role of media in involving the public as media offers an essential intersection to communicate about environmental issues (Zhou et al., 2022). Since the modern environmental movement emerged in 1960s, most research has investigated how the mass media influence environmental concerns in public arena (Hansen, 2011; Lakoff, 2010). In this theme, it is now well-established from abundant literature that media coverage of the environment plays a significant role in framing how the issue should be tackled while publicizing environmental information and raising public awareness (Zhou et al., 2022). The impact of media on public concerns will be more discussed in the later chapter regarding theoretical frameworks of this study.

Nowadays, social media and digital technics have brought a new phase of environmental communication (Poell & Van Dijck, 2015). The widespread use of social media has altered the way people generate and access information and interact with it via their social networks, as well as the relationship between agenda producers and the recipients. Cox (2013) describes that the process of environmental communication has been democratized because every user can access, generate, share issues and interact with others through user-generated content on social media. Instead of struggling to gain access to the news media that disseminate their agenda, activists can post timely issues and messages on their own social media channel in the way they intend (Poell & Van Dijck, 2015). People can also autonomously find (or create) and join online communities that align to their belief, view, or interests, developing their social networking. Through sharing their own opinion and discussing with others online, civic movements featuring grassroots are initiated and mobilized under the same label (Milošević-Đorđević & Žeželj, 2017).

As social media has become comparable to the traditional mass media, researchers have shown an increased interest in identifying the role of social media in environmental communication. Thus far, several studies have linked social media to various targets of environmental communication strategies along with the role of media in public attitudes. For example, Kim and Jang (2022) demonstrated how young generations obtain and learn environmental information from social media before engaging in pro-environmental behavior. Through in-depth interviews, the research found that young generation-participants use social media prior to engaging environmentally friendly actions in order to gain information and instructions on what to do. This information came

in the form of green campaigns or affirmative messages for their environmental intent, feel fellowships, and sharing their actions with social networks (Kim & Jang, 2022). Meanwhile, Seo and Yoon (2022) analyzed social media data to investigate the public perception of climate change in South Korea premised on a role of social media in issue diffusion and public perception. Cho (2013) examined an association between motives of social media and pro-environmental behaviors, as well as presented differing effects of each social media on users' actions. Similarly, Park et al. (2021) investigated how social media posts about environmental messages motivate audiences to react to them and participate in green campaigns. Boulianne and Ohme (2022) conducted quantitative research on how young generation groups across countries (Canada, France, the United Kingdom, the United States) are positively mobilized by social media that environmental organizations operate.

As well as its interaction with the public sphere, focus on application of social media to environmental communicators has been conducted. For example, Bik & Goldstein (2013) examined how scientists utilize social media tools for online visibility of environmental science information. Similarly, Fox (2012) presented how social media could help scientists to share environmental messages. Terracina-Hartman et al. (2013) examined the effect of fear-based environmental message frames through social media on efficacy and behavioral intent to take pro-environmental action. On the other hand, Comfort and Hester (2019) examined successful social media communication of environmental NGOs by analyzing their messaging strategies. Likewise, Vu et al. (2019; 2021) have specially emphasized the role of social media in NGOs' disseminating environmental messages.

Nevertheless, social media activism is criticized by some concerns such as the gaps between online engagement and real-life activities (Jacqmarcq, 2021). For example, so-called 'clicktivism' or 'slacktivism' refers to social media-based activism lacking meaningful change and connection between awareness and action merely by 'clicking' online content (Jacqmarcq, 2021; Glenn, 2015). Likewise, attitude-behavior gaps, which indicates disconnection between individuals' favorable attitudes about environmental issues and actual actions, is also often discussed together (Cox, 2013). Whereas social media allows people to access and perceive environmental news anytime, the impact of climate change does not equally apply to individuals thus people may not feel urgency to take action (Han, 2016; Cox, 2013; Park, 2023). In this, there also have been studies on such subjects covering psychological distance of climate change and risk communication.

To sum up, while research on this topic has been typically exploratory and contained differing results, there seems to be a consensus that social media can contribute to more interactive communication between environmental groups and the public audiences than the traditional mass media. In addition to studies on the role of social media, many researchers also agree that NGOs play a crucial role in environmental communication with social media helping in their messaging work. On the other hand, few studies have mutually linked the social media use of organizations with the reaction of public audience together. Instead, as described earlier, it has been respectively investigated in each sphere, environmental groups and individuals, separately. Especially, in Korean academia, environmental communication research tends to focus on the level of information produced as this field has been led by journalism and mass communication (Chae,

2019; Zhou et al., 2022). Due to this, investigation into use of mobile media or social media platforms in environmental communication has been little while the traditional news media is still dominant. Lastly, although there are several comparative case studies on environmental activism and public attitudes across different countries or communities (e.g., Kim & Kim, 2010), those studies tend to be limited to focus on individual levels or in comparison within the common cultural sphere. That is, cross-national studies based on comparison of different circumstances of communication, such as culture and social norms, is specifically limited in this research domain. Having outlined these literature and existing research gaps in this domain, the following section states the objective of the current study and addresses the focus of an investigation through research questions.

1.3 Objectives of the Study and Research Questions

This thesis aims to examine the current environmental communication using social media between environmental experts and the general public in Norway and South Korea. To do this, this study attempts to detect gaps between communication strategies and public perceptions through connecting and comparing those respect spheres. In addition, this study seeks to shed light on the relationship between cultural context and environmental communication status by comparing Norwegian and South Korean cases. In this thesis, environmental NGOs are specifically defined as the environmental expert group to be investigated according to a consensus about their prominent roles in this field. Throughout these, this thesis aims to contribute to environmental communication research by providing valuable insights and the accumulation of empirical details that enrich the existing body of knowledge in this field. Therefore, this study poses the research questions as follows:

Research question 1: *How do environmental NGOs disseminate their environmental agenda through using social media in Norway and South Korea?*

Research question 2: *How do individuals perceive environmental agendas of NGOs, and how are they motivated to take environmentally friendly action in Norway and South Korea?*

The first question is formulated to investigate communication strategies employed by environmental NGOs using social media channels while focusing on the environmental expert sphere. The second question is developed to examine individuals' perceptions towards environmental information shared by environmental NGOs through social media, and their motivations sourced by the information.

1.4 Thesis outline

This thesis is organized into five chapters. Following the introduction in the first chapter, the second chapter presents the theoretical framework along with literature review. The second chapter consists of two sections of respective theories applied to this thesis: *Agenda-Setting Theory* and

Theory of Planned Behavior, respectively. The first section introduces the basic concept of Agenda-Setting Theory and its extended concept models. It is followed by a literature review focusing on social media and environmental NGOs in the theory, and by explanation how these are relevant the research objective. Further, the second section introduces the essential concept of Theory of Planned Behavior, followed by literature review of pro-environmental behavior studies.

The third chapter illustrates the methodology of the study and explains the rationale and roles behind each method chosen to this case study. Second, it describes the process of sample selection from each sphere to be investigated and information about selected samples using codes. Next, it offers an overview of the data collection methods utilized in this study ensuring research ethics. Lastly, it acknowledges limitations and attempts to compensate them.

The fourth chapter is dedicated to findings of results and discussion of this research. This chapter focuses on answering the research questions by depicting investigated subjects, and on identifying the findings through the lenses of the theories while discussing them. Afterwards, it outlines cross-cutting findings and further discusses them by connecting the findings to each other, as well as the theories and extra literature review. Finally, the fifth chapter sums up this study and brings together significant findings and discussions suggesting ideas for future work.

2. Theoretical Framework and Literature Review

2.1 Agenda-Setting Theory

2.1.1 Concept of Agenda-Setting Theory

The notion of agenda-setting theory was first proposed by Maxwell E. McCombs and Donald L. Shaw in their 1972 article, "The Agenda-Setting Function of Mass Media". The theory demonstrates that mass media can influence the salience of issues in the minds of the public. That is, the *function of media* sets the public agenda which ranges from personal attitudes to macroscopic public experience by selecting, emphasizing, repeating, and transferring certain topics, issues, or events on their coverage, which frames the public's perception of the importance and relevance of these issues. Since 1972, 'agenda-setting' has been widely recognized as one of the most cited theories in the field of media studies, proved by a lot of empirical literatures and researches that present a major impact of media on shaping public opinion and policy (Ban & McCombs, 2007). Hence, it has been expanded and refined through discussing more complex media ecosystem and conflating with other theories. The main concept in agenda-setting theory, reflecting the theoretical evolution, can be identified as the following notions (McCombs et al., 2014):

Basic Agenda setting, first-level agenda setting, focuses on the impact of the media on *objects* regarding the salience of issues or topics. That is, mass media has the ability to determine which

issues are considered important by the public – ‘What to think about (salience)’. For instance, when media emphasizes deforestation as a salient environmental concern, it is an example of first-level agenda setting.

Attribute agenda setting, second-level agenda setting, focuses on the impact of the media on the public agenda regarding the salience of the *certain attributes* of the objects. In other words, mass media impacts on how the public think about certain cognitive characteristics or aspects related to the issues. It also influences the affective value or attitude toward certain issues, such as positive or negative. The cognitive aspects of attribute are associated with concepts and fact of issues while affective ones are based on issue tone employed by the media (Ban & McCombs, 2007) – ‘How to think about the objects (framing)’. For example, if the media highlights the economic costs of deforestation, rather than ecological loss of it, the public may tend to think about deforestation through an economic lens rather than an ecological one.

Network agenda setting (McCombs & Guo, 2011), third level of the theory, focuses on the impact of the media on the public agenda regarding “salience of interrelationships among objects and/or attributes” (Vu et al., 2014, p.671), beyond the traditional concept that media can only transfer the salience of objects and attributes separately. In other words, media can transfer network relationship between attributes of agenda and/or issues as an integrated image (*‘pictures’*) to the public’s mind – *‘what and how to associate’*. Thus, the more frequently the media covers two different issues during the same period, the greater two issues will be likely to be linked in people’s mind by recalling the recurred network (Vu et al., 2014).

The Need for orientation (NFO) is defined as “a combination of *relevance* and *uncertainty*” (McCombs et al., 2014, p. 784), understanding individuals’ different degrees of engagement in seeking information about a certain issue (Matthes, 2005). In other words, it refers to an individual’s motivation to seek information about a certain issue, based on how personally important the issue is to the individual (relevance) and how much the individual recognizes they are uninformed or unsure about the issue (uncertainty) (Ban & McCombs, 2007). Therefore, a combination of high levels of relevance and uncertainty leads to high NFO, whereas a combination of low levels of relevance and uncertainty results in low NFO. And two mixed combinations of relevance and uncertainty, with different levels of each other (low-relevance-high uncertainty and high relevance-low uncertainty), lead to moderate NFO (Matthes, 2005). Namely, the level of relevance determines individual willingness for information (McCombs et al., 2014).

Furthermore, those who have higher level of NFO are likely to favor *vertical media*, which refers to traditional news sources such as newspapers and TV news programs, to seek in-depth information of issues. On the other hand, those who have moderate level of NFO with low uncertainty tend to prefer *horizontal media*, which refers to more ‘specialized and partisan’ media including blogs, and social media (McCombs et al., 2014; Ban & McCombs, 2007). Additionally, those with vertical media are likely to focus on object (first-level agenda setting), and those with horizontal media are likely to pay attention on attribute (second-level agenda setting) of issues (McCombs & Weaver, 1973; McCombs et al., 2014).

Agendamelding refers to the process for individuals of merging agendas from various sources to join a group, which is aligned with their experiences and views, and form their own interpretation (McCombs, 2014; Ragas & Roberts, 2009). Shaw et al. (1999) elucidates that agendamelding occurs when individuals (desire to) affiliate with groups that fit to their perspectives, and therefore they seek out information about those groups from various sources, including other people, media, and their own experiences. By doing so, individuals learn the group agenda, as well as share their own agenda in the group, while they belong to the community. This process thus can be summarized as the individuals, in turn, ‘meld’ their individual agenda with the agenda of the community (Shaw et al., 1999; Ragas & Roberts, 2009). To quote Shaw, “Groups form an agenda for members, and members ‘meld’ to a group’s agenda” (Shaw et al., 1999, p. 7). Therefore, agendamelding can suggest that individuals actively engage in processing information by utilizing various information sources, instead of passively accepting mass media agenda, and then they join and build the agenda of communities that satisfy their lives.

2.1.2 Social media in Agenda-Setting Theory

The theory has extended the sources of information that can impact public agenda by incorporating a wide array of communication channels and content as the era of digital media has emerged and numerous sources of information, such as social media, have changed the networking ecosystem among the public. The authors of the original agenda-setting theory agree that online social networks can play more significant roles in shaping public opinions regarding political issues, and media coverage from traditional news organizations (offline-based initially) is not the only source of information to establish public agenda anymore (McCombs et al., 2014). Due to the enlarged variance in issue salience sourced from diverse channels, they note that the agenda-setting process, including the social media issue agenda, allows for a flow of agenda-setting between media outlets and the public. This is differentiated from the traditional agenda-setting model, which emphasizes one-way transfer. Thus, the authors suggest that social media can play together a role in shaping the public agenda in complex ways (McCombs et al., 2014).

Aruguete (2017) also claims that social media allows for a dynamic flow of information, which has changed the relationship between the public and agendas because social media users get information from various sources. While traditional media – called ‘elite media’ by the author – is still likely to be favored by powerful institutions, it does not have complete control over the public agenda. In other words, traditional media is not as influential in shaping and setting the public agenda one-sided as before due to the emergence of social media (Aruguete, 2017). Thus, the author highlights that social media has been significantly taking a leadership position in the agenda-setting process, implying that social media has become an essential factor in agenda Setting theory.

Gilardi et al. (2022) similarly advocate that social media has a significant potential to change the current agenda-setting dynamics, which brings an interconnected media system by shrinking gatekeeping power of traditional media. To prove it, they examine the interrelationship between different agendas: the traditional media agenda, the social media agenda of politicians, and the social media agenda of parties, and which agenda is more influential than others. Interestingly, they find that, except for the environmental issue, the social media agenda of parties is more influential than the traditional media agenda. In contrast, other agendas have the same influence on each other. Thus, they concluded that the social media agenda of political parties has a significant impact on the traditional media agenda, especially concerning environmental issues (Gilardi et al., 2022).

Moreover, Feezell (2018)'s study demonstrates that people exposed to specific political information on Facebook over time perceive those issues to be more important, representing the agenda-setting effect, including NFO, through social media. It is also found that the agenda-setting effect of social media is strongest on those who are not interested in political issues but are in favor of using social media. Along these lines, this study further demonstrates that social media may help to fill a gap between the information-rich and the information-poor, which is resulted from selective avoidance. Additionally, the author suggests that social media allows specific political agendas to seem more meaningful and relevant to individuals when their trustworthy network shares the information or appears on social media (Feezell, 2018; Turcotte et al., 2015).

More than those examples presented here, numerous scholars have been exploring the relationship between traditional media and social media, as well as the singular impact of social media itself on public agenda, especially regarding political issues, in this digital era. The ongoing discussion among researchers centers on how much/whether social media influences the public agenda – such as ‘which one is more influential agenda setter?’. Although there may not be a clear consensus on this question, there is a steady recognition that social media has become a significant factor of the public agenda, either by shaping it together with traditional mass media or by influencing agenda producers and journalists from traditional media realm (Jungherr, 2014).

2.1.3 Agenda-Setting power of NGOs

Non-governmental organizations, NGOs, can refer to “private, non-profit, professional organizations, with a distinctive legal character, concerned with public welfare goals” (Clarke, 1998, p. 36) and societal issues. Reflected in the definition, NGOs play a significant role in raising public awareness and initiating various civil movements, supported by numerous studies (Werker & Ahmed, 2008). Despite the immense variety in their focus fields and operations, the central role of NGOs can have a consensus as “mobilizing public support and bringing sensitive issues to public and political notice” (Meriläinen & Vos, 2011, p. 3).

Based on those roles, NGOs are often positioned as intermediaries between the public and other groups involved in their missions, including experts in their respective fields and governments. At

the same time, they are recognized as experts in their focus issues. Regarding climate change or ecological issues, NGOs have for example acted as mediators between scientists or researchers and the public (Vu et al., 2021; Ladle et al., 2005). Environmental NGOs contribute to drawing attention to their environmental concerns from different groups such as business and industry groups, local and municipal authorities, and media, by organizing conferences and publishing reports for media materials. For instance, environmental NGOs during COP-3 achieved a lot of media coverage on their agenda issue by negotiating with the different groups and interplaying with media in the conferences, as they intended to raise public awareness (Carpenter, 2001).

These lines require that NGOs have the capacity of influencing public opinion and, in turn, shaping the policy agenda through their agenda advocacy work (Carpenter, 2001; Werker & Ahmed, 2008). In other words, NGOs are also possibly an important agenda setter regarding their fields, which is supported by the trend where they have gained increasing salience in the last ten years in global governance (Murphy, 2007). Murphy (2007) examined how NGOs influence agenda-setting in international politics arena, at the WTO, based on their shaping normative consensus, demonstrating by cases that NGOs have a capacity to strategically shape international politics at the WTO. Thus, the underlying mechanism that NGOs can influence which concerns are important both to the public and the policy agenda can be linkable to agenda-setting model.

In the same vein of thinking, Meriläinen & Vos (2011) investigated the mechanisms employed by human rights NGOs, like Amnesty International and Human Rights Watch (HRW), to bring attention to their agenda issues, based on the framework of agenda-setting theory. They demonstrated the how those most renowned international NGOs have operated agenda-setting strategies and succeeded in encouraging the public to advocate their agendas and campaigns, which is supported by their current reputation. However, the study did not directly evaluate the public engagement in the respect organizations' campaign and message.

Joachim (2003) similarly delved into the process through which women's rights NGOs succeeded in bringing attention to their agenda issues and pushing the issues for policies at upper levels – UN politics. The author defined three NGOs' agenda-setting phases where NGOs deliberately select which issues are to be aware of, which interventions are to be informed by which experts' knowledge, and which alliance is to be mobilized for political lobbying: defining the problem, developing solutions, and politicizing the issue. Thus, based on these organization's achievements, the author confirmed that NGOs have a power to intentionally frame agendas and, in turn, influence awareness.

As described above, there have been numerous empirical demonstrations of contribution of NGOs to agenda-setting in different arenas, including the legislative and the public spheres. However, there seems to be a lack of directly comparing the mutual influence of NGOs' agenda and public perception. Thus, this present study can contribute to filling the methodological gap in the previous studies: the lack of attention paid to how the public actually perceives and processes NGO-driven agenda-setting.

2.1.4 Application to thesis theoretical framework

The recent literature review on agenda-setting theory has shown that social media agenda can be influential to shape public concerns and their perception of a particular topic as traditional mass media does. The agenda-setting model thus has frequently been applied to examine the impact of environmental news on public awareness or sustainable behavioral intent along with the current media landscape altered by social media. Furthermore, many studies have confirmed that environmental NGOs are agenda-setter because they play a prominent role in leading public discourse on environmental issues and influencing public perceptions.

Hence, the extended models of agenda-setting theory are ideally suited as a framework for this study, which proposes that environmental information produced and disseminated by environmental groups via social media influences public perception. In addition, this theoretical framework can provide analytic insights for identifying the effects of the communication strategies of the environmental advocates, as well as a better understanding of rationales behind the strategies and decision-making of the environmental NGOs.

2.2 Theory of Planned Behavior

2.2.1 Concept of Theory of Planned Behavior (TPB)

Theory of Planned Behavior (TPB) was suggested by Ajzen (1991), argues that behaviors are resulted from individual *intention* and *perceived behavioral control*. TPB was extended from Theory of Reasoned Action, a social psychology model that explains the causal relationship between attitudes, social norms, and behavior, by adding the concept of perceived behavioral control, to identify behaviors over which individuals have incomplete volitional control in a circumstance with such as lack of resources, opportunities or individual ability to achieve a behavior. According to TPB, Intention is defined as “indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior” (Ajzen, 1991, p. 181). The intent of behavior is determined by three components: *attitude toward the behavior*, *subjective norm*, and *perceived behavioral control*, which are conceptually independent (Ajzen, 1991).

Attitudes toward behavior indicates an individual’s favorable or unfavorable perception toward a certain behavior, which is developed by *behavioral beliefs*. Fishbein and Ajzen (1975) presented that behavioral beliefs are shaped by an individuals’ evaluation of the likely outcomes or possible consequences involved with performing a certain behavior, shaped by multiple factors including personal experience. Namely, the evaluation of these consequences of a particular behavior (behavioral beliefs) leads to the degree to which a person has positive or negative attitude toward performing that behavior.

Subjective norm refers to “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991, p. 188), as a social factor. The social pressure is based on individuals’ *normative beliefs* about others’ judgments on the behavioral involvement given normative beliefs represent the likelihood of approving or disapproving of behavioral performance done by individuals or groups (Ajzen, 1991). In other words, subjective norm is concerned with reflecting the expectations and opinions of others, who individuals see important, about performing a certain behavior.

Perceived behavioral control refers to the perception of the “ease or difficulty of performing the behavior” (Ajzen, 1991, p. 188). In other words, this component is about the perception of individuals’ ability to perform and control their behavior, reflecting their *control beliefs*. Ajzen (1991) termed control beliefs as a set of perceiving whether requisite resources and opportunities to perform the behavior are available or not. According to him, these control beliefs can be developed by both past experience, anticipated challenges to perform, including experiences of second-hand information, and other factors that individuals possibly utilize.

To sum up, theoretically, the more positive an individual evaluates a behavior (attitude) and socially the behavior is expected (subjective norm), and the greater the individual perceives their control over the behavior (perceived behavioral control), the stronger should be the individual’s intention to perform the behavior. However, it should be also remarked that TPB does not fully predict and explain human behavior in varied contexts because behavioral intention is partially determined by those three constructs, as well as that intention does not always lead to behavior (Ajzen 1991). TPB is also criticized for focusing solely on rational reasoning based on causal formation and disregarding other factors such as: unconscious motives and spontaneous choices (Yuzhanin & Fisher, 2016); subconscious, associative and impulse factors, feelings and private standards (Sniehotta et al., 2014); personal desiring mind and past behavior (Ajzen & Driver, 1992; Lam & Hsu, 2004; Ulker-Demirel & Ciftci, 2020). Thus, Ajzen (1991) also proposed that TPB has much room for additional research regarding the current determinants to deal with variance in behavior.

2.2.2 TPB applied to pro-environmental behavior research

TPB has been widely used to predict individuals’ intentions and behaviors based on their way of perceiving a certain subject including pro-environmental behaviors. For example, Ki et al. (2017) analyzed factors that affect energy saving behaviors by using TPB framework. Similarly, Han et al. (2010) demonstrated TPB model fits to investigate factors to form individuals’ intentions of choosing a green hotel. Setyawan et al. (2018) and Stanislawski et al. (2013) also proved the predictor in TPB impacts on intention of consumers toward buying green products, respectively. Likewise, Niaura (2013) analyzed the gap between the environmental attitudes and the actual behavior among young people based on TPB framework. While there are variations in which predictor is more significant, or failed to influence intent, it has been steady to investigate pro-environmental behavior and its intention through the lens of TPB in various situations.

Yuriev et al. (2020), through their study of a scoping review of TPB applied to environmental behavior, postulated that TPB effectively allows for identifying the relationship between environmental behavior factors and individual perceptions, and evaluating their formation of intention to do environmental behavior. They present TPB can be beneficial to apply to these environmental behavior studies for three strengths: methodological ability of assessing both direct and indirect predictors of environmental behavior, framework for targeted interventions, and flexible structure for extension of additional variables (Yuriev et al., 2020). In other words, by identifying specific beliefs and attitudes to influence a given behavior, including contextual factors such as individual belief, researchers can develop interventions that prevent individuals from engaging in pro-environmental behavior.

Along these lines, plentiful other variables have been extended from TPB in various fields, such as political belief, past-behavior, habit, moral norm, self-identity and knowledge (Yuriev et al., 2020; Park, 2021). Among those extensions, the validity of knowledge-variable has been demonstrated by multiple studies as an extended variable in terms of environmental behavior targeted research (O' Connor et al., 2002; Koh & Yi, 2016; Park, 2021). For instance, Park (2021) proposed that presence of knowledge about environmental issues or climate change can be a significant determinant of a given behavior which is targeted as pro-environmental. Similarly, Setyawan et al. (2018) demonstrated that environmental knowledge positively influences intention toward green consumption among youth, along with other factors including subjective norm and perceived behavioral control. O' Connor et al. (2002) also highlighted, through their cognitive research of climate change mitigation behavior, that knowledge about climate change causes and its impact leads to public support for climate change mitigation policies although the authors did not directly use TPB model. Alongside with knowledge and information, the degree of awareness of personal responsibility for action also has been presented as another significant determinant by several scholars (Koh & Yi, 2016; Park, 2021).

However, based on their meta-analytic review of behavioral research applying to TPB, Sohn and Lee (2012) concluded that the degree impact of those variables on behavioral intent varies depending on the cultural context, with differences observed between the Korea and overseas contexts. For example, in the Korean social context, the degree of impact of subjective norm on behavioral intent was likely higher than in overseas contexts, while attitudes and perceived behavioral control were lower in Korea than overseas. Additionally, they presented evidence that the correlation between behavior and behavioral intent in Korean studies was higher than in overseas research results. Thus, the authors suggested that to identify the differences in the degree of influence of the three original determinants among different cultural contexts, TPB may need to develop the constructs considering cultural conditions.

2.2.3 Application to thesis theoretical framework

As previously mentioned, TPB offers an effective framework to investigate factors and relationships revolving around environmentally conscious behaviors, as well as abundant

precedent studies from various fields and situations. Namely, this theory is highly linkable to individual motivation to incorporate or choose performing pro-environmental behavior (Eze, 2020).

Given that this present study is to find interventions to foster environmentally conscious behavior among the public based on how the public perceives the environmental concerns and climate change adaptation, the TPB is conceptually well-suited as a framework for it. Furthermore, the TPB serves as a sound basis for this study to focus on perceptual reactions of the public, which are based on their own belief, regarding their motivation to perform the behavior because TPB itself posits how individuals perceive determines behaviors. Therefore, the utilization of TPB facilitates why it is important to delve into the public perceptions – personal attitudes, social factors, and self-efficacy alongside with knowledge input – toward environmental concerns regarding encouraging the public engagement.

3. Methodology

3.1 Research Design

This research is set out as a descriptive case study on observation of environmental communication in Norway and South Korea with a comparison of multiple cases. The descriptive case study is organized to describe a phenomenon in a real-life setting through an empirical method (Baxter & Jack, 2008; Yin, 2018). According to Yin (2018), a case study focuses on answering ‘how’ or ‘why’ questions about a contemporary phenomenon, especially when the phenomenon is intimately involved with context. The current research thus follows empirical methods for this case study to investigate how environmental expert groups and the public interact with each other on social media in terms of environmental communication for sustainability implementation.

Qualitative methodology specifically suits for empirical research that examines the complex social process by which individuals and groups participate in their lives and to question their perspectives and attitudes, which are difficult to measure quantitatively (Marshall & Rossman, 2011). Qualitative case study also ensures that research subject is examined through multiple lenses, rather than through one lens, and reveals various facets of the complex social phenomenon (Baxter & Jack, 2008). Thus, qualitative research is useful to capture complexity of attitudes, behaviors, interactions and circumstances pervaded in daily lives of people based on a holistic perspective surrounding their culture or social diversity (Patton, 2014). In order to investigate attitude, behavior, and experience in detail of each subject from both the expert and the public, this study conducts semi-structured in-depth interviews. That is, these methods allow for empirically demonstrating a contemporary environmental communication between different spheres of stakeholders in social media landscape.

Semi-structured interviews allow a researcher to have a balance between flexibility and standardization, and spontaneity in the conversation (Bryman, 2012). The researcher may ask follow-up questions or spontaneously probe into particular topics as needed while exploring complex and subjective topics. Moreover, in-depth interviews are well-suited to gather detailed and nuanced information about participants' experiences and opinions, and perspectives through conversations where the way participants response and structure their own opinions can be respected (Marshall & Rossman, 2011). Marshall and Rossman (2011) also note that the in-depth interview offers a benefit that new ideas and concepts may emerge during the conversations.

In this research, semi-structured interviews were processed with an individual in general, but also with small groups consisting of two people from related departments or organizations when interviewee wished. Additionally, written interviews via email and online video interviews were conducted alongside the verbal interviews in person when interviewees had found their scheduling challenging due to the time difference between Norway and South Korea, or work hours.

Both primary and secondary data were collected. Primary data was directly collected from environmental non-governmental organizations and individuals representing the expert and public sphere, respectively, through semi-structured in-depth interviews. In order to ensure legitimate logic of the research, this study reviewed a series of literature that gives basis to connect intimately each element of the research. In line with this, two theoretical frameworks are applied to posit the current research hypothesis and present results based on theoretical reasoning. To discuss the expert sphere of environmental communication, *Agenda-Setting Theory* is used to elucidate why and how environmentalists can influence the public through social media. Beyond the initial model, the extended series of the theory is discussed in order to address the various ways that media affects the public sphere and to emphasize the role that environmental organizations play in social media environmental communication.

While *Agenda-Setting Theory* is concerned with the relationship between information (agenda) and public perception at the level of expert groups, *Theory of Planned Behavior* (TPB) helps linking individual perception to their motivation – potentially move forward to pro-environmental behavior – at the level of public sphere. Abundant studies of TPB have corroborated that willingness shaped by perceptions towards a certain topic is highly likely to lead to behavior. Furthermore, information input has been also demonstrated as a main factor to provoke the intention. Thus, TPB is adopted to clarify the diverse differences among individuals' perceptions towards environmental information and highlight the importance of the perceptions sourced from social media content for their engaging in performing pro-environmental behavior.

Along with the focus of environmental communication studies, this study also has reviewed second data from reports and quantitative studies, such as an annual national report published by Korea Environment Institute (hereafter denoted as KEI report) (An et al., 2021) and previous case studies. Through these literature reviews, this research aims to establish coherence and rationality in the research questions (Bryman, 2012). In other words, these frameworks and literature reviews as secondary data thus confirm the research hypothesis that information offered by environmental

NGOs impacts on the public perception and thus leads to their climate change mitigation behaviors, as well as describing the results with valid perspectives.

3.2 Sampling

Purposive sampling was used to select the interview subjects in order to approach samples specifically in relation to the current research questions as follows:

Two areas – Oslo in Norway and Seoul in South Korea – were selected in line with the researcher’s focus on current local and ethnic belonging. Two different contextual samples were chosen to explore how cultural differences influence environmental communication regarding the research questions.

In terms of sample selection from the expert sphere of environmental communication, this research narrowed it down to environmental non-governmental organizations (NGOs) from each selected area. NGOs have been dedicated to tackling climate change and environmental issues as both the forefront and mediators between scientists and public people since the late 1980s and early 1990s when those issues emerged as public affairs (Vu, et al., 2021). Particularly as the mediators, NGOs have been public relations-conscious to gain media coverage and public attention for their existential missions (Schäfer, 2012). Based on the literature review, this research thus purposively selected 6 NGOs, with 3 from Seoul, South Korea and the remaining 3 from Oslo, Norway. Guidelines to select them were their *activity locations* – whether it is Seoul or Oslo, *climate and environmental focus areas*, *current online engagement* on social media – based on activation and popularity, and *feasibility of interview*. Suitable samples were contacted via email and invited to participate in the research if they met these predetermined guidelines. Interviews were then conducted with those who responded to the invitation and were able to participate.

For the public sphere of environmental communication, 6 individual participants were selected for the interviews, 4 of whom were from Seoul and 2 from Oslo. They were selected through a combination of convenience sampling and additional filtering criteria to ensure appropriate selection of the participants relevant to the study. Convenience sampling is useful in social research when time, resources, or access to participants is limited. However, a convenience sample may not be representative of its population for generalization (Bryman, 2012). Acknowledging the limitations, this study does not seek to generalize its findings but rather provide discussion points that could be questioned by further studies, as well as an empirical case study based on theoretical insights that could be applicable in other contexts. In addition, participants were contacted and invited to the interview if their characteristics met criteria relevant to the research questions to mitigate the risk of bias and improve validity of the study.

The criteria are *age*, *the use of social media*, *differentiated levels of pro-environmental engagement*, and *alignment of social media following lists with NGOs sampling lists*. In general, these criteria are sourced from the Millennial and Generation Z cohorts, also known as the MZ generations, who are commonly referred to ‘digital natives’ due to their familiarity with digital technology and social

media. This age group was chosen because the use of social media is already integrated into their daily lives, allowing for a more naturalistic and valid study of their attitudes and behavior within online information. The age group is defined as individuals born between the years 1981 and 2011 (Kim & Jang, 2022), but only adults over the age of 19 in 2023 are included. When it comes to the use of social media, the participants were expected to actively use at least one social media platform every day in general. To assess levels of pro-environmental engagement, participants were initially contacted based on researcher's observation using convenience sampling, also followed by a categorization based on their self-evaluation of their own behavior during the interview process. Additionally, it was able to contact people whose account lists matched the interviewing NGOs lists according to the researchers' observation.

To ensure anonymity and readability, the names of the interviewees have been assigned coded identifiers throughout the thesis. Abbreviated codes, such as NGA, NGB, NGC for Norwegian (environmental) Group A, B, C, and KGA, KGB, KGC for Korean (environmental) Group, are used to refer to the respective categories. Likewise, the codes NPA, NPB, KPA, KPB, KPC, and KPD indicate Norwegian (individual) Participant A, B, and Korean (individual) Participant A, B, C, D, respectively.

3.3 Data Collection

Prior to conducting the interviews, all participants were given information about the research participation, which includes its purpose, the request for an interview, the confidentiality of personal data, the interview process (such as the time, medium, and recording), voluntary participation, the use of their answers for the thesis, the researcher's responsibilities, their rights over their data, and their consent to participation. The consent form and the information letter were in accordance with Sikt (Norwegian Agency for Shared Services in Education and Research) guidelines. Access to all data was restricted to the researcher, and personal information such as contact details and voice records were anonymized and deleted after the thesis submission. In the published material, participants are anonymized with the codes. The use of personal data in the study was governed by an agreement with the Norwegian University of Life Sciences (NMBU) and processed in accordance with data protection legislation by the Data Protection Services, Sikt.

Data collection from the environmental NGOs involved conducting face-to-face interviews with 3 out of 6 organizations, while the remaining 3 were interviewed via Zoom video chat due to schedule and distance. For the individual participants of the public, only 1 out of 6 interviews was conducted face-to-face, while 2 were conducted via Zoom video chat and the rest were carried out using written interviews via email.

In advance of the interviews, all participants were provided with a research proposal and interview questionnaire to help them understand the purpose of the questions and provide the researcher with more relevant answers. During the interview, both the researcher and interviewees had the opportunity to ask follow-up questions or explore relevant topics based on participants' answers.

In cases where written questions were used, follow-up questions were answered through additional email or chat conversations. Accordingly, the average duration of interviews was 60 to 90 minutes.

To facilitate the process of data collection, a range of digital devices, mobile phones and iPads, were utilized for recording face-to-face verbal interviews, while online video interviews were recorded using the Zoom platform's built-in recording function along with iPad recording. All interviews, except for written ones, were transcribed using the record files and two different transcription tools; an AI-based transcription service called “Daglo” and Microsoft Teams’ transcription function. To ensure data triangulation, the researcher's written notes from the interviews were cross-checked against the transcriptions. Triangulation refers to using multiple methods or data sources so that a researcher can cross-check findings and enhance the research results (Bryman, 2012).

3.4 Limitations of Study

A limitation of this study is the small sample size of 6 NGOs and 6 individual participants due to the difficulties in inviting NGOs for the in-depth interviews. This makes the research findings become less generalizable as representative features of each sphere. To illustrate the most frequent causes of the recruiting challenges, NGOs from South Korea in particular have yet to respond to the interview inquiry requested via email or other channels including websites and phones. On the other hand, most of Norwegian organizations that were contacted for the interview responded to the inquiry but eventually were unable to arrange or participate in the research due to organizational capacity. As mentioned earlier, convenience sampling employed to select the individual participants also restricts the generalizability of the results. Nevertheless, the focus of this research is to explore and demonstrate cases of environmental communication in Norway and South Korea with the theoretical analysis.

With the same causes of the sampling difficulties, including fewer Norwegian individual participants as two of interviewees compared to four of the Koreans is also a limitation. In particular, there needed to be a bigger gap in the levels of pro-environmental engagement between those two Norwegian participants without the middle levels of it. These thus lead to lack of discussion about Norwegian context in terms of a comparison of the public perceptions between Norway and Korea.

Yin (2018) highlights that a case study contributes to “shedding empirical light on some theoretical concepts or principles” (p. 38), instead of viewing the case as a sample. Moreover, having theory or theoretical propositions helps a case study to enhance feasibility of research, as well as relaxing the limitations of generalization by elevating the conceptual level of the empirical findings as its implications (Yin, 2018; Baxter & Jack, 2008). Therefore, trying to compensate for the limitation of generalizability, this research contains theoretical propositions aligned with the theoretical frameworks. That is, the theoretical proposition Agenda-Setting is utilized in this study to support the idea that the environmental social media agenda influences the public perception of the relevant

issues. Similarly, Theory of Planned Behavior links the case of this research to the implications that individuals' perceptions of the environmental issues lead to their motivation to perform pro-environmental behaviors.

It is worth mentioning a potential limitation that may pose variations in data quality and depth due to varying levels of response and background resources, such as the differing extent of enthusiasm for the topic, relevant knowledge and experience, interview duration and capacity, etc., among interviewees. Some participants provided more detailed and insightful responses, while others provided minimal or less informative answers due, for example, to limited interview time. These may affect the consistency of the data collected and its analysis. To mitigate these limitations, additional literature reviews and secondary data are often utilized in this study when analyzing and discussing the data.

4. Results and Discussion

This chapter presents results of this study through answering the two research questions and discusses findings using theories and literature. The first following section (4.1) provides the results regarding the first research question within the environmental expert sphere, which is about how environmental NGOs disseminate their environmental agenda through using social media in Norway and South Korea. The second section (4.2) similarly provides the results regarding the second research question within the public sphere, how individuals perceive environmental agendas of NGOs and are motivated to take environmentally friendly action using social media in Norway and South Korea. Each section contains several sub-sections to help navigate distinct details of results and findings. Those findings are also discussed together in each sub-section. Lastly, the third section (4.3) elucidates cross-cutting findings and discussions, linking respective findings to each other across different spheres investigated in this study.

4.1 Expert Sphere: Agenda Dissemination Strategies of Environmental NGOs

4.1.1 Public relations of NGOs through social media

a. Value of public relations

The groups under investigation demonstrate a high degree of awareness regarding the importance of public relations in both marketing and communication domains. Specifically, these groups recognize the value of public relations as a means of securing fundraising from committed supporters and promoting their brand to the broader public. Moreover, the groups explicitly acknowledge their influence of agenda-setting in relation to climate and environmental issues, and thus the need to use appropriate methods to transfer their agenda to their audiences effectively.

Specifically, Norwegian environmental groups tend to place a greater emphasis on fundraising as a core component of their public relations (PR) strategy. In contrast, Korean groups prioritize their commitment to public engagement. Furthermore, all Norwegian groups explicitly state that their PR efforts are geared towards influencing politicians through engagement with their public supporters. In contrast, two out of three Korean groups prioritize building relationships with individuals, while the other group explicitly seeks to increase the size of their respective supporter base to enhance their capacity to influence politicians and state policies. Especially, KGA prefers to avoid directly advocating for specific political policies in the media. Instead, they choose to present such political approaches as individual viewpoints belonging to members of KGA when submitting to the press. By doing so, they prevent the opinions from being interpreted as the official stance of the entire organization.

b. Use of social media as an agenda medium

The investigated groups utilize their own social media channels to attract followers and encourage engagement with their agenda, using content as a threshold for further actions. The specific activities that the groups expect from their followers vary. NGA and NGB emphasize the promotion of fundraising. In contrast others, local community-oriented organizations such as NGC and KBC, aim to cultivate their community in the field to speak out to politicians. Branding is also identified as a critical aim of social media activities, with most groups emphasizing the importance of building a coherent brand identity. Compared to Norwegian groups, Korean groups place importance on advertising their existence, reflecting a desire to establish a solid online presence and attract a larger audience.

All groups prioritize using Instagram as their primary platform to achieve their public relations goals online. However, Norwegian groups also use Facebook in conjunction with Instagram, while Korean groups use KakaoTalk alongside Instagram. These groups consider various factors when prioritizing using specific social media platforms, such as agenda topic, built-in functionality, public popularity and reaction, audience demographics, and organizational targets.

Most groups prioritize activating and communicating with the public through Instagram, based on the platform's demographic nature, which aligns with their target audience's demographic. For example, NGA uses Twitter to directly tag and criticize polluting companies or politicians. In contrast, KGA leverages the platform to reach out to and sustain relationships with K-pop idol fan groups who regularly participate in tree-planting campaigns. KGC often utilizes Kakaotalk to inform specific residents about their local activities, ensuring that the agenda and message are relevant to the local context.

NGA differentiates between the use of Instagram and Facebook based on the sensitivity of their agenda. They prioritize Instagram over Facebook for controversial topics, as Instagram tends to generate more positive engagement, such as likes, comments, and shares, compared to Facebook. In contrast, Facebook is more likely to attract negative comments and arguments from trolls,

making it less ideal for sensitive topics. Additionally, NGA simplifies how they create and post content on Facebook due to the platform's lower level of online engagement.

NGB reported having more followers and engagements on Facebook than on Instagram. However, NGB does not differentiate its strategies for different audience groups and platforms, instead adopting a "one size fits all" approach, with minor adjustments made to content formats such as links to external articles or longer text on Facebook.

Sub-discussion of 4.1.1

Norwegian groups utilize the agenda-setting effect (attribute agenda-setting in particular) to highlight the political aspect of their issues, to encourage their audience to agree their agenda, which allows for their political lobbying. In other words, the political implications are intentionally emphasized among Norwegian NGOs to make the public perceive the environmental issues as political. Meanwhile, most Korean groups, except one, tend to avoid highlighting specific political stances with their media agenda. Instead, they emphasize the personal dimension of their agenda more plan, making their message applicable to individuals.

Notably, Korean groups barely mention any financial motives behind media agenda strategies during interviews, which differs from Norwegian groups' explicit intention to utilize their social media content for fundraising, and their environmental issue agenda. Although they did not directly specify why they mind it, these strategies could ascribe to the network agenda-setting effect (McCombs & Guo, 2011). They are likely to prevent the public from associating themselves with political campaigns or profit-oriented activists. This finding might partially bear some biased image toward '(political) activist groups' in Korean society in their mind, which describes that people are often likely to associate the object with negative labels such as aggressive demonstration, extreme socialists, and communism – associating North Korea, exclusivity or corruption. Similarly, it is often unwilling to reveal political opinions in formal occasions such as public schools, official brand channels, and even TV programs except for news channels. In this context, Korean groups may beware of giving sources that may associate with those images through their content beforehand.

The finding that most groups aim to use social media activities as a means of branding can be analyzed through the lens of agenda-melding theory. As this theory posits that individuals desire affiliation, those investigated organizations design their social media content to attract individuals by showing their issues in a cohesive way, which may vary by the organizational strategies. By doing so, audiences can easily find and recognize the groups based on their own needs and interests to join.

Agenda-setting strategies of organizations are not solely rooted in driving public perception, but also by their scale. For example, Norwegian organizations that have gained international or national recognition tend to prioritize fundraising in their social media activities, while local community-oriented groups focus on attracting new members. Meanwhile, Korean groups with

larger brand units operating in major metropolitan areas continue to emphasize advertising their presence, which differs from the Norwegian context.

On the one hand, the findings demonstrate that the NGOs investigated invested in utilizing various social media platforms to disseminate their agendas and reach out to the public, confirming the literature consensus where environmental groups have increasingly turned to social media platforms to spread their message and mobilize people (Schäfer, 2012). Meanwhile, the differentiation in social media platform use, which depends on the level of online engagement with the content and the demographic profile of the platform users, provides empirical evidence of the agenda-melding theory. This theory posits that individuals shape group agendas by blending their opinion with these agendas. And the users' responses and a specific recurrent profile regarding issues reflect individuals' views, interests, and experiences. Therefore, this finding presents that users' opinions influence the agenda strategies of these NGOs. Similarly, the attributes of issues that these groups highlight can also take a reference from the audience on these platforms.

In this regard, the results can be interpreted as follows: NGA shares less controversial or simplified agenda on Facebook because Facebook audiences are likely to be negative toward their agenda or not to show online engagement; NGA also shares critical messages for politicians or polluters on Twitter because those targeted users are more likely to monitor or respond to them on the platform; KGA emphasizes tree plant over their environmental issues on Twitter because K-pop fans prefer to use Twitter and they have made unique culture by planting trees.

4.1.2 Communication strategies employed by NGOs for agenda dissemination

a. Credibility of agenda source

The investigated groups generally rely on data from external research institutes, occasional collaborations with other groups or related institutes, and their research investigations. Notably, the Korean groups prefer to rely on national research reports published by state institutes, such as the Ministry of Environment and the Seoul Municipal Institute.

b. Agenda-framing strategies

The groups prioritize an action- and efficacy-focused strategy when framing and sharing their agendas on social media. This strategy involves informing the public about practices to mitigate problems and motivating them through optimism. The groups recognize that fear-based harmful content can cause climate anxiety and fatigue, so most of them consciously provide the public with optimistic scenarios from individuals' actions. They also tend to use optimistic (responded by NGA, NGB, NGC, KGB), cheerful and hopeful (NGB), inclusive, friendly and upbeat (NGC, KGB), and trendy (KGB) tones, and all avoid shaming individual choices.

On the other hand, criticizing, alarming and strict tones are occasionally adopted by NGA, NGB, NGC, and KGC when they criticize governments and businesses that they believe are neglecting climate mitigation efforts, or demand actions. NGA, NGC and KGC are okay with much including criticism or those strict tones in their open channels and content. At the same time, NGB tends to avoid showing those aggressive tones on their available channels of social media, instead directly meeting and talking to the polluters. In contrast, KGB has a strict strategy regarding their brand and identity, which is against any negative tone on its content.

Solution-oriented strategies were responded to by NGB and NGC as a primary method where individuals can quickly join the practice suggested. Offering a complete list of options which range from the lowest threshold to commitment was presented by NGA and KGA, along with solidarity in taking action. To showcase organizational achievements, including their victories against the government (like the successful effect of demonstrations) and result of activities taken the public participation, is another strategy in common with NGA, NGC, and KGB. These groups design content to evoke action-oriented sentiments from audiences and individual confidence in the mission by exposing their activities and achievements to the public. Furthermore, sharing abstract content with moral-based messages is avoided by most groups, especially KGB and KGC.

Another strategy that was repeatedly presented by Korean groups, which Norwegian groups did not adopt, is to shape climate issues into the public's intimate personal issues. The Korean groups stressed that they seek to frame their agenda to demonstrate the direct correlation between climate change and individual concerns such as personal well-being, economic stability, and safety.

KGC emphasized that their agenda is centered on promoting actions taken by macro-level actors, avoiding including individual practice in their agenda to mitigate climate change, except for occasionally incorporating the concept of individual to renew public awareness or attract them into their community.

Additionally, all the groups across the countries agreed on targeting audiences who are already interested in environmental issues, instead of convincing those who are skeptical or not interested. Most of their main targeting audience groups converge on women who are between twenties and forties. Meanwhile, there are a few variations in details – for example, NGB focuses on women who live in large cities, rather than those who live in countryside as they believe their messages are based on city-oriented lifestyle. On the one hand, NGC and KGC, action community-oriented groups, are more inclusive of men than other groups. Although both are community-oriented along with voluntary action, their fundamental strategies for it are discrepant. KGC asserted that they aim to expand their community by sharing their agenda that focuses on macro-level efforts in order to influence upper decision-makers. In contrast, NGC overall represented that they focus on operating their grassroots action in the local area by attracting local volunteers through their content.

Sub-discussion of 4.1.2

Korean groups tend to place greater trust in authoritative sources of information, national research units, reflecting the relatively hierarchical culture and tendency to attribute the environment to the common good rather than private interest, which are prominent in Korean society.

Framing agenda refers to shaping recipients' thoughts about the topic (Ban & McCombs, 2007; McCombs et al., 2014). With agenda-setting theory, NGOs can determine through which lenses the public perceives their content depending on their strategies. Those lenses can be both effective, such as message tones, and cognitive attributes, such as a specific conceptual aspect. Thus, those strategies of framing straightforwardly lead to the main basis of how the public perceives environmental issues and NGOs' activities.

In line with these, NGOs investigated tend to invest more in effective attributes overall by embedding specific tones when they intentionally shape their messages. Especially, they are likely to employ optimistic and cheerful tones when they create and share their environmental information and news to make people feel hope and efficacy through it because they are aware of the situation where their message may cause climate anxiety among the public. Likewise, they avoid using strict and critical tones with their messages particularly so that individuals do not perceive them to be shameful or pessimistic. Alongside those tones, their solution-oriented strategies can be supported by the cognitive attributes setting effect. Instead of highlighting the consequences of the issues, they certainly highlight the requested behavioral participation or action out of each environmental issue they share. Based on the principle of agenda-setting theory, therefore, the audiences may be likely to perceive those groups' content as fixable problems with hope, as those agendas emphasize the doable aspects of the issues.

Meanwhile, Korean groups investigated have an additional framing strategy differentiated from Norwegian groups, which is shaping environmental issues into personal matters. This can be seen as reflecting the Korean citizens' typical perception of the distance between themselves and climate change. According to the Korean Environment Institute's national survey of Korean citizens' environmental perception, Korean citizens tend to perceive that the impact of climate change is more urgent and severe towards distant and uncertain targets such as society, future generations, and animals, rather than towards themselves. Compared to the high environmental awareness of environmental issues with 73% of respondents, 88.3% of Korean citizens recognize the impact on individual is less than on society, accounting for 54.5% and 88.3%, respectively (An et al., 2021). Thus, the strategy of Korean NGOs can be analyzed as an adapted framing by the characteristics of their audiences.

Moreover, according to the concept of NFO, the need for orientation; (McCombs et al., 2014) refers to motivation to seek issues; this strategy can be reasonable to mobilize the public engagement because perception of relevance between individuals and issues is an essential determinant of the individuals' willingness to find those issues, NFO. Furthermore, while increasing the level of relevance, the Korean groups thus selectively highlight personal aspects, such as well-being, household economic cost, and individual physical safety, of each environmental issue.

The targeting audiences of groups' message, which refers to women, are consistent with the gender gap in environmental concerns, which are consistently demonstrated by surveys and research over decades (Bord & O'Connor, 1997; McCright & Xiao, 2014). As the investigated groups intend to approach to those who are at least aware of environmental issues and undecided, scholars have confirmed that women are more concerned with climate change and environmental issues than men. The reasoning behind the relation remains varied by scholars, it could be explained as women are more vulnerable to the impacts of climate change due to gender roles, and unequal access to power, information, and financial resources than men (Clayton, 2023).

4.1.3 Relationships between external actors and agenda strategies

a. Impact of political actors on agenda strategies

When asked about any experience in the impact of political or external factors, both Norwegian and Korean groups had a consensus regarding the idea that which regime itself does not make a difference in their agenda shaping. They are likely to perceive that neither major two political parties, left- and right-wings, are supportive and progressive of environmental policies. Particularly, KGA commented that their general stance as environmental NGOs is always likely to be contrary to their political regime.

NGA and NGB selected elections as the most significant influence on their agenda strategies. For example, election shapes their content and messages to focus on convincing the public voters for a climate-friendly party/regime, aiming to end up with the improved capacity to make their demand and agenda straight to the legislature. Also, these groups publish messages which follow up on change and promises made by new politicians by informing these citizens, so that they can keep their eyes on the politicians. Other than that, however, Norwegian groups, especially NGA and NGB, barely mentioned political factors to significantly influence their original strategies, rather stating that their original communication strategies are usually stable.

On the other hand, Korean groups tended to describe that the issue topic they mainly invest in can be influenced by regime change where a main national policy and overall ethos are changed in accordance with the current regime. Notably, Korean groups have been influenced a lot by the current regime shifted from the last one.

KGB especially stated that municipal authorities and their policies are likely to influence them, but may not have a practical impact on essence of their projects. Political preferences regarding citizen participation and grassroots activities, as well as the frequency of collaboration with the municipality, have an impact on shaping their own agenda and content. For example, the current regime in Korea, both at the central government and municipal levels, has become less supportive of grassroots activities involving NGOs and citizen volunteers, and instead favors government or municipal control. This has led to a reduction in the scope of KGB's activities and targets, with professional agencies or civil servants taking on a greater role. Accordingly, KGB has adapted its

strategy to emphasize the positive effects of citizen participation indirectly, due to the government's lack of support for such activities.

KGC similarly pointed out that their approach to agenda is often influenced by the current political mainstream stance or basis. For instance, in the current conservative Korean regime that has been pro-business and hesitant to transition to renewable energy, KGC's agenda shaping strategies have focused more on targeting business sectors. To achieve their goals, they strategically use corporations as leverage to reach out to the government.

Additionally, KGA gave an example where they had shifted their focus towards reducing disposable usage and advocating for new legislation on this issue due to the relaxation of regulations on disposable products by the current regime.

b. Reflection of audience feedback

Most groups tended to stick to their own primary communication strategies such as tones and environmental issues they emphasize when they receive audience feedback that requests for change in their messaging styles or suggests a certain issue to address. Nevertheless, they constantly track online reactions on their content, such as the number of likes, views, shares, and comments. They commented that because they want to monitor if there is a significant disparity between their strategies and public engagement in real-life. That is, they set up their own strategies within their internal interactions among different teams whilst a single audience feedback is hardly included during the process of deciding and creating content. On the other hand, only NGC stated that they are typically flexible and receptive to audience feedback, and often incorporate it into their activity operations.

c. Challenges in working on public relations and media agenda

Internal work capacity and keeping up with quick and frequent changes in social media landscape, which obscures accurately predicting the levels of public engagement, are respectively the most common challenges across the groups. Due to this, they need help managing strategically planning future agenda.

In addition to the lack of work capacity, NGA also mentioned that they often struggle to talk about some very sensitive and controversial topics such as oil and windmill given Norway has the most climate change denial among Nordic countries and the governmental stance supports oil and gas with brainwashing/denying the impact.

NGC presented challenges in navigating the Norwegian bureaucratic system to sustain their project around the fjord, including obtaining permissions to access certain waterfront locations and designating areas for fjord pollution control. Additionally, fundraising is a difficult undertaking for them as they accuse the public perception that NGOs should work for free poses a significant obstacle.

KGB pointed out that they encounter difficulties in effectively conveying their message while prudently navigating shifting political dynamics given that their operations may be subject to the influence of political regimes or positions. Additionally, they feel it is tricky to keep their own identity as an environmental institute at the same time keeping up with public trends and needs.

KGC also pointed out the need for more public interest and awareness on environmental issues, which creates a shortage of inspiration for content creation. They feel a distance between environmental groups such as NGOs and the public due to the public perception that neither is climate change their personal issues nor their responsibility to engage out of the whole discussion regarding climate change.

Sub-discussion of 4.1.3

Both Norwegian and Korean groups recognize their governments tend to be consistently conservative when it comes to environmental policies regardless of whether left-wing or right-wing ideologies dominate. On the one hand, when asked about the political influence, Korean groups are more likely to be exposed to political pressure than Norwegian groups. While elections are the only factor to be considered by Norwegian groups, Korean groups all have experienced challenges to change their communication strategies and compromise with regime change.

Both Norwegian and Korean groups recognized the persistent conservatism exhibited by their respective governments in terms of environmental policies, regardless of whether left-wing or right-wing ideologies are in power. However, there is a notable distinction between Norwegian and Korean groups when it comes to political influence. Korean groups, when questioned about political pressures, are more prone to exposure compared to their Norwegian counterparts. In Norway, the only one factor considered by groups is elections. In contrast, Korean groups have encountered difficulties in compromising their communication strategies and activities due to regime changes. These findings may also suggest a tendency among Korean groups to avoid explicitly showcasing a political stance through their environmental social media content.

Most groups reported that public feedback hardly makes a significant impact on their primary strategies while checking social media engagement metrics, except for NGC. Notwithstanding, for example, NGA differentiates posting content by demographic features or recurred reactions from certain social media platforms when asked about their use of social media (in section of 4.1.1). Based on these, it could be thus contemplated that public attitudes on specific issues, which are monitored through the metrics built in social media platforms, possibly indirectly affect some parts of the NGOs' communication strategies in a way. Meanwhile, KGC's stance to likely disregard instant public feedback, compared to the exceptional response from NGC, is somewhat counterintuitive because both groups are local community-oriented with smaller operation scale. This difference may be involved with their different agenda-framing strategies in general (see section 4.1.2). KGC is less likely to mind adopting criticism or strict tones through their content while targeting macro-level actors. However, NGC is more likely to ensure showing light-hearted and friendly content while targeting local-based volunteers.

Although social media has provided NGOs with several benefits to reach to a wider audience, it is stressed that the challenges NGOs face in common are also rooted in the volatile and unpredictable nature of the social media ecosystem. In addition, differences in the challenges encountered by Norwegian and Korean groups could be ascribed to their respective relationships with other stakeholders, including the different levels of political pressure.

4.2 Public Sphere: Public Perception Toward Environmental NGOs' Agenda, and Behavior

4.2.1 Public perception toward environmental NGOs and their social media agenda

a. Credibility of environmental information

All participants tended to show skeptical attitudes towards credibility of general information sourced from social media due to the nature of social media such as prevalence of ads-oriented posts, click-baiting, fake-news and a channel owner's subjective perspectives built-in content. However, four out of them, who were all female respondents, showed more positive attitudes regarding credibility if the information is related to environmental concerns. One of them specified that it is because she usually agrees with environmental NGOs themselves, which provide her with environmental news and information. The two of the rest, both were only male participants from each country of Norway and South Korea, were consistently negative to obtain credible information from social media even if it is environmental content.

One of those two who stuck to negative attitudes, hardly relies on social media for use of acquiring valid knowledge, opting instead to search for actual academic research or articles from official news media, while sometimes conducting quick checks on YouTube. KPD stated that he has a low level of trust in environmental agenda in general, because he recognized that it often focuses on solely the negative aspects of climate change, such as the collapse of the world. This makes it difficult for him to fully believe what the content says. Additionally, he expressed doubts about credibility of agenda, specifically regarding the accuracy of its "facts". For this reason, he explained that past agendas have sometimes turned out to be exaggerated and biased, such as a prevailed frame of "Korea has Water Stress" back then, leading to skepticism about a current agenda being propagated by NGOs.

Participants, including those who had negative attitudes, were likely to judge the credibility of environmental information based on the original source of the information such as from which research institutes it is sourced, and public confidence of the institutes. KPC and NPA noted the presentation style including a professional manner and quality of format, such as infographic, are significant elements to influence their evaluation of information credibility. KPA specified that she takes into account public reactions to the content, the level of engagement of the social media channels where the content is posted, and how frequently the content is shared by individuals in her social network. KPB tended to assess the content based on its alignment with her own

background knowledge and view. For NPA, citation, which allows for cross-checking the information on different platforms, increases its reliability, along with the political stance and ethos of the content-producing organizations.

Sub-discussion of a in 4.2.1

Most participants tend to differentiate their attitudes towards trust in information sourced from social media based on the topic, showing favorability only towards environmental information. In the perspective of TPB, their positive attitudes can be viewed as because they believe that environmental content on social media is inclined to say truth unlike general doubtful content. It also may suggest that they are likely to engage in taking the issue important based on their positive evaluation, in turn developing another behavioral belief regarding the issue. Specifically, the findings that the participants who attributed information credibility to NGOs or content presence in their social network are in line with other studies on trustworthiness of online media information. For example, Metzger et al. (2010) find that online information credibility on social networks increases when those who share the content seem to have the same views as the user's one. Similarly, Turcotte et al. (2015) demonstrate that the frequent presence of certain news recommended and shared by personal networks on social media increases trust in that news channels and intent to follow further information from that certain channel.

On the other hand, KPD's unfavorable attitude towards trusting environmental information can be traced back to his personal experience of "Korea is a water-scarce country", which used to be a prevailing campaign that Koreans should save water resource due to its shortage, and exposure to negative content. The idea that Korea is water-scarce was sloganized and extensively propagated by various NGOs and even government in 2003, as UN had categorized it. However, it turned out that UN had not announced it, but it had been miscommunicated through the process of conveying the news that UN had cited a part of a water resource report from an American NGO that had claimed the idea. In turn, government officially conceded that the slogan was a misconception due to the miscommunication while people were debating on even if the claim sourced by the overseas NGO was legitimate and credible (Hong, 2008; Choi, 2021). Regardless of the fact whether Korea is really water-scarce or not, these series of events at the time tarnished trustworthiness of environmental NGOs in Korea. This experience is partly parallel with the so-called "Climategate scandal" in UK (Simpson, 2011). That is, this experience could form KPD's behavioral belief that the campaign agenda of the water shortage in Korea was manipulated and imposed by the environment advocates and NGOs. This belief results in low motivation to trust current environmental messages or campaigns, which in turn leads to his actual distrust behavior. According to Ajzen et al. (2018), the discrepancy in attitudes between two groups of participants can be ascribed to individual characteristics of them in addition to differences in experience and belief.

Moreover, the reason behind KPD's negative attitude towards environmental information can be attributed to the general perception of such information among Korean respondents, as presented in the KEI report (An et al., 2021). According to the report, environmental information is typically

considered as having low credibility due to the belief that the information is mixed facts and opinions, which makes it difficult to obtain accurate information. The report also presents that Korean respondents believe environmental information is sometimes biased or created with certain intentions and is often sensationalized and exaggerated.

b. Perception toward environmental information on social media

- Subscription of environment-oriented content channels

Only KPA and NPA, who have experience in joining environmental NGOs, have intentionally followed environment-oriented content channels, expecting to gain practical advice and tips, as well as a sense of solidarity or community fellowship. NPA stated that it is enjoyable to follow the channels because it is a low threshold way to stay updated and learn about what's happening in the field. She also appreciated the originality gained by following the channels as they often post real-time news. On the one hand, KPA pointed out that she stops following the channels when their content becomes too complex to intuitively understand or feels distant to her. However, the Norwegian respondent has never quitted subscription but pointed out that deactivation of their posting could pose a problem.

On the other hand, KPB does not see the value in following the channels based on the belief that personal actions, informed by online content, are unlikely to make a significant difference. Thus, she chooses not to consistently subscribe to those kinds of channels. NPB, who also has not subscribed to any at the moment, commented that he would be willing to do if the content resonated and piqued NPB's interest.

Sub-discussion of b ('subscription') in 4.2.1

Performing subscription is obviously involved with individual willingness to regularly receive and access environmental information since the behavior entails consistent exposure to environmental agenda during their use of social media. Based on TPB, the subscription behavior of KPA and NPA could be facilitated by their willingness to access the environment-oriented sources because they evaluate possible consequences involved with subscribing the channels as benefits. Alongside these benefits, the perception of 'low threshold' to perform it is another powerful factor to encourage them to keep their actions, evidenced by the impact of perceived behavioral control (PBC) of TPB. For example, as demonstrated by NPA, her awareness of ease of performing subscription and positive expectation of it have led to the actual status of following. The PBC can also function in the opposite behavior of quitting the subscription, as KPA stops performing it when the content demands a higher level of effort to keep up with, either due to difficulty in understanding or lack of feasibility.

Meanwhile KPA, KPB, and NPA all share favorable attitudes towards environmental information itself and find it easy to subscribe to it, KPB does not have any intention to subscribe, unlike the other two participants. The discrepancy between them can be attributed to KPB's control belief

that her personal impact on environmental mitigation as an individual scale is insufficient. In other words, her weak PBC towards investing in individual pro-environmental behavior can influence both her willingness and actual behavior. This aligns with the common public relations strategies presented by the investigated Korean groups, which is to motivate the public to perceive climate issues as personal matters and individual confidence in mitigation. Partially in line with these, NPB can be represented as he has weak PBC but in a way of lack of opportunities that he believes he possesses.

- Tone of environment-oriented content

Regarding general tone of environmental content, most participants, but NPA, expressed their perception which is likely to be negative, anxiety-inducing, criticizing, pessimistic, fear-based and worrying despite some extent of recognition of recent examples of more optimistic messages. Although these perceptual assessments were across most respondents', the way each participant processes their perceptions of tones varied.

For example, KPB had not felt discouraged to care about the environmental issues despite experiencing shocking and uncomfortable contents starkly capturing mass death of animals. Rather, she used it as leverage to keep conscious about the problem. Likewise, NPB did not view those initial emotions triggered by content, such as worry and anxiety, as merely negative, rather reflected them as a necessary step in his journey towards greater engagement with the issues.

On the other hand, KPD responded that the manner was solely likely to evoke a sense of repulsion toward the issue, rather than encouraging follow-up interest. He made an additional remark that the majority of environmental information is likely to show the public pessimistic implications of climate change, which he believed makes the public drift away from the concerns. In the same vein, KPA, remarked that a one-sided message or campaign, which approaches as the moral appropriateness of actions or is fear-based tone, can desensitize her to the issues.

In contrast, NPA perceived a wide range of tones in the environmental agenda, including both alerting and optimistic tones, which she sees as beneficial because it allows for options to select a style that suits different purposes. For example, she found the tone of NGB explanatory, optimistic, and lifestyle- and politics-oriented. NGA was seen more sensational and attention-grabbing, alarming, fear-based, and nature-oriented by her.

Sub-discussion of b ('tone') in 4.2.1

Given a new term, 'climate-anxiety' or 'climate-depression', has recently emerged and it is often discussed over the responsibility of journalism, tone can be noted as has a power to impact on recipients' information processing by intuitively relating certain emotions to the information. Thus, the tone may be an assistant source of recipients' behavioral belief. For example, if a message promoting a certain behavior is conveyed in upbeat tone, individuals may be more likely to evaluate the possible outcomes of the behavior as positive. On the other hand, if the message is

delivered in a pessimistic or aggressive tone, individuals may be less likely to relate the experience with desirable emotion. This assumption could be supported by the perceptions of some participants, particularly the majority of Korean groups. While only KPB's unfavorable attitudes based on uncomfortable experience did not lead to contingent intention to the message, other Korean respondents were either discouraged from practicing the message or were pushed away from it. They tended to present their weak PBC based on the belief that mitigating is difficult to achieve through their actions and unfavorable attitudes towards mitigating behavior due to failure of intimate outcome expectations.

c. Perception toward environmental NGOs and their agenda strategies

- Expected roles and actual performance of NGOs

KPA and NPA, who respectively have experienced in joining environmental NGOs from Korea and Norway, tended to recognize the actual performance of environmental NGOs as aligned with their own expectations of those groups' roles in general. For example, the Korean one expects environmental groups to play a role in popularizing environmental issues, lobbying for political change such as suggesting legislation, and educating the public about environmental concerns. The Norwegian one expects diversity of approaches from environmental activism, which does not necessarily agree with one another, so that various options for public participation are ensured. However, the Korean participant pointed out that NGOs' political performance in Korea is weak in terms of suggesting and lobbying for related regulations.

Both Participants B and E from the Korean group tended to assess NGOs' performance as insufficient, but there was distinction regarding affirmation in individual-level targeting of NGOs. One of them had significant skepticism about NGOs' performance because she did not see evident outcomes from NGOs' activities, while expected them to conduct macro-level actions such as lobbying for legislation or pressuring businesses, rather than individual-level initiatives. It was based on her belief that individual-focused activities are incompetent to catch up with the process of climate change and NGOs do not have enough power to influence public behavior. Another one, who is the only male Korean, shared some thoughts, which was an expectation that NGOs can make a big difference but unsure of their actual impact and whether they are achieving marked outcomes. According to him, NGOs' activities fail to create a sense of closeness or relevance for the public, lacking news media coverage. However, he tended to acknowledge individual contributions and importance of public awareness, compared to another.

The KPC also intimated expectation for more practical activities to make a significant difference, while positively recognized NGOs' contributions in climate action, including the role of alerting current problems. She additionally remarked that NGOs have limited accessibility to the public and are not inclusive of a broad range of people, as they seem disconnected from those who are not already engaged in the issues.

Similarly, NPA described her own disappointing experience when she had joined a local chapter of an organization in Norway but found it difficult to sustainably work with it due to poor

introductory dynamics. These included an unsystematic organizational culture, a lack of members, difficulty in integrating new members due to unclear responsibilities allocation, and a lack of introductory information and internal communication. She stated that these factors can discourage the public from accessing to NGOs. Meanwhile, NPB had limited knowledge about environmental NGOs in Norway thus had not yet given much thought to the organizations.

- Perception toward NGOs' agenda strategies

KPA, KPC, and KPD shared an idea that NGOs' agenda often feels disconnected from individual living conditions or their social context. For instance, KPA found it difficult to relate to the specific focus on issues such as renewable energy and nuclear power phase-out, in areas where job security and economic stability are not guaranteed for the majority of the population. KPC also observed that mitigation methods or actions suggested by NGOs often appear limited to be widely adopted in people's lives due to the social, cultural, and economic context of Korea. KPC took an example of veganism in Korea, which were lack of vegan/vegetarian options in the Korean food culture, collectivity-oriented culture adopted lunch or dinner, or social gathering culture in Korea, especially in office works. KPD also found it hard to relate and see the feasibility of NGOs' suggestions when they are based on examples and models from overseas, particularly from European countries. KPC and KPD had an impression that NGOs' activities often seem rigid and are accessible only to those who are already involved or have personal connections with the organizations, leaving the public with limited engagement opportunities

Lack of legislative approach was also often shared by Korean participants, KPA and KPB. KPA agreed with importance of individual action in climate mitigation, which is often emphasized in NGOs' foci, but pointed out that their agenda appeared vague and unattainable at politics level, which may lead to shrinking the scope of environmental issues. Similarly, KPB stuck to disagreeing with individual-oriented agenda including NGOs' typical methods, such as campaigns, petitions, demonstrations, as she believed these methods were too limited to mobilize larger entities, rather a waste of resources. Additionally, KPC suggested that NGOs' messages should target major companies, politicians and the government, rather than only individuals.

On the other hand, NPA recognized that agenda from many NGOs in Norway tends to approach issues with political aspects, which can sometimes make it confusing for her to comprehend how individuals can contribute or become involved in the political process. Accordingly, she noted that NGOs' agenda should provide more specific instructions on what individual should do, along with explanations of why those actions are required in this issue.

Sub-discussion of c in 4.2.1

Among Korean participants, it was repeatedly presented that they were inclined to expect NGOs to mobilize larger entities on political and legislative scales. They assessed NGOs' agenda is prone to be too individual-oriented based on a belief that this strategy is insufficient to make a significant

difference. Considering those expectations and belief they stated, the Korean participants are likely to possess weak control belief toward their own pro-environmental behavior on individual-scale despite the varieties in the degree of PBC among them. Especially, Participant B coherently showed over most of questionnaires the lowest control belief that she does not believe that her behavior is sufficient to impact on climate change mitigation. Moreover, her negative attitude towards both her performing NGOs' methods and their strategies could be based on lack of evaluation source. Namely, she did not believe that she had witnessed any tangible outcomes from those methods regarding mitigating environmental issues at hand, which shaped her uncertain behavioral belief about them.

On the other hand, it was hardly shown that Norwegian participants desired to see more political or larger scale of actions including NGOs' agenda targets while believing more behavioral details for individuals are needed. Rather, one of them perceived that NGOs' agenda in Norway is so political-oriented that she sometimes feels difficulty and frustration in finding out behavioral roles at individual level that she can perform. Namely, these perceptions are opposed to Korean participants' ones, indicating that she has stronger PBC based on a control belief that she perceives her own pro-environmental behavior as necessary to mitigate the involved issues. According to TPB, thus, the likelihood that she is motivated and perform the given pro-environmental behavior can be presented as greater than those who have low PBC in Korea.

Most of Korean participants perceived behavioral codes from NGOs as decontextualized from Korean culture and disconnected from individuals' ordinary life. The reason why they accused their difficulty in keeping pro-environmental behavior, such as vegan diet, of the Korean social gathering culture or office works can be based on their normative beliefs. As one of higher-context cultures in anthropology, Korean culture is highly relied on relationship- and collectivist (group)-orientation, traced back to various historical and cultural factors such as Confucianism, long history of centralized authoritarian system, hierarchical structure, and indirect and subtle communication style. In this context, Korean individuals tend to be afraid of being an odd out of their group by against the majority, such as when they are to keep vegan-diet alone among the majority of people who seek for meat. Likewise, the investigated participants perceive the likelihood that their social groups, especially in workplaces, approve of or show favor to their performing the action, as low. In other words, they perceive social pressure not to perform when they are around the referent groups that they believe negatively judge their behaviors, leading to a weak willingness to perform. Therefore, it can be argued that decontextualized practice instructions shared by NGOs may be perceived as obstacles by individuals attempting to follow them because of the absence of requisite cultural support for performing them.

4.2.2 Intention to perform pro-environmental behavior

a. Adopted behavior

KPA, KPB, and NPA had comparable viewpoints and similar experiences where their current behaviors were often inspired by watching documentary films, books, videos, or movies. Detailed instructions and explanations, which are easy to start and have a low threshold, were settled on as the most significant types of content to motivate them including another Korean, KPC. Moreover, the more the content implies personal context, like involving extra potential or effect for a positive impact on their life beyond solely environmental alleviation, the more it prompted them to implement, or at least to experiment with it. For example, KPB and KPC have been experimenting with a vegetarian diet after encountering various content to share easy recipes. KPA also corrected proper waste separation and recycling practice through explanatory content informing the process, understanding its entire process.

Meanwhile, NPA highlighted emotions as the initial spark that ignited her determination to put the practice into action and kept them motivated to continue doing so. For example, seeing pollution, such as burning plastics, in her daily life or watching films and documentaries spurred her to take action. The combination of an emotional reaction with a straightforward course of action could be particularly effective in triggering her. According to her, the more content indicates a straightforward solution to make a significant difference and the more urgent, the more the emotional response from the content culminates in carrying the content out. Thus, she uses social media as a reminder that helps her stay aware of the specific issues and why they are committed to certain actions.

KPD and NPB, on the other hand, provided insight into the education during their childhood, and social norms. Both evaluated their behaviors in ways that they did not have many significant pro-environmental choices and those choices have not been determined by content. Instead, they elucidated that their current behaviors were shaped by their parents and schools, including common ideas, such as trying to walk or public transportation for close distances.

Regarding personal highest thresholds to adopt or keep it, most participants similarly singled out the levels of time consuming and costing of the choices. For example, changing their living patterns to reduce energy consumption in terms of working manually was considered tricky habits. Substituting vehicles such as flights were also often mentioned by participants. Most Korean participants found it challenging to adopt and maintain a choice when it economically costs, especially without ensuring affordability.

Sub-discussion of 4.2.2

This study discovered that the result of participants' behaviors that they have currently adopted or kept significantly indicates the impacts of perceiving self-efficacy and social norms on developing intention. It is because such responses of 'detailed instructions, explanatory content, a low threshold to initiate easily, and a straightforward course of action' all refer to methodological assistance for individuals' ability to perform a behavior. In other words, it is evidenced that participants perform a specific behavior – or implement it – because they perceive the given

behavior as feasible based on a set of informative resources offered by NGOs' content and belief about the degree of ease of performing the behavior.

On the one hand, another finding regarding personal context can demonstrate the impacts of behavioral beliefs concerning the involved consequences of a behavior. As participants stated, when an action plan sourced from environmental groups contains something relatable to them, the evaluation of the behavioral outcomes or process becomes easy to optimize around their existing lifestyle, current promoting them to perceive it positively.

NPA' statement that emotions are strongest trigger for her to have intention to take a given action can be in the same line with the augmented model of TPB, which incorporates predictor of emotions. Similarly, Kals et al. (1999) have argued that feeling particular emotions induced by environmental content, such as sorrow, guilt, indignation, and regret, significantly contributes to individuals' behavioral intention to perform environmentally conscious actions. Kim et al. (2013) also proved that anticipated emotion, such regret about not making an eco-friendly decision, forms significant impetus for individuals' intention, thus leads to actual behavioral choice. Therefore, as NPA noted, the use of social media as a reminder can practically help in maintaining her motivation by serving immediate emotional impetus through a low-threshold behavior of scrolling down social media.

KPD and NPB, who attributed their practices to their early instruction from parents and school alongside the prevalent concepts in their respective societies, support the importance of social factors such as norms in maintaining eco-friendly activities.

4.2.3 Perception toward public awareness of society

a. Perception toward society awareness of environmental concerns

Most participants have assessed the level of awareness regarding climate and environmental concerns in their own society as extremely low. Three out of the four Korean participants interviewed agreed that those concerns are generally left out of both news media coverage and policies at institution levels including business. Also, they emphasized the lack of exposure of the agendas in the public's daily life contributes to the low level, noting that these topics are not usually brought up in daily conversation. In line with this, some of them clarified that most individuals cannot afford to be concerned about climate issues as they have more pressing personal concerns, this is similar to participants interviewed in perception towards NGOs'

KPA and KPB acknowledged disconnections between individual activities and advanced actions at macro-level, and between the public and environmentally conscious people. For example, KPA has noticed an increase in the popular activity of 'plogging', which involves jogging or running while picking up litter, but many of the non-recyclable items collected during these activities do not lead to further action, such as demanding more recyclable products from the companies that produce them. Similarly, KPB expressed frustration that these agendas are not taken into account

of the government and large firms' plans no matter how individuals dedicates to practicing, which does not make visible difference on the ground.

NPA also noticed that social groups in Norway are so disconnected that NPA did not have a clear observation of those who are not concerned about the issues. Due to the fragmentation of social groups, she believed that environmental groups may find it difficult to reach people who do not already agree with their agendas.

Sub-discussion of 4.2.3

While KEI (An et al., 2021) reported that 73% of Korean citizens are aware of and interested in general environmental issues, most of Korean participants in this study recognized that their society and reference groups are unconcerned with environmental issues. Continuously, they shared a belief that insufficient social discussion and media coverage regarding the issues hinder their society from reaching high levels of environmental engagement. That is, because they believe that their referent community, including both small groups and state they belong, is likely to disapprove of caring environmental issues, their social pressure to implement and keep environmentally conscious behavior can be low, decreasing their intention against the social norms surrounding them.

Similarly, 'disconnection' was also one of the frequently mentioned codes from respondents in slightly different levels of actors. One from Korean respondents was between individuals and larger entities of business and governmental actors, which is partly aligned with their perception toward personal impacts. Another from Norway was among individuals, which refers to fragmentation of social groups. The current study's differing levels of exposure and engagement with environmental groups between NPA and NPB may reflect a degree of fragmentation within Norway. NPB reported never encountering or knowing about environmental NGOs, while NPA reported only being acquainted with individuals who were not particularly passionate about environmental concerns.

4.3 Cross-cutting results and discussion

To provide an integrated picture of the results, this section presents the key findings in response to each research question. It examines any gaps that may exist between the different levels of findings, as well as within the same levels. During presenting the key findings, this section also highlights several noteworthy discussion points to explore the implications of the findings further.

The first research question focuses on the organizational level, exploring how environmental NGOs from Norway and Korea disseminate their environmental agenda on social media. To gain better understandings of the effect of the NGOs' agenda strategies, the findings are analyzed based on Agenda-Setting Theory (McCombs & Shaw, 1972) and its expanded models. The findings show that the environmental NGOs from Norway and Korea strategically utilize social media platforms

to facilitate their public relations goals. Instagram appears as the primary platform for sharing and promoting their various types of agendas. At the same time, there is differentiated usage of platform by cultural preferences, and public engagement levels and dominant characteristics on certain platforms. The findings also demonstrate that the environmental NGOs intentionally select, highlight, repeat, and associate a certain issue when disseminating their information because they are highly aware of the impacts of their agendas on public awareness. These findings reveal that they certainly tend to highlight both optimistic tones and solution- and action-oriented aspects of environmental issues.

Beyond only informing the environmental issues, the findings show that the NGOs aim to build and polish their brand identity by designing their agenda theme in a cohesive way to attract their supporters or members. Consistent with the literature, this finding can suggest the further implication based on agendamelding, which posits the mutual agenda influence between groups and individuals. In other words, this mutual impact potentially initiates larger social discourse through the convergence of agendas between them because the salient issues are agreed upon by the interests and values of both parties. Shaw, the author of the agendamelding model, specifically stresses that that public's active use of the Internet can assist their agendamelding process (Kim, 2005). This finding thus supports the role of NGOs' social media agendas in encouraging the public to participate in the process. However, the specific issue salience they highlight significantly varies by period, campaign, or current events in sites, thus there does not appear to be a single prominent emphasis in each organization's strategy.

The comparative findings between Norway and Korea show that all the Norwegian NGOs are likely to emphasize political implication of their content across all the questionnaires. In contrast, the most of Korean NGOs are likely to highlight individual pro-environmental practice in their content. Despite these findings, the Norwegian groups' agenda strategies typically remain steady despite political change. In contrast, Korean groups' agenda-setting is likely to be influenced by political regime changes, which leads to some challenges in their current working on agenda dissemination. These different findings may be taken to indicate that Korean society is more likely to be authority- and bureaucracy-oriented than Norwegian society. Korean society has adopted the centralism and bureaucracy system throughout their long history since the Middle age of dynasties.

Moreover, the common response from Korean groups regarding the current regime's attitude towards climate action, such as reducing its budget and being dismissive towards civic participation and NGOs activities, highlights the relationship between NGOs and ethos of government authority in Korea. Meanwhile, in the Norwegian and Korean groups, social media audiences' feedback is barely likely to be reflected further to the NGOs' agenda-setting process. Additionally, the nature of social media agenda, which is rapidly changeable and sensitive to public trends, is the common impediment to predict accurate public engagement on their content.

On the one hand, the environmental groups face challenges in keeping up with unpredictable variations in public engagement through changeable social media ecosystems. Korean groups more underscore these compared to Norwegian groups. However, this study does not find relation between this finding and scale of respect groups due to inconsistency. For example, NGA, one of

the most renowned and large international environment organizations, states difficulty in fully investing in social media content due to internal work capacity such as lack of employees in the team. However, NGC, a local level-organization with a few board members, highlights they are fine with this because their small scale of communication allows them to be efficiently responsive to matters. Compared to Norwegian groups, Korean groups are more likely to underscore the status quo of public awareness and interest about challenges from their communication work, regardless of the organizational size or scale. Thus, these findings reflect the relatively different stature of (environmental) NGOs in respective societies based on overall attitudes toward NGOs among citizens.

The second research question focuses on the individual level, to investigate how the public perceives environmental NGOs' environmental agenda and physically processes the information. To posit individual perceptions toward environmental information lead to their motivation to perform pro-environmental behaviors, this study utilizes Theory of Planned Behavior to assess the individuals' information processing. The most obvious findings highlight perceived behavioral control (PBC), namely self-efficacy, as the most influential determinant of individuals' environmentally friendly behavioral intention across all the questionnaires. Specifically, these findings significantly appear among the Korean individuals while they are likely to have lower PBC in terms of mitigating environmental problems than the level of Norwegian individuals. Those Korean with low PBC tend to believe their mitigation behavior does not make a big difference in dealing with climate change and environmental problems. These beliefs are coherently echoed by the expectations of NGOs from those with low PBC regarding politics- or macro-level-based actions. This finding is also consistent with the result of the KEI report (An et al., 2021), which presents that Korean citizens are willing to do make an effort to mitigate climate change if companies (71.4%) or the government (69.9%) are more committed to doing so first while disagreeing that government has been engaged in it. Namely, this may indicate that Korean citizens expect the government and companies to put more effort into combat climate change. In contrast, the Norwegian individuals in this study tend to expect the NGOs to contextualize the information to the individual-level roles in mitigating the issues.

This finding is also significantly represented in other survey, which is contrary to their awareness of climate change – in a survey conducted by the Worldwide Independent Network of Market Research (Worldwide Independent Network Of Market Research, 2022), 93% of Korean respondents acknowledges it as a significant threat, ranked as the third out of 39 countries. KEI report (An et al., 2021) similarly reports that most Korean citizens (73%) show interest in environmental issues. However, the belief that their actions can improve the environment from Korean respondents is quite lower (75%) than most of other countries (higher than 80%). Furthermore, there is a consistent emphasis on the belief among Koreans, who rank first among 39 countries with 83% agreement, that real efforts towards sustainability and the environment should be primarily undertaken by businesses and the government, rather than relying on individuals (Worldwide Independent Network Of Market Research, 2022).

Although it is too complex to explain this result, one possible explanation for this might be the psychological distance on climate change among Koreans, based on the general implications

suggested by several risk communication studies in Korea (Kim et al., 2018). As noted finding above, Korean people regard the consequences of climate change as problems that affect others than themselves (An et al., 2021). Psychological distance inherently features the perception of climate change because it gradually processes all over the world (Han, 2016) while the psychological distance influences processing information and behavioral intentions (Kim et al., 2018). According to the view of ‘tragedy of commons’ (Hardin, 1968), the perception of this universal impact on nature-environment is also inclined to shift individuals’ responsibility on to other’s shoulders. Furthermore, besides the current climate change impacts more severely damage developing countries or at least the overseas, the media coverage has been showing people those culturally and physically distant images associated with environmental issues or climate change. That is, the Korean press has contributed to this psychological distance on such issues by only focusing on sensational events such as natural disaster damages or international conferences – even it is likely to surge and last during the events, which is lacking relatability to the public (Choi, 2021).

Moreover, other findings present that most individuals investigated tend to perceive environmental information from the NGOs as negative, anxiety-inducing, worrying, or pessimistic, which significantly appears in the Korean individuals. Considering the current emphasis and tones employed by the NGOs investigated, this discrepancy may be derived from the legacy of the previously prevalent communication direction, which refers to fear-based ‘bad news’, employed by climate change advocates and scientists (Moser, 2007; Simpson, 2011). However, some participants have not felt discouraged from engaging in environmental issues despite those negative perceptions of the environmental information. This finding is contrary to the TPB models which have suggested that unfavorable perception leads to discouragement of behavioral intention. The participants perceive the discomfortable feelings as necessary and helpful for their environmentally conscious intentions. This accords with another participant’s statement, which showed that she uses the environmental information on social media as a quick reminder of commitment to keeping her practices based on a certain emotion induced by the information. These findings can provide further study points about the variation in negative emotion tolerance of individuals and emotional motivation of pro-environmental behaviors.

Beyond the affective perception, most individuals tend only to find environmental information on social media credible whilst they distrust other social media information. As discussed previously, it can be directly based on individuals’ own beliefs and attitudes, but also the discussion could be extended to interpersonal credibility built in social media. According to Turcotte et al. (2015), the credibility of those who share the information also determines how individuals perceive the information. The findings indicate that considering the presence of the information in individuals’ social network or advocacy of the NGOs’ ethos at first place could support, in turn, the importance of NGOs’ branding strategies and their agendamelding effect.

Another finding that stands out from the earlier results are that participants perceive various disconnections regarding environmental issues. The first type of disconnection perceived across the countries is between environmental NGOs and the public, including themselves, in their society. The second type of disconnection, identified by Norwegian participants, refers to the

fragmentation of social groups among the public. The third type of disconnection, identified by Korean participants, indicates that the environmental agenda is perceived to lack an understanding of Korean culture or social infrastructure.

Finally, through integrating those results, this study reveals gaps in environmental communication between the environmental NGOs and the individuals despite some accordance. Firstly, across Norway and Korea, while the NGOs highlight hopeful tones and soluble aspects of the issues, the individuals still tend to have negative and anxiety-based perceptions toward environmental information and NGOs' messaging. The environmental NGOs know the dilemma between 'what people should know' and 'what people want to know' when creating and sharing their content. In line with this, environmental groups often face challenges in attracting audiences through their content while keeping their identity and original intention. Moreover, they tend to enlarge their audiences only among those already interested in environmental issues, rather than embracing those who are not interested or skeptical. Meanwhile, individuals from Korea perceive disconnection between themselves as the public and environmental groups while perceiving environmental groups' messages as perceiving disconnection between themselves as the public and environmental groups while perceiving environmental groups' messages as unfavorable. Secondly, in Norway, while the NGOs specifically emphasize political approach to the environmental issues, the participants are likely to believe environmental messages should provide more individual-inclusive information details. On the other hand, in Korea, while the NGOs highlight the personal matters of environmental issues and individual action-oriented messages, the participants tend to perceive their agenda to be distant and insufficient to make a big difference, and to expect them to mobilize upper-levels of entities rather than individuals. Aligning with the surveys already mentioned above, these gaps also could be associated with the finding of the different levels of individuals' PBC between Korea and Norway. content while keeping their identity and original intention.

5. Conclusions

Social media has altered how people access, share, produce, and process environmental information and perceive agencies that disseminate the content. The array of social media technologies allows for bidirectional relationships between agenda producers and recipients, and far-reaching and autonomous information processing. As a result, nowadays, environmental groups actively post their environmental messages and people are engaged by the content at the same forum of social media. Along with the growth of environmental communication studies, researchers have also joined the increased interest in using social media in environmental communication. Various interdisciplinary studies have thus examined the effects of social media on individuals' green choices and behaviors, and communication strategies of environmental groups through social media. However, little is known about the mutual relationship between individuals and environmental groups on social media, making it difficult to provide a comprehensive picture of their environmental communication.

This study explores environmental communication between environmental experts and the public by linking environmental agenda strategies with public perception and potential communication barriers. Furthermore, this study aims to assess the influence of cultural context on environmental communication by reflecting differences between Norway and South Korea. Through this, the study's findings hope to offer an empirical case that organically presents the public perception corresponding to the communication strategies of environmental groups. For this purpose, environmental NGOs and the individuals from Norway and South Korea, respectively, are investigated through in-depth interviews. Within the theme of pro-environmental engagement, the NGOs are delved into their current strategies and methods to communicate the public while the individuals are investigated about their perceptions of environmental groups and messages and derived motivation. Two main theoretical models, Agenda-Setting Theory and Theory of Planned Behavior are adopted to evaluate the effectiveness of the NGOs' communication strategies, and to comprehend varied determinants influencing individual motivation, respectively. At the same time, those theories posit that NGOs' social media agenda impacts public perceptions of a certain issue and individuals' perceptions of a specific issue also lead to their motivation and behavior.

Based on the research aim, this study has first presented how environmental NGOs strategically disseminate climate change and environmental issues on their social media channels in Norway and South Korea. The results of this organizational level analysis emphasize cultural differences between Norway and Korea in terms of the various strategies they use to shape and convey environmental information to the public. For example, Norwegian groups tend to link political implication to environmental issues to mobilize the public as supporters of their political lobbying. In contrast, Korean groups prioritize making individuals take the issues personally. Apart from cultural differences, the environmental NGOs often share similar strategies regarding overall social media platform use and messaging tones based on consciousness of their impact of agenda-setting. For instance, they all actively utilize social media platforms to reach larger audiences and public visibility. At the same time, there is sometimes differential use of platforms depending on the details of campaigns or messages. Additionally, they tend to favor optimistic and solution-oriented information to encourage the public to engage in the issues they convey.

The research has also shown how individuals perceive overall environmental NGOs and their messages and information on social media. Additionally, it presents how those perceptions influence individual motivation. For instance, the findings portray the likelihood of perceiving environmental information as negative and anxiety-inducing in general, which is in discord with the NGOs' current strategies. In other words, individuals investigated tend to have unfavorable perception toward environmental information while the NGOs emphasize hopeful and optimistic aspects of their information. Furthermore, with the view of Theory of Planned Behavior, the findings imply that the level of self-efficacy (perception of behavioral control) regarding climate change mitigation is the most significant determinant of pro-environmental behavioral motivation. This outcome particularly stands out among Korean groups and leads to their expectation of political approach from NGOs instead of individual scale. These findings bring up another discord with the Korean NGOs' individual-oriented agenda-setting. Additionally, attitudes sometimes do

not lead to consistent behavioral intention, while perception of behavioral control in a particular issue is likely to be compatible with individuals' overall environmental engagement.

By integrating the findings, this study also identifies some gaps in environmental communication at various levels. Comparison between the two spheres of NGOs and the public presents the intention of NGOs strategies of messaging does not align with public perceptions and demands based on the message tones, issue salience, targeted scale of mitigation efforts. Furthermore, comparison between Norway and Korea represents the implication of cultural difference to environmental communication. For example, the results specially stress that the level of self-efficacy among the citizens influences the public demands for environmental communication, and their perception toward environmental message, which vary between Norway and Korea. Considering needs involves individual willingness, namely, this implication argues that environmental advocacy without adjusting these social cultural features could be barriers for individuals to engage in the messages.

This study generally supports the principles of environmental communication, especially in terms of the relationship between environmental advocates of NGOs and public sphere on social media. The results of this study contribute to portraying how both experts and general individuals interact with environmental agenda on social media while analyzing the phenomenon with two theoretical models. Also, it certainly adds to empirical details of the current communication ecosystem between those two different spheres, including various social media communication strategies. Another contribution of this study lies in the intersections of different spheres: Findings based on one intersection between NGOs and the public in this study reveals that there are several gaps between environmental agenda strategies and individual perceptions towards those environmental content. Other findings from the relationship between individual perceptions and motivations represent an aspect of attitude-behavior gap in online environmental communication, and potential impediments to attempt to adopt eco-friendly behaviors. Lastly, other findings based on comparing cases from Norway and South Korea shed new light on cultural aspects when it comes to constructing environmental communication strategies. Furthermore, by connecting those findings again, this study has also emphasized the role of individuals' self-efficacy or perception of behavioral control over environmental mitigation efforts in promoting individual motivation to follow environmental messages. This is identified by recurred responses that indicate discrepancies in perceived behavioral control, demands for mitigation efforts, and perception of environmental messages between Norwegian groups and Korean ones.

Alongside these findings, this study has thrown up many questions in need of further investigation. The abundant details of perceptions and process of decision-making among participants captured by in-depth interviews provide some fruitful points for future research. For example, further research is needed to fully understand the cultural implications of the different communication strategies, focusing on "why"—"why the Korean public is likely to have low self-efficacy?" or "Why have Norwegian public groups become fragmented, and how does it affect environmental communication strategies in Norway?". Moreover, this study should be repeated matching different levels of stakeholders in the process of environmental communication while accounting for the latest trend of social media use. On the other hand, limitations of social media activism,

such as so-called ‘clicktivism’ and ‘slacktivism’, echo chambers and commodification (Jacqmarcq, 2021; Cox, 2013), also should be estimated in the way of investigating sustainability of environmental communication itself. If the debate is to be moved forward, further studies could explore a better understanding of benchmarking in environmental communication strategies for both environmental groups and policymakers.

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7. Appendix

Appendix 1: Interview guideline for environmental NGOs

Part I.

1. What is your main focusing agenda and main strategy (method) to achieve your vision?
2. What resources do you guarantee to process coverage of climate-science information/the initial data?
 - 2.1. What resources do you prioritize when selecting climate agenda to be on social media?
 - 2.2. What principles/guidelines do you follow when researching raw data/information? And where and how do you investigate the data required?
3. To what extent do you value public communication (: making science messages understandable; building trust and credibility; listening to the public; caring about the public's views; framing messages to resonate with audiences' pre-existing values)
4. To what extent do you invest in media relations team/department/practitioners?
 - 4-1. How many members are there in the media team?
 - 4-2. What different positions does it consist in the team?
 - 4-3. How do they cooperate with other teams/departments in the organization when releasing social media content?
5. With what purpose/expectation do you invest in social media? At which stage/aspect do you the most devote to planning social media contents/public relations?
e.g., raising awareness of climate issues, providing scientific information, fundraising, engaging in movements such as demonstration and campaign, etc.
6. Have you ever changed your social media strategies or publishing policies according to time such as regime change or climate issue trend? If so, what have influenced the change?

Part II.

1. Do you use different platforms according to different goals? How many different platforms do you manage?
e.g., Instagram, KakaoTalk (Chat-app), Portal Blog – Naver, Daum, etc., YouTube, Podcast (Radio), Facebook, Twitter, Band (Naver), Google, Own website, Newsletter, etc.

1-1. Which platforms do you use for what goal, respectively?

e.g., fund raising/educating information or knowledge in itself/promoting campaign/etc.

1-2. Which platforms do you invest in the most? Or which platforms do you prefer to invest in and why?

2. In which way do your methods perform when creating/releasing your agenda via social media?

2-1. What strategies do you focus on for framing messages?

e.g., Impacts (consequences of climate change); Actions (adaptation and mitigation actions); Efficacy (individuals' perception of awareness of problems and willingness to solve the problem)

2-1-1. (*Impacts*) What types impact of climate change do you emphasize?

e.g., heat wave, sea level rise, warming temperature, species extinction, natural disaster, etc.

2-1-2. (*Actions*) What action-agenda do you emphasize?

e.g., limiting the use of fossil fuels/coal, using clean energy, zero-waste, recycling, calling congresspeople, social movements/protest, etc.

2-1-3. (*Efficacy*) To what extent of mitigation/adaptation to climate change do you expect from your messages/posts?

2-2. What tones do you emphasize?

e.g., fears (gain-negative frames) - hope; abstract message - specific rules to practice; criticizing/warning - suggesting; optimistic (technology-oriented/achievements-oriented, etc.)

2-3. How do you translate scientific language into general words for the public audience? Any guidelines?

2-4. What scopes of climate issues do you address?

e.g., temporality (happens in the past, now, or in the future); spatiality (globally, nationally, or locally) etc.

2-5. What form do you think the most effectively apply to your strategies?

e.g., picture; video; text; audio, etc.

2-6. Which groups do you specifically target to deliver messages? Which group do you expect to be the most likely to materialize the messages?

e.g., High/medium/low awareness level about climate; individuals; business; government, etc.

2-6-1. Do you also consider the opponent against your agenda when creating media content?

2-6-2. What types of engagement do you aim people's acting?

e.g., political protest; social campaign; individual daily habits, etc.

Part III

1. How do you listen to feedback/suggestions from audiences? (incl. complaint)

1-1. How many channels for feedback do you open? And in which way do audiences contact you?

e.g., Online reactions - comments, messages, mail, etc.; phone; visiting, etc.

1-2. How often do you receive feedback/suggestions from audiences and react to them?

1-3. What types of feedback/suggestions do you receive from audiences?

e.g., social media content, use of platform, partnership, viral challenge, etc.

2. What process do you follow when you internally evaluate operating social media channels and reflect feedback?

e.g., likes/comments/shares/followers-unfollows/mentions/click-through rate, etc.

3. Do you collaborate with other organizations/companies/research institutions/news media?

3-1. How often do you contact or get contact from them and how does it process?

4. In which way do different regime and governmental policies influence to your planning climate agenda or campaign?

4-1. Have you ever seen change in the audiences' feedback and use of social media channel according to regime change or social trend? If so, what and how was it?

5. What are the difficulties when you plan and operate climate action via social media? And in which way do you compensate them?

Appendix 2: Interview guideline for individual participants

- How often and long do you use social media or spend your time on the Internet in a day?
- How much do you spend your time on leisure or hobbies in a day?

1. What level of ‘environmental engagement’ would you rate yourself regarding your awareness and practice within climate change or environmental issue? Why do you think so?

e.g., High awareness of climate change, and the awareness is likely to lead to any practice in lifestyle;

Medium awareness of climate change, and the awareness sometimes leads to any practice in lifestyle

(- e.g., following/subscribing any climate action social media accounts);

Low awareness/interest of climate change, and there is barely environmental practice in lifestyle.

2. Which social media platforms do you use the most in daily life? What platform do you prefer?

e.g., Instagram, TikTok, YouTube, Facebook, Twitter, etc.

2-1. Why do you use or prefer that platform?

2-2. Do you intentionally use specific platforms according to specific motivations? Please describe it

2-3. Which platforms do you find the most useful to acquire information?

2-3-1. To what extent do you trust the information on those social media platforms? And what makes you more/less trust the information on those platforms?

2-3-2. What preconception or impression about social media platforms that you use in general, and why? Do you think the impression influences your processing the information from the platforms?

2-3-3. Have you ever bothered by any social media contents while acquiring and processing the information through the platforms? Please describe it.

e.g., fake news, clickbait, arguments on comments, accessibility to platforms, etc.

2-4. Which platforms would you choose if you were motivated to keep yourself updated with climate/environmental issues, and why? Both online and physically channels can be included here.

3. Have you ever felt any difficulty in understanding scientific information and data from climate/environmental contents?

- 3-1. To what extent do you trust the information and data from the climate/environmental contents?
- 3-1-1. To what extent do you trust the information and data reformatted or secondary elaborated on social media platforms?
 - 3-1-2. What makes the information on online contents reliable to you?
 - 3-1-3. Do you think the reliability of the information could be influenced by the platforms where the contents are published? If so, please describe it.
4. To what extent do you think you are exposed to climate/environmental issues on your online daily life or social media feed?
- 4-1. What do you tend to do – i.e., skip or read through – when you encounter new random contents on your online feed? And why?
 - 4-2. What would you feel if the random contents are related to environmental issues? If it happened repeatedly as often, what would you feel about the content?
 - 4-3. Have you ever started to follow/subscribe to the content channel since they came into your online feed? If so, what element of the contents particularly made you do that?
5. Do you follow or subscribe to any online channels or platforms talking about climate/environment?
- 5-1. How did you find them? And what makes you keep following/subscribing to them the most?
 - 5-2. Have you ever quit following/subscribing to them? What makes you stop doing?
 - 5-3. Do you practically learn new information via the channels you subscribe to? To what extent do you think you have learned from them?
 - 5-4. What do you find their contents regarding their tones, thumbnail, and so on?
e.g., aggressive; optimistic; clickbait, etc.
 - 5-5. Would you be likely to recommend the channel that you follow to others, and why?
6. How do you **feel** about environmental NGOs in usual? What roles do you expect from them?
- 6-1. What roles do you think the environmental NGOs are playing in Norwegian society? Is there a gap between your expectation and their actual work in reality? Please describe it.

- 6-1-1. What efficacy would you expect from online contents if you subscribed to the channels or social media platforms talking about climate/environment?
- 6-2. Do you think the environmentalists and NGOs actively interact with people outside them? Or have you ever felt it is challenging to join or approach them, and why?
- 6-3. What do you usually feel about general contents addressing climate/environmental issues, and why?
- 6-3-1. Do you think your view (Q.6-3) is consistent with those around you or mainstream in Norway, and why?
- 6-3-2. Do you think the online channels which publish climate/environment-contents are meeting public demand including yours? If not, why do think so?
7. What contents do you want to see on your online feed?
- 7-1. What environmental issue do you find the most important to address in Norway, and around your life?
- e.g., oil, windmill, food waste, recycling, abnormal weather, etc.*
- 7-1-1. To what extent do you agree with the agenda and message that environmental NGOs publish on online channels, and why? If you disagree, what makes you disagree?
- 7-2. To what extent do you feel related to their contents suggesting actions for their messages?
- 7-2-1. What elements of the contents make you feel related? Or what type of contents make you motivated?
- 7-2-2. Do you think their contents are realistic/practical or tempting enough to (be motivated to) participate in their suggestions? If not, why?
- 7-3-3. What type of contents tempt you into reacting online?
- e.g., liking, sharing, hash-tagging, commenting, subscribing, etc.*
- 7-3. What tone do you think the climate/environment-contents and NGOs' messages have?
- 7-3-1. Have you ever experienced climate/environment-contents that make you feel uncomfortable or against, or the opposite? Please describe it.
- 7-3-2. What tone of contents do you prefer or need more? Why?
- 7-4. What do you think about the environmental NGO's targeting groups?

8. Do you have any pro-environmental habits or principles in your daily life, or have you ever adopted new ones or changed your old habits?
e.g., Using less electricity home, biking rather than driving a car, buying green products, zero-waste lifestyle, eating vegetarian/vegan food, etc.

8-1. What was the motivation?

8-1-1. Have you ever been motivated to practice what you learned from online contents?

8-1-2. If you say 'yes' to the above question, what elements of the contents particularly made you motivated?

8-1-3. What types of contents do you find the most influential to your current perception or decision making? (What content were the most remembered, and why?)

e.g., warning of consequences of climate change with pictures or videos over the world, pleasant tone and optimistic achievements giving hope to mitigate problems, immediate and local issues, etc.

8-2. What is your threshold of pro-environmental activities or reluctant actions? Why so?

e.g., offline demonstrations, veganism, signing up a petition, sharing online post on your social media, commenting, etc.

8-2-1. Have you ever changed your threshold after seeing or learning via online contents?

8-3. Have you ever been motivated to join or changed your view by any external reasons such as fashions, social atmosphere, or political regime change by time?

e.g., energy policy change by regime, pandemic, minimalism fashion, etc.

9. What do you think about climate/environment maturity or sensitivity of Norwegian people and society? And why do you think so?

9-1. What impact do you think Norwegian environmentalist's activities and their contents displayed/shown on media and online channels have on participation and maturity of Norwegian people? And Why?

9-2. What direction do you think Norwegian environmental movement should go? Or what do you think it should overcome or compensate for future?