A Study on the Proposal of Climate Crisis Symbol Pictogram

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Abstract

We live by using various pictograms in our daily lives. Pictograms are a symbolic picture language and have the advantage that anyone can easily and quickly recognize them. In particular, pictograms that announce disaster situations are widely used in each country. This is an era of climate crisis. Climate disasters are getting more and more serious. However, we are not officially using pictograms that symbolize the climate crisis. This overlooks the seriousness of the climate crisis. In this study, we would like to propose a climate crisis symbol pictogram that can be used together by the world. It is designed to visually recognize the climate crisis by synthesizing the graph of the increase in global surface temperature in the IPCC 6th report and the heating stripes of Professor Ed Hawkins at the University of Reading in the UK. It is expected that international organizations related to the climate crisis, such as IPCC, UNFCCC, and UNEP, will use this pictogram in various ways to publicize the seriousness of the climate crisis.

Key words:, climate crisis pictogram, climate disaster, pictogram

I. Introduction

We usually spend a lot of time and energy accessing and delivering a lot of information. More over, the more advanced urbanization and industrialization are, the more difficult and diversified it is to receive and deliver such information. In particular, in a global system in which the world moves like a living area, communication is often difficult or impossible due to various customs, l anguages, and differences in letters in each country.

A pictogram, a type of picture symbol, is one of the easiest and fastest recognizable visual lan guages among various social means of communication and refers to the entire pictured sign (Park Eun-sil, 2019: 452, Choi Kyung-ho et al., 2022: 454). Such a pictogram is a combination of a picto meaning a picture and a telegram meaning a telegram (Park Woo-geun et al., 2008: 48). Al though these pictograms have clear limitations compared to spoken languages, they can be placed on the same level as human spoken languages in terms of communication (Park Ji-hae et al., 201 8: 125). Pictogram is a simple and clear visual language that anyone can easily understand and r emember beyond language or cultural differences (Ju Jae-sang et al., 2023: 130). This is the bigg est advantage of Pictogram. Therefore, it is widely used in international events, including the Oly mpics, government offices, museums, and public transportation, as well as product manuals, mobil e phone screens, and websites (Park Ji-hae et al., 2018: 125).

Now, the whole world is suffering from the climate crisis. The climate crisis has now become a very complex risk that seriously threatens the survival of mankind (Swim et al., 2011). Moreover, the aspects of climate disasters are becoming more complex, diversification, enforcement, and frequent than in the past. This is called the 'CDEF phenomenon of disaster' (Kim Yeon-jun et al., 2024:25).

In such a situation, a pictogram that expresses the risk situation of the climate crisis in a convincing symbolic image is needed. This is because it is necessary to induce changes in attitudes and behaviors in response to climate crisis situations by visually recognizing the severity of the climate crisis, and to link them to the realization of carbon neutrality. The establishment of visually systematic 'Warning Pictogram Designs' must be an attractive tool to improve social response capabilities to climate disasters (Park Min-ah et al., 2023: 165).

Unfortunately, however, symbolic pictograms that allow people around the world to commonly recognize the reality of the climate crisis have not yet been used. International climate-related organizations, such as the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Framework Convention on Climate Change (UNEP), and the United Nations Environment Program (UNEP), do not use official 'climate crisis symbol pictograms'.

Although each person uses images such as "Burning Earth," "Broken Lake Floor," and "Wandering Polar Bear," there is a limit to clearly communicating the climate crisis situation. Based on these basic premises, this study proposes a "climate crisis symbol pictogram" that can clearly express the risk situation of the climate crisis we are in by improving our visual image.

II. Theoretical Discussions

1. Definition of pictograms

The definition of pictograms is almost equal to each scholar. It is defined as a symbolic character that allows the visual recognition of the meaning of an object by representing objects, facilities, actions, and concepts as symbolic pictures (Ham Young-hoon, 2013: 35), and is also defined as a picture language, an international symbolic system and symbolic system created for the purpose of conveying the meaning of an object most accurately and quickly (Choi Joon-seok, 2011: 87).

Taken together, a pictogram can be defined as a symbolic picture character expressed so that all unspecified people around the world can quickly and easily recognize objects, facilities, and actions.

<Table 1> Definition of pictograms

Author	Definition
Ham Young-hoon (2013: 35)	Symbolic characters that represent objects, facilities, actions, concepts, etc. in symbolic pictures so that the meaning of the object can be visually recognized easily and quickly
Ryu Han-sul et al. (2020: 115)	Picture characters symbolically representing objects, facilities, behaviors, concepts, etc. so that the general public can easily recognize them
Choi Joon-seok (2011:87)	Picture language, an international symbolic system and symbolic system designed to convey the meaning of the object most accurately and quickly
Shin Seok-gyu (2009: 275)	Visual design that symbolizes objects, facilities, and actions so that many unspecified people can quickly and easily understand it

* Author written

2. History of pictograms

Since primitive times, humans have tried to give meaning to various objects and embody and shape their inner souls through the process (Sin Seok-gyu, 2009: 275). Historically, ancient characters such as Chinese characters and Egyptian hieroglyphs began with hieroglyphs that created meaning by modeling the shape of objects, and cuneiform characters used by Sumerians in Mesopotamia can be said to have initially started in the same form as pictograms.

Founded by Austrian scientific philosopher and sociologist Otto Neurath (1882-1945), the International System of Typographic Picture Education (ISOTYPE) is the beginning of true pictograms in that it standardized the form of pictograms and established a system of information and message delivery. The 1964 Tokyo Olympics were evaluated as groundbreaking in the history of design communication by using pictograms for the first time in sports events to facilitate communication among people around the world with different languages and cultures (Choi Jun-seok, 2011: 88).

3. Features and Conditions of Pictograms

Pictogram is a national or internationally promised visual common language and is a symbolic system, a symbolic system, and a rule (Kang Ah-young et al., 2010: 165). Therefore, pictogram has a guiding function, a command function, and a symbolic function. The guiding function is a function of indicating and informing an unspecified number of people about something in a major life scene. The command function is a function of instructing actions or omissions for the maintenance of public order and safety on a legal basis. A symbolic function is a function of proving or guaranteeing something, or representing confirmation and identification (Park Eun-sil, 2021: 2740).

<Table 2> Top 5 Conditions for Pictograms

Sortation	content
Universality	Everyone should be aware of data and concepts based on objective facts, regard less of gender, age, religion, or race
Perceptibility	It should be easy to identify the object to be expressed, and it should be easy to convey meaning through sufficient representation work
Unity	Different shapes should be consistent with the simplicity of the configuration in a certain format
Interest	There should be fun expressions that can naturally draw attention
Suitability	Ensure that the image of the final result matches any space or sculpture

* Data: Park Ji-hae et al., 2018: 125-126.

A pictogram that performs these functions must meet five conditions. First, it is necessary to br eak away from personal ideas in expression and have universality that can be recognized by anyo ne through objective judgment and faithfulness of expression. Second, it is necessary to have a p erception that can be easily identified by sufficiently expressing the object to be expressed (thing, facilities, actions, etc.). Third, even though the shape of the object to be expressed is different, i t must have a certain format and have uniformity that matches the style. Fourth, there should be interest in expression that can attract people's attention. Fifth, as a form of the final result, there must be suitability that matches the surrounding situation.

4. The field of use of pictograms

In modern society, the field of use of pictograms is expanding as demands for convenience of communication and prevention of safety accidents increase. In particular, the climate disaster warn ing pictogram as a symbolic language that greatly affects the people's decision-making in the eve nt of an emergency caused by bad weather is designed as one of the national disaster safety syst ems and delivered to the people (Park Min-ah, 2023: 165).

In order for such warning designs to be effective, attention is most important than anything els e, and in order to capture people's attention, consideration should be given to font size and thick ness, font, complementary colors, borders, picture symbols, and special effects such as blinking li ght (Sarah Davies et al., 1998).

In addition, there are a wide variety of pictograms used in life. As shown in Figure 1, various pictograms are used in our entire life, and major public facilities and safety-related pictograms ar e used as shown in Figure 2.

<Figure 1> Various pictograms

*Data: Choi Jeong-won et al.(2022: 44) Re-admission

<Figure 2> Various facilities & safety-related pictograms

*Data: Park Eun-sil (2021: 2741) Re-admission

III. Necessity of Use of 'Climate Crisis Symbol Picogram'

1. Logo images of major international organizations related to the climate crisis

It has been 36 years since the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988 to jointly evaluate global risks related to climate change and come up with international measures. In addition, the Conference of the Parties (COP) was held almost every year by the parties who joined the United Nations Framework Convention on Climate Change (UNFCCC) signed in Rio, Brazil in 1992 to cope with global climate change.

The first meeting was held in Berlin, Germany, in 1995. The 28th meeting was held in Dubai, the United Arab Emirates in 2023, and the 29th meeting will be held in Baku, Azerbaijan, in November this year. Despite the fact that the international history of climate change and the climate crisis is not short, and the need for "repeated emphasis" on the seriousness of the climate crisis for all mankind, there is no "climate crisis symbol pictogram" that can represent such a climate crisis situation internationally.

Color, one of the components of pictogram design, is an important factor that affects both the

functional and aesthetic aspects of the pictogram, and the efficiency of visual search can be great ly improved depending on the color applied to the pictogram (Jongwon Choi et al., 2022: 42). N evertheless, the logos of major international organizations cannot find the seriousness and urgency of the climate crisis anywhere in similar colors and mediocrity.

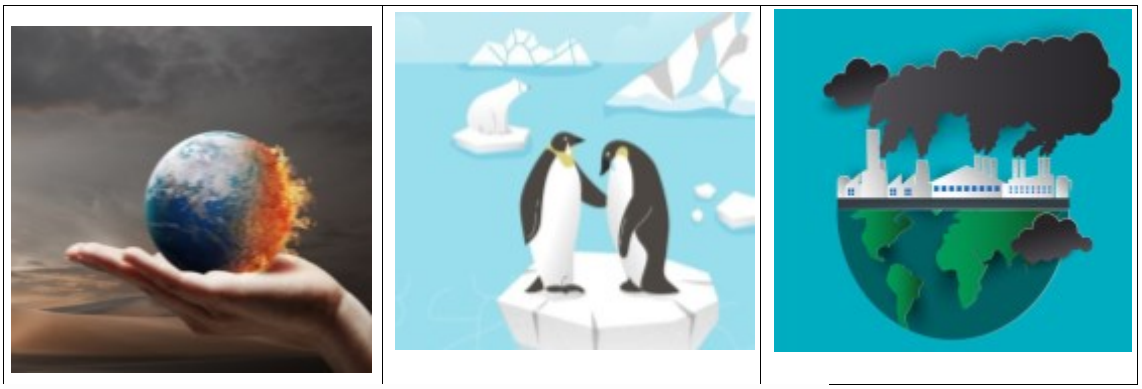
The 'Climate Crisis Symbol Pictogram' is more needed for the vulnerable. Various climate disas ters that have recently occurred are more vulnerable to underdeveloped countries than developed c ountries. Many countries in Africa still have high illiteracy rates, and India uses 14 languages an d 1,600 dialects (Choi Jun-seok, 2011: 93). Given this situation, the 'Climate Crisis Symbol Picto gram' may be more effective than recognizing the climate crisis in ordinary words and writings.

<Figure 3> Logos of major international organizations related to climate crisis

2. Common Use Images for Climate Crisis

Since there is no unified representative image symbolizing the climate crisis, each person is cre ating and using an arbitrary image according to the situation. In expressing the desperate climate crisis, it may be more desirable to use various images rather than just a unified image. However, if a unified image is created and used in parallel, it will be more effective in imprinting the clim ate crisis on the general public.

Subway and hospitals provide convenience to users by presenting routes and directions only wit h colors. When the universal meaning of color and the object represented by the pictogram are li nked, the meaning can be conveyed smoothly because people go through the process of interpreti ng it based on existing knowledge and experience as they perceive color (Choi Jung-won et al., 2022: 43).

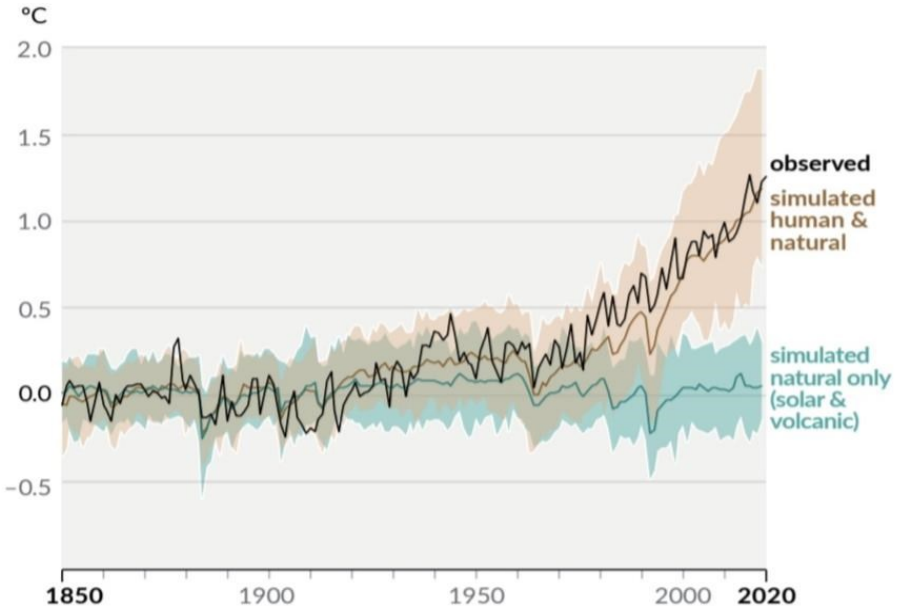


<Figure 4> Common images used for climate change and climate crisis

3. A graph of changes in the global surface temperature of IPCC

This graph shows the simulation results that take into account human and natural factors and only natural factors for the observations of global surface temperature changes (annual average) from 1850 to 2020 when the IPCC released its sixth report (IPCC, 2021: 7). In other words, it shows that the Earth's surface temperature remains relatively stable within a certain range (-0.5~0.5□) if only natural factors (-0.5~0.5□). However, this is not the key point. The key point of this graph is to show is to show that the global surface temperature is rising rapidly (the flesh part) when human artificial activity is added to natural factors.

In a serious climate crisis situation, it is necessary to emphasize the flesh part rather than designing the blue part (natural factor) and the flesh part (natural + artificial factor) equally.



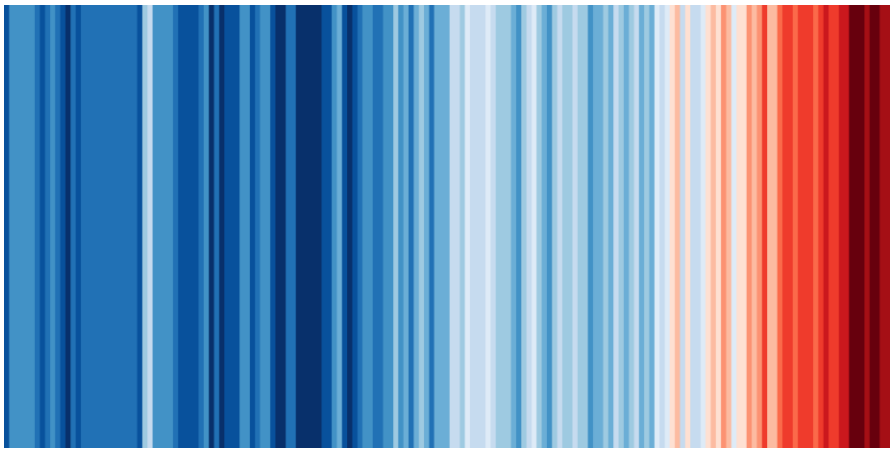
<Figure 5> Graph of changes in global surface temperature

* Source: IPCC(2021). p7, figure SPM.1: the history of global temperature and the causes of recent warming.

4. Warming Stripes

This is a graphic in the form of a barcode designed by Professor Ed Hawkins, a climate scient ist at the University of Reading in the UK, in 2018 to inform the seriousness of the climate crisi s. This is the expression of temperature change data measured in each country, region, or city fro m 1850 to 2022 as visual color changes, and each stripe represents the average temperature for o ne year.

The average temperature for the entire period from 1901 to 2018 is expressed in white, and ba sed on this, if the average annual temperature for a specific year is lower than the standard, it is expressed in a blue system, and if it is higher, it is expressed in a red system. Recently, deep r ed has been added, indicating that the climate crisis is becoming more serious.



<Figure 6> Warming stripes across the globe (GLOBE) from 1850 to 2022

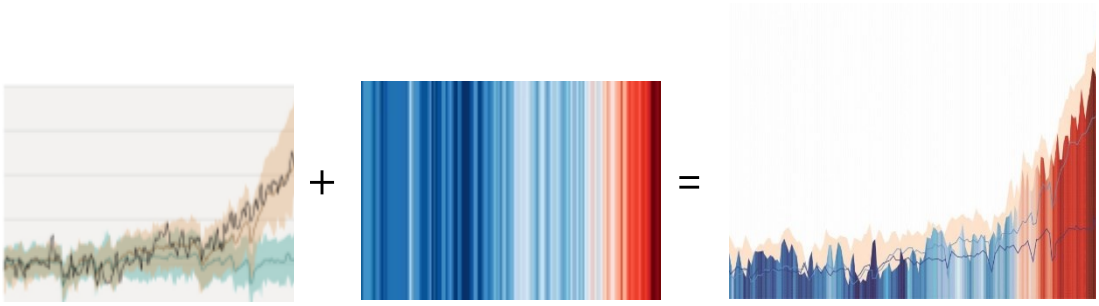
* Source: https://showyourstripes.info/ (Search date: 2024.05.12.16:01)

5. Climate crisis pictogram

The commonality between the global surface temperature change graph presented by the IPCC <Figure 3> and the warming stripes <Figure 4> devised by Professor Ed Hawkins is that it show s the seriousness of the climate crisis caused by the increase in global surface temperature from a planar perspective. However, given the deepening of the CDEF phenomenon of climate disaster s, the expressive power is somewhat weak.

Therefore, if (A) and (B) in Figure 7 are fused to create a new model such as (C), we can expect a visual and stereoscopic effect as a representative 'climate crisis symbol pictogram' that can see the seriousness of the climate crisis at a glance. In particular, the rapid increase in the global surface temperature is considered to be in accordance with the five conditions of the pictogram (universality, perception, unity, interest, and suitability) examined in <Table 4> by linking the rising graph and color. Even in the color distinction between blue and red, the climate crisis situation can be well

communicated. If general experience and knowledge are accumulated for many people over a long period of time, a specific object can form a strong association with a specific color, which can be associated with 'risk' through 'red' (Jongwon Choi et al., 2022: 43).



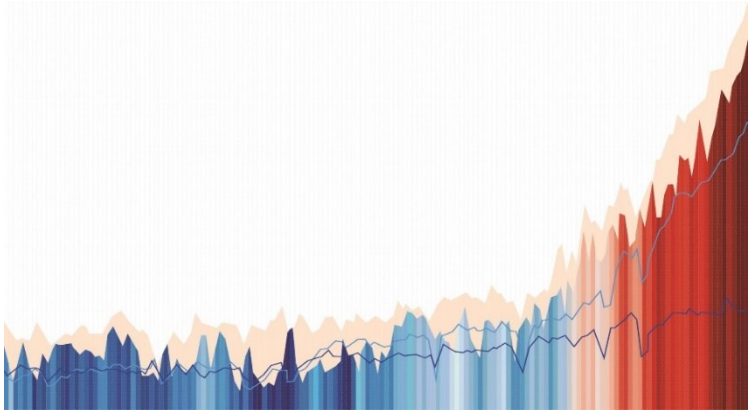
(A) (B) (C)

<Figure 7> The global surface temperature change graph(A), warming stripes(B), New model(C)

IV. Conclusion

A human society without symbols cannot exist, and all things in human society are symbols (Seok-gyu Shin, 2009: 278). One image can exert a more powerful effect than ten words. Therefore, it can be said that a representative pictogram symbolizing the climate crisis is essential in informing and recognizing the risk of the climate crisis. However, since systematic visual data on these pictograms have not yet been completed, data to help immediate recognition or understanding are insufficient (Min-ah Park et al., 2023: 166). In this situation, it should be possible to convey a message like a telegram through pictogram, a visual symbolic language, as shown in Figure 6.

This image was reflected on the cover of the "Climate Reflection Written together" book (by Kim Yeon-jun and Yeom Chang-yeol) published in March 2024, and is evaluated as properly expressing the climate crisis. There is a limitation in that empirical research on this model has not been conducted, so further research such as public opinion polls is needed in the future.



<Figure 8> Climate crisis symbol pictogram – author proposal

<Figure 9> Examples of using the climate crisis symbol pictogram

In conclusion, in a situation where the climate crisis is severe, there must be a visually unified representative image. Therefore, assuming that the image in Figure 6 is set as a representative i mage, it can be used by each institution and organization, including international organizations, as shown in Figure 7.

This can be an effective way to imprint the dangers of the climate crisis on all mankind. I thi nk it is necessary to form an international consensus and make efforts on this. This study is sign ificant in that it suggested the necessity and alternative to the use of Climate Crisis PictoGram (CCPG), which has not been attempted yet. It is hoped that the use of 'CCPG' will be activated worldwide as soon as possible so that a culture of practice for climate crisis reduction and climat e recovery can spread.

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