Journal of Education and Educational Research
ISSN: 2957-9465 | Vol. 5, No. 3, 2023

Embodied Environmental Crisis in Design Activism: the Influence of Digital Media Design Affordances on Information Dissemination and Public Engagement

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Abstract: Addressing the urgent environmental crisis is at the heart of this exploration, where design activism and the impact of digital media design on information dissemination and public engagement take center stage. With rising carbon emissions and human activities exacerbating environmental degradation, the role of designers in this context becomes crucial. The essay commences by underscoring human activities as major contributors to environmental decline, particularly within the Creative Industries. Despite initiatives such as the Ad Net Zero report, fundamental questions persist regarding the evolving role of designers amid this crisis. This study navigates through the complexities by delving into sustainable design approaches and challenging the traditional confines of graphic design. It extends the conversation to design activism, advocating for a broader role for graphic designers inspired by the principles of the "First Things First Manifestos." The essay also explores the transformative potential of technology, empowering designers to optimize information dissemination and enhance public engagement for a more sustainable society. Through insightful analysis and innovative exploration, this paper offers invaluable guidance for future designers, equipping them with essential insights and technology to positively impact the environment.

Keywords: Environmental Crisis; Immersive Virtual Reality; Embodied Interaction; Sustainability; Information Dissemination; Public Engagement.

1. Introduction

The United Nations' strategy (2015) of cutting carbon dioxide emissions to zero by 2050 has aroused everyone's concerns about the environmental crisis. According to the Report, Human activities are responsible for most environmental changes (BOP Consulting, 2022). In particular, As IEA indicates, the number of Global greenhouse gas emitted from mass consumption behaviors exceeded 36.6 billion tonnes in 2021 (IEA, 2022). Moreover, excessive greenhouse gas hastens global warming, endangering the existence of all organisms on Earth. Whereas, As an essential tool for economic development and entertainment, the Creative Industries has a pivotal role in contributing to greenhouse gas growth. More specifically, around 84000 tones of greenhouse gas are released annually to advocate consumer activities by the advertising design agency (ADVERTISING ASSOCIATION, 2022). Therefore, in response to the current climate crisis, the Advertising Association has launched the Ad Net Zero report, which stimulates designers to work towards eliminating carbon emissions by 2030 (ADVERTISING ASSOCIATION, 2020). However, As a graphic designer who will commence my professional career next year, I am confused about the role of a designer in the future creative sector in times of crisis. In addition, the ambitious goal of the Ad Net Zero strategy also raises questions about what skills. I should gain to develop creations that have no damage to Earth. Although designers over the past two decades have explored various sustainable approaches in design experiments, few have succeeded in addressing global warming. This report aims to investigate the responsibility of designers in the growing environmental crisis and examine innovative approaches that allow designers to implement sustainability. In particular, following the "First Thing First Manifestos," this report discusses graphic designers' potential beyond commercial advertising and analyzes the unsatisfactory sustainable practices from the late 20 century to today. Additionally, It discusses a recurring debate that designs activism as an alternative solution to the environmental problem. Finally, this report investigates what technology can assist graphic designers in increasing positive changes toward a sustainable community.

2. Background and Literature Review

2.1. Design & Environmental Crisis

In 1964, a group of responsible designers published the "First Things First Manifesto" to examine the social obligation of designers in a consumerism society. With the British economy booming after World War II, the consumerist culture prevailed in British society again. Businesses recognized the design as a tool to provoke the public desire for commodities by creating attractive advertisements. Thus, at that time, Merchandise dominated the belief of British society. (Matthew, 2004) However, excessive consumption has given rise to numerous social problems, especially the climate crisis. For example, The resource expenditure and pollution generated during the production, Transport, and recycling of commodities result in ascending greenhouse gas emissions, which enhances global warming (Waters, 2021). At the moment, graphic designer Ken Garland (1929) was aware of the damage wrought by consumption and how the designer could participate in this cycle through advertising. Firstly, in the manifesto, Garland criticized the status in which "the techniques and apparatus of advertising have persistently been presented to us as the most lucrative, effective and desirable means of using our talents" (Garland, 1964). Malcolm Barnard (1958) explains that, in the mid-twenty century, advertising design as an important cultural force gained the most awareness from the media and society, while

few people acknowledged graphic design as a whole (Barnard, 2005). Despite commercial advertising, Garland suggested that there are other media, such as signage, books, catalogs, manuals, photography, or educational aids, which promote the design trade (Garland, 1964). Furthermore, Garland did not completely deny the role of advertising in society and the design industry. As Garland stated, It is impossible to replace advertising since it is the majority source of public entertainment. However, "we are proposing a reversal of priorities in favor of the more useful and lasting forms of communication" (Garland, 1964). In other words, Graphic designers should benefit society, especially in contributing to optimizing our environment. As a result, the "First Things First Manifesto" encouraged graphic designers to admit their role in contributing to mass production and attempt to develop environmentally friendly practices.

2.2. A Critical Examination on Existing Inadequate Sustainable Design

Since the announcement of the "First Things First Manifesto 1964," numerous designers have explored sustainable consumption. Sustainable and Ecological movements exploded across the design industry during the late 20th century, and designers of all disciplines have attempted to minimize the environmental impacts of upcoming products and services (Madge, 1997, p. 44-54). During the 1980s, the graphic designer tends to express the ecological concept by literally turning it into green (see Figure 1). Since then, practices have developed to incorporate the energy efficiency process, durability, and recycling material into products (Madge, 1997, p.44-54). In 1988, John Elkington (1949) and Julia Hailes (1961) published Green Consumer Guide, detailing how to best consume in an environmentally friendly approach (Madge, 1997, p. 44-54). Although extensive practice has been carried out on ecological design, the previous practice failed to effectively implement environmental changes. According to the Advertising Association report in 2020, the UK advertising agency operational CO2e emissions to exceed 84,000 tonnes a year (ADVERTISING ASSOCIATION, 2020). Many of the current eco-friendly practices used in business are inadequate in solving the issue of over consumption. In contrast, it became a distinct visual style that caters to the growing consumer market and quickly spreads throughout society.



Figure 1. Duckhams Q Motor's Oil Pure Green Protection Advertisement by MOTORSPORT, 1979

2.3. Misleading Sustainable Design

A specific form of the "green" commercial design is greenwash advertising. This refers to misleading advertising that aims to convince consumers that products are green without the products themselves being environmentally friendly (Schmuck et al., 2018, p.127-145). SC Johnson's Windex Vinegar Ocean Plastic bottle advertisement is a typical example of greenwashing design (see Figure 2). In the advertisement, The Vinegar Ocean claims to be the world's first window-cleaner bottle made from 100 percent recycled ocean plastic. As we can see, designers used bold font to catch consumers' eyes on the statement "100 percent recycled ocean plastic bottle." Moreover, With the use of ocean and plastic bottle images, audiences get the impression that each bottle is retrieved from the ocean separately. Whereas, the managing partner of recycling firm Bantam Materials reports that "The sun and salt degrade plastic, and it is not usable for recycling. It is also not commercially viable or realistic to pull bottles out of the water at scale" (Hicks, 2021). As a result, it was confirmed that the plastic bottles of SC Johnson's Windex Vinegar originated from plastic banks in Haiti, the Philippines, and Indonesia, not from the ocean (Hicks, 2021). In this advertisement, designers mislead consumers' behaviors by portraying false images of a sustainable brand, which contributes to mass production. Accordingly, greenwash advertising is an inadequate sustainable design practice.



Figure 2. SC Johnson's Ocean Plastic Bottle Advertisement by Edie Newsroom, 2020

2.4. Deficiencies in Eco-Friendly Products

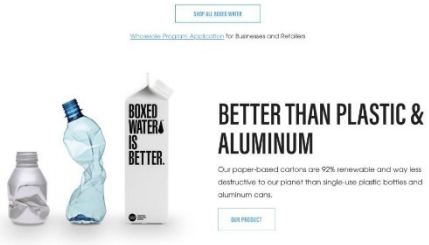


Figure 3. BOXEDWATER Website Page by BOXWEDATER, 2020

Another example of poor ecological design is the technocratic packaging design of the brand Boxed Water. Boxed Water focuses on "constantly exploring new technology to lessen the impact of pollution caused by the portable water market" (Kapadia, 2017). Instead of selling plastic bottles of water in the store, Boxed Water exploits the recyclable paper box and sells it online. On its website (see Figure 3), Boxed Water advocates that its product does less harm to our planet. Moreover, Designers compared the image of the recyclable box with destroyed plastic and aluminum bottle. This conveys the impression that the other bottles are trash and would endanger the environment. Besides, the limited color scheme of the packaging design and water drop icon echoes a pure and organic feeling to the target audiences. However, the recyclable box did not significantly affect packing pollution. Except for the recyclable paper, 1 % aluminum and 25 % plastic are in the box water carton to ensure the paper stays waterproof and fully sealed. However, there are a few recycling facilities that have the ability to process mixed materials cartons. According to Lizzy Rosenberg, Only about 62 percent of U.S. residents are able

to reuse cartons, while almost 90 percent of U.S. residents can easily recycle PET plastic (Rosenberg, 2022). As a result, Boxed Water provides an example of how sustainable product fails to tackle the environmental crisis. In this example, designers invented recycling packaging to minimize environmental impact while ignoring excessive packing water supply.

3. Methodology

3.1. Transition to A Sustainable Society

The failure of previous ecological innovations raises an argument about the liability of designers in our well-developed consumption society. Nowadays, With 4.4 billion consumers worldwide and projections for 5.6 billion by 2030, citizens have entered into an excessive consumerism era (THE WORLD COUNTS, 2022). This consumer growth has mostly outrun the most beneficial effects of sustainable products over the past few decades. Accordingly, In 2020, there were over 1600 designers across the world renewed their commitment to the “First Thing First Manifesto” to respond to the evolving consumer economy (Poynor, 2020). Reflecting on Garland’s “First Thing First Manifesto” in 1964, Contemporary designers encapsulated the mission of reducing consumption. As the manifesto states, “we can no longer push merely for sustainability but must create new systems that undo and heal what has been done”(Poynor, 2020). In other words, sustainable products are not enough to develop sustainability. This is because around half of global greenhouse gas emissions come solely from consumer behaviors (Cho, 2020). Therefore, the latest manifesto calls for designers to criticize the installed values of materialism to transform a sustainable world. However, Bierut (1957) debates that the idea that designers can modify the world is unrealistic. He claims, “It’s very empowering to think that you can manipulate the whole world, but as a full-time designer, there are not too many moments in the day when I think I possess that power” (Bierut, 2012). Professional designers and the public have regarded design as a commercial activity for decades. Designers are trained to respond to consumers and generate profits for the enterprise (Thorpe, 2010, p. 3-16). Whereas Victor Papanek explains in his book “Design for the Real World” that, There is no innate connection between Graphic Design and business. Designers exist to shift how people think about the world by communicating ideas (Papanek, 1927). In my opinion, designers are able to entice purchase; On the contrary, they can inspire individuals to resist mass production. As the climate crisis has grown, the obligation of designers has shifted from commercial actors to sustainable innovators. However, concerning the excessive consumerism culture of today, designers are compelled to become a pioneer, using powerful visual language to estimate positive changes and thus promote the transformation from a commercial society to a sustainable community.

3.2. Optimizing Global Communication with Innovative Strategies

Design in Anti consumption activism aimed to communicate and persuade people to make a radical change. The designers strive to reject the ever-growing commodity and incite environmental protection. Countdown champion of TED is a successful example of utilizing design to enhance communication. In this social champion, TED intends to explain the urgency of the current climate crisis and remind us to reflect on our consumption behaviors. (Maher, 2021) In this way, designers in &Walsh studio were committed to creating a visual metaphor to declare the concept of emergency (Maher, 2021). As you can see in Figure 4, the customized font overturned at the bottom resembles a flip clock. Moreover, the color yellow assigned to physical hazard marks echoes the sense of crisis. This solid visual statement of counting down allows the audience to understand the seriousness of the content immediately without knowing the word. In addition, evoking a specific emotion in visual images empower designers to persuade the audience to take action. As Fritsche indicates, "Anger or moral outrage encourages anti-consumerism activism" (Fritsche, et.al., 2018). He explained that the public feels threatened and disgruntled when the current climate protection policy fails to protect the environment. Thus, it forced people to accelerate solutions for the next generations. As figure 5 illustrates, designers create a new visual representative by combining the earth's image and a monument. This image enables the audience to make a natural association with death, which arouses an emotion of threat. According to a comment below the campaign Instagram, "I can feel the emergency, and we must take some action for our earth now" (Instagram, 2020). As a result, 53,000 people participated in this campaign on Instagram. The success of this activity is attributed to the application of innovative identity. In this case, Designers are hired to be activists and motivate people to make positive changes for our environment by providing effective communication and persuasion. Therefore, it is necessary for visual communicators to understand the psychology of individuals in activism. Moreover, This example also implies a demand to invent innovative strategies to optimize communications in the context of globalization.



Figure 4. The TED’s Countdown Event Logo Design by &Walsh Studio, 2022

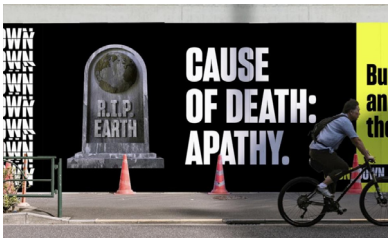


Figure 5. The TED’s Countdown Event Poster Design by &Walsh Studio, 2022

3.3. Defining the Effect of Infographic Design in Public Communication

Infographics allow designers to communicate complex information by visualizing the statistics into images. This is especially applicable to the anti-consumption movement because activists used to reveal the present environmental statistics to increase citizen awareness (Fritsche et al., 2018). Infographic design as a specific creation involves a collection of imagery, charts, bar graphs, and minimal text. Contrary to mundane information, this communication visualization

seeks to depict a story through associative visuals (Lane, 2012, p.10-14). Historically, writers and scientists employ Infographics to interpret obscure knowledge in books, medicine, science, and maps (Lane, 2012, p. 10-14). However, in recent years, with the widespread use of Infographic design in mass media, designers have attached importance to exploiting Infographics in radical communications. This is seen in the case of the Chinese environmental foundation, Rendu. Rendu intends to explain the intricate relationship between consumption and marine pollution with information visualizations. This Infographic (see figure 6) illustrates how plastic damages the ocean and kills marine animals after its breakdown. The designer in Rendu applied a limited color scheme and highlighted the essential data with bright orange. The information stands out from the blue background, providing viewers with a clear visual hierarchy and drawing attention to the terrifying statistics. In this way, it informs people about how plastic consumption will harm the marine environment. In addition, Figure 7 shows an intelligent method of displaying the percentage with customized graphics. By visualizing the toxic chemical's proportion of plastic in the image of a plastic bottle, viewers are able to distinguish the destruction of the chemical compositions with the sizes of color blocks. Furthermore, the tailored image of the plastic bottle supports the content of plastic consumption and contributes to building consistent storytelling. An activist in Rendu claims that these tailored images are more effective and engaging than data (Xiang, 2019). Dana Jandhyala explains why images are more powerful than words in conservation. As she points out, 90% of information transmitted to the human brain is graphics. The brain stores images in long-term memory while processing words in short-term memory (Jandhyala, 2017). As a result, the attempt to employ Infographic design in Rendu illustrates the potential of using Infographic as a communication tool in future activism. Therefore, designers will build broader communication between communities by transforming consumption statistics into customized visuals and developing a visual hierarchy.

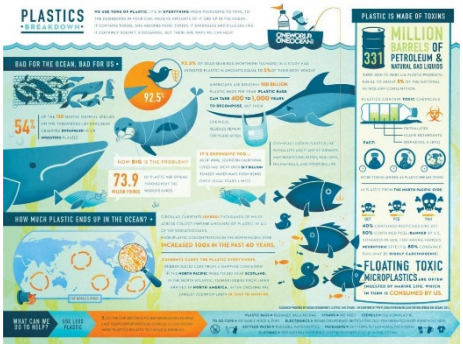


Figure 6. One World One Ocean Infographic by Rendu, 2019



Figure 7. Part of One World One Ocean Infographic by Rendu, 2019

3.4. Initiate Active Public Participation by Implementing Virtual Reality Technology

The development of digital technology, such as Augmented Reality, has offered possibilities for activists to engage in public activism. For decades, citizens have engaged in political activism through demonstrations or strikes on the street (DESIGN ACTIVISM, 2020). However, People in different countries could not participate together in the protest due to geographical limitations, especially during the pandemic. Nevertheless, the development and accessibility of Digital technology have revolutionized how protesters engage in the activity. In particular, Augmented Reality is a digital technology that embeds digital information, such as virtual images and audio, into real-life environments. (Schmalstieg, et.al., 2008) It allows everyone around the world to access the same digital experience with a smartphone. Thus activists realized Augmented Reality as a powerful tool for communicating their messages and sparking conversation with people worldwide. For example, Just Stop Oil was a global protest against British Petroleum oil. In 2010 British Petroleum oil pipe broke in the Gulf of Mexico. As a result, around 3.19 million barrels of oil leaked into the ocean, which caused massive pollution (Gayle, 2022). However, some protesters cannot attend the Gulf protest due to the financial burden of travel costs. In response, the digital artist Mark Skwarek and Joseph Hockin created an Augmented Reality application named "The leak in your home town" (Figure 8). After downloading the app, users are able to scan any British Petroleum logo near their home with the camera. Subsequently, they will interact with the broken 3D pipe with boiling oil erupting from the British Petroleum flower (Skwarek, 2018). In addition, Augmented Reality provides an immersive experience, allowing the audience to build an emotional resonance in reality created by designers. As Dayton Kelly states, "Immersive storytelling in mixed reality more broadly can arouse strong emotional reactions" (Silva, et.al., 2022). Mark and Joseph overloaded the flat image of the British oleum flower with three-dimensional digital animation. Users could interact with the pipe 360 degrees with their smartphones while watching the animated smoke. It allows for a more interactive experience for the participants and a heightened sense of urgency against British Petroleum oil. Consequently, Augmented Reality has the ability to reach and mobilize the global community by empowering remote engagement and evoking intense responses in an interactive experience. It reminds designers to use this technology to communicate with the public and thus create more remarkable global changes toward sustainability.

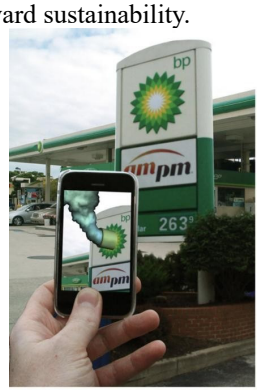


Figure 8. The Leak In Your Hometown Augmented Logo by Skwarek & Hocking, 2010

4. Conclusion

The report investigates effective methods to preserve the environment by offering an overview of sustainable design from the 20th century to today. Firstly, it analyses the "First Thing First Manifesto 1964" and confirms the designer's obligation to promote a better society. Furthermore, after analyzing historical and contemporary sustainable practices, this report concluded that the failure of the existing environmentally friendly approach was due to less attention to consumer belief. However, due to the insane growth of consumers, graphic designers must transform their roles from catering enterprises into actively interacting with communities, thus changing conventional consumerism behaviors. The shift towards society in design means designers should establish new ways of building relationships with the citizens. This report also discusses the effectiveness of advanced technologies, such as Infographics and Augmented Reality, in conveying information and persuading people to take action. The findings of this report provide insight into the design from an activist perspective. Compared to the previous approach of creating more environmentally friendly products, design activism is more effective at addressing climate change. This evolution in graphic design does not stem from design theory but from social demands. As a graphic designer, I am passionate about creating a better environment for the society. However, this report has certain limitations since it only examines design activism as an alternative solution to the climate crisis. Therefore, in my future practices, I intend to explore more effective and straightforward methods to drive positive change in consumption and help creative industries achieve the zero carbon dioxide goal by 2030.

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